نموذج وصف البرنامج الأكاديمي





اسم الجامعة: جامعة كلكامش

الكلية/ المعهد: الكلية التقنية الهندسية

القسم العلمي: هندسة تقنيات الامن السيبراني

اسم البرنامج الأكاديمي او المهني: بكالوريوس

اسم الشهادة النهائية: بكالوريوس في هندسة تقنيات الامن السيبراني

النظام الدراسي: بولونيا

تاريخ اعداد الوصف:

التوقيع :

اسم رئيس القسم: أ.د. أسعد عبد رحيم

التاريخ : ٧

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

1. نبذة عن القسم

يُعد قسم هندسة تقنيات الأمن السيبراني أحد الأقسام الحديثة والمتخصصة في الكلية التقنية الهندسية – جامعة كلكامش، والذي أُسس استجابةً للتطورات المتسارعة في مجالات التحول الرقمي وتكنولوجيا المعلومات، والحاجة المتزايدة إلى حماية الأنظمة والشبكات والبيانات من التهديدات والهجمات الإلكترونية.

باشر القسم باستقبال الطلبة في العام الدراسي 2025–2026، ويهدف إلى إعداد مهندسين تقنيين يمتلكون المعرفة العلمية والمهارات التطبيقية في مجالات تقنيات الأمن السيبراني، وأمن الشبكات، والحوسبة السحابية، واختبار الاختراق، وتحليل المخاطر الرقمية، وحماية البنى التحتية الرقمية، بما ينسجم مع متطلبات سوق العمل المحلي والإقليمي والعالمي.

يعتمد القسم على مناهج أكاديمية حديثة تجمع بين الجانب النظري والتطبيقي، مع التركيز على المختبرات التخصصية، والمحاكاة العملية، والتدريب الميداني، بما يسهم في إعداد خريجين قادرين على تصميم وتنفيذ وإدارة الأنظمة الأمنية الرقمية، والتعامل مع التهديدات السيبرانية وفق المعايير العالمية للجودة والأمن المعلوماتي.

2. رؤية البرنامج

الريادة والتميز في مجال هندسة تقنيات الأمن السيبراني، من خلال إعداد مهندسين تقنيين يمتلكون الكفاءة العلمية والمهارية والقدرة على الابتكار، وقادرين على حماية الأنظمة الرقمية والبنى التحتية المعلوماتية وفق معايير الجودة والاعتماد الأكاديمي، بما يسهم في تحقيق الأمن الرقمي والتنمية المستدامة.

3. رسالة البرنامج

يسعى قسم هندسة تقنيات الأمن السيبراني إلى تقديم تعليم تقني هندسي عالي الجودة قائم على المعرفة العلمية والتطبيق العملي، من خلال برامج أكاديمية متطورة ومختبرات حديثة، تهدف إلى إعداد كوادر هندسية قادرة على حماية الأنظمة والشبكات والبيانات من التهديدات السيبرانية، وتعزيز البحث العلمي والابتكار، وبناء شراكات فاعلة مع المؤسسات الحكومية والخاصة، بما يلبي احتياجات سوق العمل ويواكب التطورات العالمية في مجال الأمن السيبراني.

4. اهداف البرنامج

1. إعداد مهندسين تقنيين يمتلكون المعرفة والمهارات الحديثة في تقنيات الأمن السيبراني وأمن المعلومات .
2. تأهيل الطلبة لحماية الشبكات والأنظمة وقواعد البيانات من الهجمات الإلكترونية .
3. تطوير مهارات الطلبة في تحليل المخاطر واكتشاف الثغرات الأمنية ومعالجتها .
4. تعزيز مهارات تصميم وتنفيذ الأنظمة الأمنية والبنى التحتية الرقمية الآمنة .
5. تنمية مهارات التفكير التحليلي وحل المشكلات التقنية والأمنية .
6. دعم البحث العلمي والابتكار في مجالات الأمن السيبراني والحوسبة السحابية .
7. تطوير المناهج الدراسية بما يواكب التطورات العالمية والتقنيات الحديثة .
8. تعزيز التعاون مع المؤسسات الحكومية والشركات التكنولوجية والقطاع الصناعي .
9. ربط مخرجات التعليم بمتطلبات سوق العمل والتحول الرقمي .
10. تطبيق معايير الجودة والاعتماد الأكاديمي والتحسين المستمر في العملية التعليمية.

5. سياسة الجودة

يلتزم قسم هندسة تقنيات الأمن السيبراني بتطبيق معايير ضمان الجودة والتحسين المستمر في جميع أنشطته التعليمية والبحثية، من خلال تطوير المناهج الدراسية، وتحديث المختبرات التخصصية، وتعزيز كفاءة الكادر التدريسي، واعتماد أحدث التقنيات والبرمجيات في التعليم والتدريب، بما يضمن تحقيق مخرجات تعليمية متميزة تتوافق مع معايير الاعتماد الأكاديمي واحتياجات سوق العمل في مجالات الأمن السيبراني وتقنيات المعلومات.

6. الاعتماد البرامجي

معتمد من قبل وزارة التعليم العالي والبحث العلمي في جمهورية العراق

7. المؤثرات الخارجية الأخرى

لا يوجد

هيكلية البرنامج

هيكل البرنامج	عدد المقررات	وحدة دراسية	النسبة المئوية	ملاحظات *
متطلبات المؤسسة	3	6	10%	أساسي
متطلبات الكلية	5	26	43.33%	ساند
متطلبات القسم	5	28	46.67%	رئيسي
التدريب الصيفي	-	-	-	لا يوجد تدريب صيفي
أخرى				

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

9. وصف البرنامج

السنة / المستوى	رمز المقرر أو المساق	اسم المقرر أو المساق	الساعات المعتمدة	
			نظري	عملي
الأولى- الفصل الاول	CET11301	مقدمة في نظم المعلومات	3	2
الاولى- الفصل الاول	CET11302	أسس الهندسة الكهربائية	3	2
الاولى- الفصل الاول	CET11303	أساسيات البرمجة	3	2
الاولى- الفصل الاول	CET11304	الرياضيات I	4	
الاولى- الفصل الاول	CET11305	الرسم الهندسي		4
الاولى- الفصل الاول	TCE131	الديمقراطية وحقوق الانسان	2	
الأولى- الفصل الثاني	CET12301	التصميم المنطقي الرقمي	3	2
الاولى- الفصل الثاني	CET12302	أخلاقيات عصر المعلومات	3	
الاولى- الفصل الثاني	CET12303	الفيزياء العامة	3	2
الاولى- الفصل الثاني	CET12304	الرياضيات II	4	
الاولى- الفصل الثاني	CET12305	الورش الهندسية		4
الاولى- الفصل الثاني	TCE133	اللغة العربية (1)	2	
الاولى- الفصل الثاني	TCE134	اللغة الإنكليزية (1)	2	

10. مخرجات التعلم المتوقعة للبرنامج

المعرفة

- الإلمام بالمفاهيم الأساسية في **علوم الحاسوب، ونظم المعلومات، والبرمجة، والرياضيات** وتطبيقها في مجال الأمن السيبراني.
- فهم المبادئ الأساسية **لتصميم الأنظمة الرقمية والبنية التحتية للحاسوب والشبكات** وآلية عملها
- . التعرف على **أساسيات حماية المعلومات والأنظمة الرقمية** وأساليب الكشف عن التهديدات والهجمات السيبرانية.
- فهم المبادئ العلمية والهندسية المرتبطة **بتطوير الأنظمة الإلكترونية والبرمجية الآمنة**.
- اكتساب المعرفة بأساليب **تحليل المخاطر وإدارة أمن المعلومات** في المؤسسات والأنظمة الرقمية.

القيم

- الالتزام بـ **أخلاقيات استخدام التكنولوجيا وأخلاقيات الأمن السيبراني** في حماية البيانات والأنظمة.
- الالتزام بالقوانين والمعايير الدولية المتعلقة **بحماية المعلومات والخصوصية الرقمية**.
- القدرة على **التواصل والعمل ضمن فرق تقنية متعددة التخصصات** في مجالات تكنولوجيا المعلومات والأمن السيبراني
- تعزيز روح **المسؤولية المهنية في حماية البنية التحتية الرقمية للمؤسسات والمجتمع**.
- الاستعداد للتعلم المستمر ومتابعة **التطورات الحديثة في تقنيات الأمن السيبراني والبحث العلمي**.

11.وصف الخريج

يتميز خريج قسم هندسة تقنيات الأمن السيبراني بما يأتي:

- يمتلك معرفة علمية وتقنية رصينة في مجال الأمن السيبراني وتقنيات المعلومات.
- قادر على حماية الأنظمة والشبكات والبيانات من التهديدات والهجمات الإلكترونية.
- يمتلك مهارات تحليل المخاطر واكتشاف الثغرات الأمنية ومعالجتها.
- قادر على إدارة الأنظمة الأمنية والبنى التحتية الرقمية بكفاءة.
- يمتلك القدرة على استخدام أدوات الحماية والمراقبة والتحليل الأمني الحديثة.
- يعمل بكفاءة ضمن الفرق التقنية والهندسية متعددة التخصصات.
- ملتزم بأخلاقيات المهنة والمسؤولية المهنية والأمن المعلوماتي.
- يمتلك القدرة على التعلم المستمر ومواكبة التطورات المتسارعة في المجال التقني.

12.مجالات العمل

- مراكز أمن المعلومات والأمن السيبراني
- المؤسسات الحكومية والقطاع الخاص
- شركات الاتصالات وتقنيات المعلومات
- المصارف والمؤسسات المالية
- مراكز البيانات والحوسبة السحابية
- شركات البرمجيات والشبكات
- فرق الاستجابة للحوادث السيبرانية
- مراكز البحث والتطوير التقني
- شركات التدقيق الأمني واختبار الاختراق

13.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

14. طرائق التقييم

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

15.الدرجات العلمية التي يمنحها القسم

- يمنح القسم درجة البكالوريوس في هندسة تقنيات الأمن السيبراني بعد إكمال متطلبات الدراسة لمدة أربع سنوات.

16.كلمة رئيس القسم

بسم الله الرحمن الرحيم
يسرّنا أن نرحب بكم في قسم هندسة تقنيات الأمن السيبراني في الكلية التقنية الهندسية – جامعة كلكامش، الذي يسعى إلى إعداد جيل من المهندسين التقنيين القادرين على حماية الأنظمة الرقمية ومواجهة التحديات السيبرانية المتزايدة في عالم التكنولوجيا الحديثة.
يحرص القسم على توفير بيئة تعليمية متطورة تجمع بين الجانب النظري والتطبيقي، وتعزز مهارات الطلبة العلمية والعملية في مجالات تقنيات الأمن السيبراني وتقنيات المعلومات، بما يؤهلهم للمنافسة في سوق العمل وفق معايير الجودة والاعتماد الأكاديمي.
كما يعمل القسم على دعم البحث العلمي والابتكار، وبناء شراكات فاعلة مع المؤسسات التقنية، بما يسهم في خدمة المجتمع وتعزيز الأمن الرقمي.
نسأل الله التوفيق والسداد للجميع.

أ. د. اسعد مبدر جاسم

17.الهيئة التدريسية

أعضاء هيئة التدريس

الرتبة العلمية	التخصص		المتطلبات/المهارات الخاصة (ان وجدت)		اعداد الهيئة التدريسية	
	عام	خاص			ملاك	محاضر
ا. م. د.					2	
مدرس مساعد					3	

التطوير المهني

توجيه أعضاء هيئة التدريس الجدد

-عمل عروض 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.

18.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.

19.أهم مصادر المعلومات عن البرنامج

1. المصادر المشتركة للمناهج بالتوأمة مع الجامعة التقنية الوسطى
2. المكتبة العلمية في الكلية
3. الأنترنت
4. البحوث العلمية
5. الموقع الالكتروني لوزارة التعليم العالي والبحث العلمي.

20.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			
الأولى- الفصل الاول	CET11301	مقدمة في نظم المعلومات	رئيسي															
الاولى- الفصل الاول	CET11302	أسس الهندسة الكهربائية	رئيسي															
الاولى- الفصل الاول	CET11303	أساسيات البرمجة	رئيسي															
الاولى- الفصل الاول	CET11304	الرياضيات I	ساند															
الاولى- الفصل الاول	CET11305	الرسم الهندسي	ساند															
الاولى- الفصل الاول	TCE131	الديمقراطية وحقوق الانسان	اساسي															
الأولى- الفصل الثاني	CET12301	التصميم المنطقي الرقمي	رئيسي															
الاولى- الفصل الثاني	CET12302	أخلاقيات عصر المعلومات	رئيسي															
الاولى- الفصل الثاني	CET12303	الفيزياء العامة	ساند															

الاولى- الفصل الثاني	CET12304	الرياضيات II	ساند														
الاولى- الفصل الثاني	CET12305	الورش الهندسية	ساند														
الاولى- الفصل الثاني	TCE133	اللغة العربية (1)	اساسي														
الاولى- الفصل الثاني	TCE134	اللغة الإنكليزية (1)	اساسي														

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

المرحلة الأولى

الفصل الأول

2026-2025

MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Drawing			**Module Delivery**	
Module Type	Support or related learning activity			☐ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET11305				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CET		**College**	TCE	
Module Leader	Samer Razzaq Hilal		**e-mail**	samer.r.hilal@gu.edu.iq	
Module Leader's Acad. Title	Asst. lecturer		**Module Leader's Qualification**	MSC.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims **أهداف المادة الدراسية**	1. To develop spatial visualization skills: Enhance your ability to visualize and mentally manipulate objects in three-dimensional space based on two- dimensional drawings. Strengthen your spatial awareness and improve your understanding of complex engineering design Learn sketching and taking field dimensions. 2. Take data and transform it into graphic drawings. 3. Learn basic engineering drawing formats. 4. Learn basic AutoCAD skills. 5. Learn who draw 2D drawings in AutoCAD.

Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	1. Identify the basic of AutoCAD 2. Explain Drawing settings 3. How to drawing: Point, Line, Multiline, P line, Spline, X line, Rectangle. 4. How to drawing: Donut, Polygon, Circle, Arc, Ellipse 5. List Modify Tools 6. Identify: Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Identify Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. 7. Explain Zoom, Pan. 8. How to assign: Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions. 9. Dealing with: Text, Style, M text, Scale text, Spell, 10. Knowing the Hatching Objects. 11. Drawing 3d modeling. 12. Drawing the Exercises.
Indicative Contents **المحتويات الإرشادية**	1. Indicative content includes the following. 2. **AutoCAD Software,** drawing settings, Drawing Tools, Line, Circle, Arc, Ellipse, Donut, 3. Polygon, Rectangle, Point, Multiline, P line, Spline, X line. [20 hrs.] 4. **Modify Tools** 5. Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Array, Align, Scale, Stretch, 6. Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. [4 hrs.] 7. **Display Control** Zoom, Pan, Redraw, Clean Screen. [4 hrs.] 8. **Dimension** - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, 9. Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, 10. Ordinate dimensions. [4 hrs.] 11. Hatching Objects [4hrs] 12. **Text**, Style, M text, Scale text, Spell, [4 hrs.] 13. **3D MODELLING, Convert** 2D to 3D, Solid Editing [19 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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. with introductory tutorials or online resources that cover the basics of AutoCAD. **1.** 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. **2.** 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. **3.** 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.

	4. 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.

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)	5, 10	LO #3, 4 and 11
	Assignments	2	20% (20)	Continuous	All
	Projects / Lab.	10	10% (10)	Continuous	All
	Report				
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 Lab. Syllabus) **المنهاج الأسبوعي للمختبر**	
Week	**Material Covered**
Week 1	Introducing of Engineering Drawing
Week 2	Drawing settings of AutoCAD
Week 3	Drawing Tools: Point, Line, Multiline, P line, Spline, X line.
Week 4	Rectangle, Donut, Polygon
Week 5	Circle, Arc, Ellipse
Week 6	Modify Tools Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet.
Week 7	Mid Term Exam + Display Control, Zoom, Pan, Redraw, Clean Screen.

Week 8	Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions
Week 9	Annotation Tools Text, Style, M text, Scale text, Spell
Week 10	Hatching Objects
Week 11,12	3D modeling
Week13	Convert 2D To 3D
Week 14	Solid Editing + presenting a final project
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to AutoCAD 2010 By Alf Yarwood Copyright 2009	Yes
Recommended Texts	An Introduction to Autodesk Inventor 2010 and AutoCAD 2010 Unbnd Edition by Randy Shih	No
Websites	https://www.coursera.org/search?query=autocad&=null&index=prod_all_launched_products_term_optimization	

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	**Programming Essentials**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CET11303				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	UGI		**Semester of Delivery**	1	
Administering Department	CET		**College**	TCE	
Module Leader	Jannat Tariq Fannos		**e-mail**	jannat.tariq@gu.edu.iq	
Module Leader's Acad. Title	Assist. Lec.		**Module Leader's Qualification**	MSc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ومخرجات التعلم والمحتويات الإرشادية	
Module Aims **أهداف المادة الدراسية**	1. To develop problem solving skills and understanding of programming principles. 2. To understand the logic behind programming. 3. This course include using C++ as a programming language. 4. This course include algorithm design. 5. To understand how a programmer should prepare his work and think logically. 6. To perform programming project using control statements, functions, and to deal with the data stored in an array or file.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	1. Use of algorithms (Flowchart specifically). 2. Explain how the program is written using C++ Programming language. 3. Define and use of variables (Data types, Declaration of variables). 4. Use of operators and its precedence (Assignment, Arithmetic operators, Relational and Logical operators, Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator). 5. Making Decisions (use of: if, if-else, and switch statements) and draw of Flowchart of if-else statement. 6. Use of Loops (for, while, do-while), and use of break and continue statements with loops, and draw of Flowchart of loops. 7. Use of Arrays (one and two dimensional). 8. Use of Functions (Built-in function functions (Library functions), and User-Defined functions). 9. Use of arguments passed by value and by reference, and use of Local and global variables. 10. Use of Character sequences and string handling. 11. Handling and processing text files in C++.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Introduction to computers and programming. Types of programs (Applications and Systems). Programming languages (Machine, Assembly, and High-level language). Introduction to Compilers, Interpreters, object file, and executable file. Introduction to C++ with a simple program implementation. Types of programming errors, Program development life cycle, Algorithms - Flowchart - .

	Header files, Standard Input/output instructions, Comments in C++. [15 hrs] - Variables, Data Types, Declaration of variables, Constants, Statements. Operators (Assignment, Arithmetic operators, Relational and Logical operators, Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator), Precedence of operators. [8 hrs] - Making Decisions (if, if-else statements), Flowchart of if-else statement. Making Decisions (switch statement), using break statement with switch statement, Flowchart of switch statement. Loops (for, while, do-while), using break and continue statements with loops, Flowchart of loops. [15 hrs] - Arrays (One dimensional and Two Dimensional) [10 hrs] - Functions (Built-in function functions (Library functions), and User-Defined functions), Function prototype (Declaration), Function call, Passing arguments to a function, return statement, Value-Returning vs. Void (Non Value Returning) functions, Function with no argument and no return value, Function with no argument but return value, Function with argument but no return value, Function with argument and return value. Arguments passed by value and by reference, Recursion, Local and global variables. [20 hrs] - Character sequences and string handling, ASCII table. [10 hrs] - Handling and processing text files in C++ [10 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 learning and developing their skills in programming and logic thinking, 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 lab experiments involving assignments and project design 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 الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	**Unstructured SWL (h/w)** الحمل الدراسي 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)	6, 11	LO #3 to 6 and #7 to 9
	Assignments	2	10% (10)	5, 10	LO #3 to 6 and #7 to 9
	Projects / Lab.	10	15% (15)	Continuous	
	Report	1	5% (5)	13	LO #10, 11
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO # 1 to 7
	Final Exam	4hr	50% (40 + 10)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	Introduction. Types of programs (Applications and Systems). Computer Components. How computers store Data.
Week 2	Programming languages (Machine, Assembly, and High-level language). Introduction to Compilers, Interpreters, object file, and executable file. Types of programming errors, program development life cycle.
Week 3	Algorithms (Flowchart).
Week 4	Variables, Data Types, Declaration of variables, Constants, Statements, and Operators.
Week 5	Making Decisions (if, if-else statements), flowchart of if-else statement.
Week 6	Making Decisions (switch statement), using break statement with switch statement, flowchart of switch statement.
Week 7	Mid-term Exam + Loops (for loop)
Week 8	Loops (while, do-while), using break and continue statements with loops, flowchart of loops.
Week 9	Arrays (One dimensional)
Week 10	Arrays (Two Dimensional)
Week 11	Functions: Built-in function functions (Library functions), and User-Defined functions), Function prototype (Declaration), function call, Passing arguments to a function, return statement, Local and global variables.
Week 12	Functions (Value-Returning) vs. Void (Non Value Returning) functions, function with no argument and no return value, function with no argument but return value, function with argument but no return value, function with argument and return value. Arguments passed by value and by reference.

Week 13	Character sequences and string handling.
Week 14	Handling and processing text files in C++
Week 15	**Preparing for the final Exam**

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الأسبوعي للمختبر**	
	Material Covered
Week 1	Lab 1: Introduction to C++ with a simple program implementation. Header files, Standard Input/output instructions, Comments in C++.
Week 2	Lab 2: Variables, Arithmetic operators, Increment and decrement
Week 3	Lab 3: Relational and Logical operators, Bitwise Operators
Week 4	Lab 4: Cast operator, Conditional operator, Precedence of operators.
Week 5	Lab 5: Making Decisions (if, if-else).
Week 6	Lab 6: Making Decisions (switch statements).
Week 7	Lab 7: Loops (for)
Week 8	Lab 8: Loops (while, and do-while)
Week 9	Lab 9: Arrays (1D)
Week 10	Lab 10: Arrays (2D)
Week 11	Lab 11: Functions
Week 12	Lab 12: Function types according to whether it take arguments and/or return a value or not.
Week 13	Lab 13: Character sequences and string handling.
Week 14	Lab 14: Text files

Learning and Teaching Resources **مصادر التعلم والتدريس**		
	Text	**Available in the Library?**
Required Texts	-Starting Out with Programming Logic and Design (What's New in Computer Science), By Tony Gaddis, 5th Edition 2018. -Programming Essentials: Beginning C++, by Ivor Horton, 4th Edition, 2014.	No
Recommended Texts	C++ How to Program, 6th Edition 2007 By P. J. Deitel - Deitel & Associates, Inc., H. M. Deitel - Deitel & Associates, Inc.	Yes
Websites	https://www.geeksforgeeks.org/c-plus-plus	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics I**			**Module Delivery**	
Module Type	**Support or related learning activity**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CET11304				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CET		**College**	TCE	
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			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويا ت الإرشادي ة	
Module Aims أهداف المادة الدراسي ة	1. This course deals with differential and integral calculus. 2. To develop problem solving skills and understanding of preliminaries to differential calculus. 3. To understand differentiation, and differentiation methods. 4. To perform applications using the derivative. 5. To get a good grasp of Integrals, and Integration methods. 6. To understand the relationship between differentiation and integration.
Module Learning Outcomes مخرجات التعلم للمادة الدراسي	• Recognize Line and Circle Equation and related evaluating formulas. • List the various terms associated with Functions and their Types. • Discuss the Limit and Continuity of a Function. • Describe the Definition of a derivative as a limit, Differentiation Rules, and various types of Function's Derivatives. • Identify when to use different Differentiation Methods. • Discuss the Curve Sketching process, and the L'Hospital's Rule. • Analyze Taylor and Maclaurin Series. • Identify the Indefinite Integrals. • Explain the Integration Methods u-substitution, By parts. • Explain the Integration Methods Involving Trigonometric Functions, Trigonometric substitution. • Explain the Integration Method Rational Functions by Partial Fractions. • Explain the Integration Methods Functions Involving Roots, and Functions Involving Quadratics. • Recognize the Definite Integral and its Application Area Under a Curve. • Discuss e the Definite Integral Applications Arc Length, Average Value of a Function. • Discuss the Definite Integral Applications Areas Between Two Curves.

Co-requisites module	None	**Semester**	

Indicative Contents المحتويات الإرشادية	Part A - Preliminaries to differential calculus. This part includes the Line and Circle Equation and related evaluating formulas and parameters. Furthermore, main mathematical Functions characteristics Domain, Range, Odd, Even, and their Types. Finally, The Limit and Continuity of a Function Laws, the behavior At Infinity, followed by important Special Limits, then the Continuity Conditions. [9 hrs] + Revision problem classes in weekly tutorials [3 hrs] Part B – Differential calculus. This part will take in details the first key subject of the semester, the Differentiation process from the prospective of Definition as limit, Differentiation Rules, and FunctionDerivative Table. Which will be followed by Differentiation Methods namely the Implicit, Logarithmic, and The Chain Rule. Furthermore, four Applications of differentiation will be discussed the Curve Sketching, L'Hospital's Rule, and Taylor and Maclaurin Series. [12 hrs] + Revision problem classes in weekly tutorials [4 hrs] Part C – Integral calculus. This part discusses the second key subject the Integration of functions. Followed by dissecting the main Integration Methods, u-substitution, By parts, Involving Trigonometric Functions, Trigonometric substitution, Rational Functions by Partial Fractions, Functions Involving Roots, and Functions Involving Quadratics. Furthermore, it will consider six definite Integral applications, namely The Area Under a Curve, Arc Length, Average Value of a Function, and Areas Between two Curves. [22 hrs] + Revision problem classes in weekly tutorials [8 hrs]

	Learning and Teaching Strategies استراتيجيات التعلم والتعليم
Strategies	This module will primarily focus on encouraging students to participate in the activities, as well as refining and developing their critical thinking skills. This will be achieved through lectures, tutorials, discussions, and grading activities.

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظر ي

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراس ي المنتظم للطالب خلال الفص ل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراس ي غير المنتظم للطالب خلال الفص ل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراس ي الكل ي للطال ب خلال الفص ل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	20% (20)	5, 10	LO #1 - 4, 5 - 9
	Assignments	2	15% (15)	7, 14	LO # 1 - 6, 7 and 13
	Projects / Lab.	N/A			
	Report	1	5%(5)	14	LO #13, 14 and 15
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

	Material Covered
Week 1	**Line and Circle Equation.**
Week 2	**Functions (**Domain, Range, Odd, Even, Types.**)**
Week 3	**The Limit and Continuity of a Function (**Laws, At Infinity, Special Limits, Continuity Conditions.**)**
Week 4	**Differentiation (**Definition as limit, Differentiation Rules, Function-Derivative Table.**)**
Week 5	**Differentiation Methods (**Implicit, Logarithmic, The Chain Rule**.)**
Week 6	**Applications of Differentiation (**Curve Sketching, L'Hospital's Rule.**)**
Week 7	**Applications of Differentiation (**Taylor and Maclaurin Series.**)**
Week 8	**Midterm Exam + Introduction to Indefinite Integrals.**
Week 9	**Integration Methods (**u-substitution, By parts.**)**
Week 10	**Integration Methods (**Involving Trigonometric Functions, Trigonometric substitution.**)**
Week 11	**Integration Methods (**Integration of Rational Functions by Partial Fractions.**)**
Week 12	**Integration Methods (**Functions Involving Roots**,** Functions Involving Quadratics.**)**
Week 13	**Definite Integral and Applications (**Definite Integral, Area Under a Curve, Arc Length, Average Value of a Function.**)**
Week 14	**Definite Integral and Applications (Areas Between two Curves)**
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Tutorial) المنهاج الاسبوعي الاضاف ي	
	Material Covered
Each week, a question sheet related to the material presented in the theoretical lecture will be solved and debated.	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Joel R. Hass, Christopher E. Heil, Maurice D. Weir, "Thomas' Calculus: Early Transcendentals", Pearson Education, 14th Edition, (January 1, 2017), ISBN-13: 978-0134439020.	Yes
Recommended Texts	Anthony Croft, Robert Davison, "Mathematics for Engineers: A Modern Interactive Approach", Prentice Hall, 3rd edition, (January 1, 2008), ISBN-13: 978-0132051569.	No
Websites	https://www.khanacademy.org/math/differential-calculus	

Grading Scheme مخطط الدرجا ت				
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	راس ب	(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**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CET11302				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CET		**College**	TCE	
Module Leader	Asaad Mubdir Jassim		**e-mail**	asaad.jasim@gu.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	P.HD.	
Module Tutor			e-mail		
Peer Reviewer Name			**e-mail**		
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 أهداف المادة الدراسية	1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand voltage, current and power from a given circuit. 3. This course deals with the basic concept of electrical circuits. 4. This is the basic subject for all electrical and electronic circuits. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform Thevenin's Norton's Theorem. 7. Understanding the Alternating Current Network Types of Alternating Waveforms 8. Understanding the basic principle of series and parallel AC Circuit
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**21.** Recognize how electricity works in electrical circuits. **22.** List the various terms associated with electrical circuits. **23.** Summarize what is meant by a basic electric circuit. **24.** Discuss the reaction and involvement of atoms in electric circuits. Describe electrical power, charge, and current. **25.** Define Ohm's law. **26.** Identify the basic circuit elements and their applications. **27.** Discuss the operations of DC circuits in an electric circuit. **28.** Discuss the various properties of resistors. **29.** Explain the two Kirchhoff's laws used in circuit analysis. **30.** Describe Thevenin's theorem and Norton's theorem and how they work **31.** Explain the basic concepts o AC Circuits.
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 positionmethod ,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/LAB	5	15% (15)	Continuous	LO# 1-12
	Report	1	10% (10)	13	LO # 5, 8, 9, 12
Summative assessment	**Midterm Exam**	2hr	50% (40 + 10)	7	LO # 1-7
	Final Exam	4hr	100% (100 Marks)	16	All
Total assessment			100% (100 Marks)		10% (10)

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Symbols And Abbreviations, Units, Electric Circuit & its Element, Ohms low.
Week 2	Series Circuits (Resistance in Series) Voltage Divider Rule.
Week 3	Parallel Circuits (Resistances in Parallel) Current Divider Rule.
Week 4	Open and Short Circuits, Source Transformation,
Week 5	Series-Parallel Circuits Transformation.
Week 6	Kirchhoff's Laws: Kirchhoff's current law (KCL) and its use in Network Analysis.
Week 7	Kirchhoff's voltage law (KVL) and its use in Network Analysis
Week 8	Conversion Delta to Star Connection and Conversion Star to Delta Connection
Week 9	Mid Term Exam + Superposition Method
Week 10	Thevenin's Theorem
Week 11	Norton's Theorem
Week 12	The Alternating Current Network Types of Alternating Waveforms, Generation of Alternating Current, and Definitions related to Alternating Waveforms
Week 13	The Mean and Effective Values of Current and Voltage
Week 14	Series and Parallel AC Circuits (R L C)
Week 15	**Preparing for final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: How to use ammeter, voltmeter and ohmmeter.
Week 2	Lab 2: Apply Ohm's Law
Week 3	Lab 3: Continuous Implementation for Lab1 and Lab2
Week 4	Lab 4: Apply Kirchhoff's law to measure current
Week 5	Lab 5: Continuous Implementation for Lab4
Week 6	Lab 6: Apply Kirchhoff's law to measure voltages
Week 7	Lab 7: Continuous Implementation for Lab6
Week 8	Lab 8: Superposition Method
Week 9	Lab 9: Norton's Theorem.
Week 10	Lab 10: Continuous Implementation for Lab9
Week 11	Lab 11: Thevenin's Theorem.
Week 12	Lab 12: Continuous Implementation for Lab11
Week 13	Lab 13: Delta To Star Connection and Conversion Star to Delta Connection
Week 14	Lab 14: Continuous Implementation for Lab13
Week 15	Lab 15: Preparing 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	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electricalengineering	

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	**Introduction to Information System**			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET11301				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		1	Semester of Delivery		1
Administering Department		CET	College	TCE	
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	Name (if available)		e-mail	E-mail	
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date			Version Number		

Relation with other Modules العلاقة مع المواد الدراسية الأخر ى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The purpose of this course is to provide computer literacy to the student. The course prepares the student for a successful working relationship with computerized systems. It will present to him/her what the computer is, what it can and cannot do, how it operates, how it is programmed, how it is used as a tool in decision-making, and the social implementations of computer usage. Students should be acquainted with handling and managing data and information in business organizations. They should also understand the meaning of "Information Systems and technology and their effects on organizations, the different business information systems, and the development life cycle. Students must learn about Computer Hardware and Software and various types of computer networks. Students should know how to deal with e-commerce.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	As a result of taking this course, the student should be able to: 1. Know and understand various principles and fundamentals of Information Systems and Information Technology. 2. Analyze the types and functions of computers and the components of a computer system. 3. Define and categorize application and system software and use general-purpose application packages. 4. List the various network communication technologies and network components. 5. Understand the basics of network security. 6. Explain the Internet, Intranets, and Extranets systems. 7. Understand the basic concepts of database systems and data warehousing. 8. Explain the importance of E-Commerce. 9. Understand the GIS and MIS systems. 10. Describe the system and program development lifecycles. 11. Demonstrate data privacy and security.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. The Information Age in Which You Live (Types of Information systems, Competitive advantages) Computer Hardware (Input devices, Output devices, Storage devices, Categories of computers) Computer Software (System software, Application software)

	Network components, Network classification, Network communications media, Network security, The client/server software model Database and Data Warehouse (The relational database model, database management system tools, data warehouse, and data mining) E-commerce business models, understand your business & products & services & customers and move money easily and securely. Management Information and Decision Support Systems (MIS, DSS: definitions, inputs, and outputs) System development life cycle, Component-based development, End-user development, prototyping Protecting People and Information (Ethics, Privacy, Security)

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 student's 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 the type of simple experiments involving some interesting sampling activities for the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكل ي للطالب خلال الفصل	150		

تقييم Module Evaluation المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 3, 7, 8 and 9
	Assignments	2	10% (10)	2, 12	LO # 4, 5, and 7
	Projects / Lab.	5	15% (15)	Continuous	
	Report	1	5% (5)	13	LO # 8, 9 and 10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO # 1-6
	Final Exam	4hr	50% (40 + 10)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Information Systems: An Overview
Week 2	Computer Hardware
Week 3	Computer Software
Week 4	Network Basics
Week 5	Network Security
Week 6	Internet, Intranet, and Extranet
Week 7	Mid Term Exam + Database Systems
Week 8	Data Warehousing
Week 9	E-Commerce
Week 10	Global Information Systems
Week 11	Management Information System
Week 12	System Development Life Cycle
Week 13	Data privacy, security, and Ethics
Week 14	Emerging Trends, Technologies, Applications
Week 15	Preparing for final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Computer Hardware Components
Week 2	Lab 2: Microsoft Windows
Week 3	Lab 3: Internet, Web, Email
Week 4	Lab 4: Computer Network Components
Week 5	Lab 5: Microsoft Word
Week 6	Lab 6: Microsoft PowerPoint
Week 7	Lab 7: Microsoft Excel

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Shelly B. Gary, Vermaat E. Misty. Discovering Computers: Fundamentals. Shelly Cashman Series, Course Technology, latest edition.	No
Recommended Texts	Using Information Technology 10th Edition. 2013, by Brian K. Williams & Stacey C. Sawyer, McGraw-Hill	No
Websites	Cisco Networking Academy, Get Connected Course, Computer Hardware Basics, Computer Software basics	

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	راس ب	(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.

المرحلة الأولى

الفصل الثاني

2026-2025

MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Ethics for the Information Age**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**CET12302**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CET		**College**	TCE	
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	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• Understanding the history of computer technology • Analyzing a behavior or scenario for ethical aspects • Understanding classical ethical theories. • Applying ethical theories to argue morality or immorality. • Understanding intellectual property and its protections. • Understanding privacy and its protections
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Develop a foundational understanding of ethical theories and principles, including how they apply to technology, information, and digital interactions. 2- Learn the ethical considerations and responsibilities of networked communication, including email, messaging, and social networking. 3- Understand the ethical implications of online interactions, including responsible digital communication, respect for diverse viewpoints, and avoiding online harassment or cyberbullying. 4- Examine the ethical issues related to using social media platforms and online advertising, including privacy concerns, data collection, and manipulation of user behavior. 5- Explore the ethical challenges of protecting children from exposure to inappropriate or harmful content online and promoting safe digital environments. 6- Grasp the ethical principles surrounding intellectual property, including respecting copyrights, trademarks, and patents in the digital age. 7- Analyze the ethical considerations involved in the creation, protection, and use of trademarks, patents, and copyrighted material. 8- Learn about the ethical aspects of software development, licensing, and distribution, including open-source and proprietary software models. 9- Understand the ethical values and practices associated with the opensource software movement, including collaboration, transparency, and freedom of use. 10- Understand the ethical implications of information disclosure, including whistleblowing, transparency, and confidentiality. 11- Examine the ethical principles governing information privacy, data protection, and the responsible handling of personal and sensitive information. 12- Recognize the ethical concerns related to cybercrime, including hacking, fraud, and identity theft.

Indicative Contents	Indicative content includes the following.
المحتويات الإرشادية	Introduction to computing (Mechanical Calculators, Pucnched card tabulation, first commercial computer, Microprocessors, personal computers). Introduction to Ethics (Definition, Ethical Theories) Networked Communication (Spam, Internet interactions, www, mobile Application) Impact of social media (Political Activism, Internet Research Agency) Children's inappropriate Contents (Web Filter, child internet protection act) Intellectual Property (Property rights, benefits, limites) Trademark, Patents, and Copyright Protection Software (Software copyright) Open-Source Software (Definition, benefits, impact, examples) Information Privacy (Definition, Benefits, privacy, and trust) Information Disclosure (Public Records, information held by private organizations, Facebook Tag, RFID Tags, cookies) Computer and Network Security (Hacking, Malware) Cyber-crime and Cyber-attacks (Fishing, SQL injection, DOS)

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

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراس ي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	3	15% (15)	5, 11, 14	LO #4, 8 and 9, 12
	Assignments	3	15% (15)	3, 7, 12	LO # 2, 6 and 7
	Report	1	10% (10)	13	LO # 10
Summative assessment	**Midterm Exam**	2hr	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 Computing
Week 2	Introduction to Ethics
Week 3	Networked Communication
Week 4	Internet Interaction
Week 5	Impact of Social Media and Online Advertisement
Week 6	Children and Inappropriate Contents
Week 7	Intellectual Property
Week 8	Mid Term Exam
Week 9	Trademark, Patents, and Copyright
Week 10	Protection for Software
Week 11	Open Source Software
Week 12	Information Privacy
Week 13	Information Disclosures
Week 14	Computer and Network Security
Week 15	Cyber Crime and Cyber Attacks

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Ethics for the Information Age, 8th edition, Michael J. Quinn Seattle University	No
Recommended Texts		
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	قيد المعالجة (راسب)	(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	General Physics			**Module Delivery**	
Module Type	**Support or related learning activity**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CET12303**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CET		**College**	TCE	
Module Leader	Prof. Dr. Tarik Talib Al-Omran		**e-mail**	tarik.t.alomran @gu.edu.iq	
Module Leader's Acad. Title	Prof. Dr.		**Module Leader's Qualification**	P.hD.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aims of this subject are to: 1. Provide, through well-designed studies of experimental and practical physics, a worthwhile educational experience for all students, whether they go on to study science beyond this level and to enable them to acquire sufficient understanding. 2. Develop abilities and skills that are relevant to the study and practice of science and are useful in everyday life. 3. Develop attitudes relevant to science such as concern for accuracy and precision, objectivity, integrity, etc. 4. Stimulate interest in and care for the local and global environment. 5. Promote an awareness that the study and practice of science are cooperative and cumulative activities and are subject to social, economic, technological, ethical, and cultural influences and limitations. 6. The applications of science may be beneficial and detrimental to the individual, the community, and the environment. 7. The use of information technology is important for communications, as an aid to experiments, and as a tool for the interpretation of experimental and theoretical results.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes for studying general physics are: 1. Understanding Fundamental Concepts: Students will develop a solid understanding of fundamental physics concepts, including physical quantities, units, and measurement, as well as key principles governing motion, forces, and energy. 2. Problem-Solving Skills: By studying kinematics and dynamics, students will acquire the ability to analyze and solve problems related to motion, forces, and the behavior of physical objects. 3. Conceptual Mastery: Students will master key concepts such as mass, weight, density, and the turning effect of forces, enabling them to apply these principles to real-world situations. 4. Pressure, Energy, Work, and Power: Learners will gain a comprehensive understanding of pressure, energy, work, and power and be able to calculate and apply these concepts to various physical systems. 5. Motion in Different Dimensions: Students will be able to analyze and describe the motion of objects in one, two, or three dimensions, allowing them to tackle more complex real-world scenarios. 6. Newton's Laws of Motion: Learners will comprehend and apply Newton's

	three laws of motion, providing them with the foundation for understanding and predicting the behavior of objects under the influence of forces. 7. Understanding Wave Properties: Students will gain a deep understanding of the general properties of waves, including wave mechanics, wave interference, and wave behavior, which are vital in various areas of physics. 8. Exploration of Light: A thorough understanding of the nature and properties of light, including its behavior, reflection, refraction, and dispersion, will be achieved. 9. Electromagnetic Spectrum: Students will learn about the electromagnetic spectrum, its different regions, and the practical applications of various types of electromagnetic waves. 10. Sound and Hearing: A comprehensive understanding of the physics of sound, including wave characteristics, propagation, and its perception by the human ear, will be attained. 11. Electromagnetism: The course will enable students to understand the relationship between electricity and magnetism, including electromagnetic induction, electromotive force, and the applications of electromagnetism in technology.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1- Measurements - Introduction to Physical Quantities - Units and Measurement 2- Newtonian Mechanics - Kinematics - Dynamics, Mass - Weight and Density - Turning Effect of Forces - Pressure - Energy, Work and Power 3- Waves - General Wave Properties - Light - Electromagnetic Spectrum - Sounds 4- Electricity and Magnetism - Static Electricity & Practical Electricity - Magnetism & Electromagnetism

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 الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	46	**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 الدراسي ة

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1-4 and 5,6
	Assignments	2	10% (10)	2, 12	LO # 1, 2 and 9
	Projects / Lab.	8	15% (15)	Continuous	
	Report	1	5% (5)	13	LO # 10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO # 1-6
	Final Exam	3hr	40% (50)	16	All
	Final Lab Exam	1hr	10% (10)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction Physical Quantities, Unites and Measurement** • Dimensions and Units • Dimensional Analysis • Conversion of Units
Week 2	**Kinematics and Dynamics** • Reference Frames and Displacement • Average Velocity • Instantaneous Velocity • Acceleration • Motion at Constant Acceleration • Freely Falling Objects • Force and Motion • Collisions and Impulse • Projectile Motion
Week 3	**Mass, weight and Density** • Definition of Mass • Units and Law of Mass • Definition of Weight • Units and Law of Weight • Definition of Density • Units and Law of Density • Specific gravity
Week 4	**Turning Effect of Forces** • Moment of a Force • Principle of Momentum • Conditions of Equilibrium
Week 5	**Pressure, Energy, Work, and Power** • Definition of Pressure • Units and Law of Pressure • Pressure in Liquids

	• Definition of Energy • Units and Law of Energy • Kinetic energy • Potential Energy • Definition of Work • Units And Law Of Work • Definition of Power • Units and Law of Power
Week 6	**Motion Along a Straight Line** • Displacement, Time, and Average Velocity • Motion • Position and Displacement • Average Velocity and Average Speed
Week 7	**Motion in Two or Three Dimensions** • Position and Velocity Vectors • Acceleration Vector • Projectile Motion
Week 8	**Newton's Laws of Motion** • Newton's First Law • Newton's Second Law • Newton's Third Law
Week 9	**Mid Term Exam**
Week 10	**General Wave Properties** • Mechanical Waves • Transverse waves • Longitudinal waves • Surface waves • Measuring a Wave
Week 11	**Light** • Introduction • Definition of Light

	• What is of Light • Properties of Light • Application of Light
Week 12	**Electromagnetic Spectrum** • Definition of Electromagnetic Spectrum • Type of Electromagnetic Spectrum • Detecting Electromagnetic Waves from Space • Energy in Electromagnetic Waves
Week 13	**Sounds and Hearing** • Definition of Sound and Hearing • Speed of Sound, Frequency and Wavelength • Sound Intensity and Sound Level • Definition of Hearing • The Hearing Mechanism
Week 14	**Magnetism** • Introduction • The Source of All Magnetism • Universal Characteristics of Magnets and Magnetic Poles • Earth's Magnetic Poles • Types of Magnetism
Week 15	**Electromagnetism** • Introduction • Faradays Law • Emf induced in a moving conductor • Energy stored in a magnetic field

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Experiment 1: Dynamics – Force, Newton's Three Laws, and Friction
Week 2	Experiment 2: Investigating the Laws of Motion with a Simple Pendulum
Week 3	Experiment 3: Tuning Fork

Week 4	Experiment 4: Equilibrium of a Rigid Body
Week 5	Experiment 5: Determining Hooks law
Week 6	Experiment 6: Verifying Newton's Third Law with Colliding Objects
Week 7	Experiment 7: Investigating Wave Properties - Wavelength, Frequency, and Speed
Week 8	Experiment 8: Refraction of Light in Different Media

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamentals of Physics, by David Halliday, Jearl, Walker, and Robert Resnick, Wiley	
Recommended Texts	Seraway,_Physics_for_Scientists_and_Engineers_6E_by_Serway_and_Jewett	
Websites		

Grading Scheme مخطط الدرجا ت				
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	قيد المعالجة(راسب)	(45-49)	More work required but credit awarded
	F – Fail	راس ب	(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.

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Mathematics II			**Module Delivery**	
Module Type	Support or related learning activity			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CET12304				
ECTS Credits	5				
SWL (hr/sem)	150				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CET		**College**	TCE	
Module Leader	Faten Mohammed kareem		**e-mail**	Faten.m.kareem@gu.edu.com	
Module Leader's Acad. Title	Asst. Lecturer		**Module Leader's Qualification**	M. Sc	
Module Tutor	Faten Mohammed kareem		**e-mail**	Faten.m.kareem@gu.edu.com	
Peer Reviewer Name			**e-mail**		
Scientific Committee ApprovalDate			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module		**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 concepts of vectors and vector operations. 2. To Understand concepts of linear algebra. 3. To get a grasp of various methods to solve systems of linear equations. 4. To Compute linear transformations. 5. To be able to determine Eigenvalues and Eigenvectors. 6. To perform matrix diagonalization.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize Vectors concepts, notation and Operations. 2. Discuss dot product, cross product, Orthogonal and orthonormal vectors. 3. Discuss the terms Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix. 4. Describe the matrix operations {addition, subtraction, scalar multiplication, multiplication}. 5. Identify Determinant and Inverse for Nonsingular matrices. 6. Discuss aspects about System of Linear Equations (Linear Equations, Linear Equations Solution, Matrix equations.). 7. Identify Row operations, row-echelon form “triangular”, Rank of a Matrix, reduced row-echelon form, Augmented Matrix. 8. Discuss Gaussian elimination. 9. Explain Gauss–Jordan elimination and Solving Systems with Inverses. 10. Explain Cramer's Rule. 11. Explain Linear Combinations of Vector, span. 12. Explain Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix. 13. Recognize Linear Transformations. 14. Discuss Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem. 15. Discuss Eigenvalues and Eigenvectors, Diagonalizing Matrices.

Indicative Contents المحتويات الارشادية	Part A - Vectors. This part includes Vectors definition, notation {Ordered set, Matrix, Unit vector}, Magnitude, Unit, Zero, negative, Direction, Operations on vectors {addition, subtraction, scalar multiplication}. In addition to Operations on vectors {dot product, cross product}, Orthogonal, orthonormal vectors. [6 hrs] + Revision problem classes in weekly tutorials [2 hrs] Part B – Matrices. This part will take in details Matrices (Matrix, Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix.), in addition to operations {addition, subtraction, scalar 3 multiplication, multiplication}. Furthermore, Determinant, Inverse (Nonsingular). [9 hrs] + Revision problem classes in weekly tutorials [3 hrs] Part C – System of Linear Equations. This part discusses System of Linear Equations (Linear Equations, Linear Equations Solution, Matrix equations.), in addition to Row operations, row-echelon form "triangular", Rank of a Matrix, reduced row-echelon form, Augmented Matrix. Furthermore, Gaussian elimination, Gauss–Jordan elimination, Solving Systems with Inverses, Cramer's Rule is described. [13 hrs] + Revision problem classes in weekly tutorials [4 hrs] Part D – Vector Spaces and Diagonalization. This part discusses Vector Spaces (Linear Combinations of Vector, span, Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix, Linear Transformations. Furthermore, Diagonalization (Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem, Eigenvalues and Eigenvectors, 1. Diagonalizing Matrices.) [15 hrs] + Revision problem classes in weekly tutorials [5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This module will primarily focus on encouraging students to participate in the activities, as well as refining and developing their critical thinking skills. This will be achieved through lectures, tutorials, discussions, and grading activities.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ15 اسبوعا			
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	20% (10)	5 and 10	LO #1, #4, #5, and #9
	Online assignments	2	20% (10)	7and 14	LO #1 - #6 and #7 - #13
	Report	N/A		14	
	OnSite assignments	N/A		2 and 5	
Summative assessment	**Midterm Exam**	2hr	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	Vectors (Definition, notation {Ordered set, Matrix, Unit vector}, Magnitude, Unit, Zero, negative, Direction, Operations on vectors {addition, subtraction, scalar multiplication}.)
Week 2	Vectors (Operations on vectors {dot product, cross product}, Orthogonal, orthonormal vectors.)
Week 3	Matrices (Matrix, Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix.)
Week 4	Matrices (operations {addition, subtraction, scalar multiplication, multiplication}.)
Week 5	Matrices (Determinant, Inverse (Nonsingular).)
Week 6	System of Linear Equations (Linear Equations, Linear Equations Solution, Matrix equations.)
Week 7	System of Linear Equations (Row operations, row-echelon form “triangular”, Rank of a Matrix, reduced row-echelon form, Augmented Matrix.)

Week 8	Midterm Exam + System of Linear Equations (Gaussian elimination.)
Week 9	System of Linear Equations (Gauss–Jordan elimination, Solving Systems with Inverses.)
Week 10	System of Linear Equations (Cramer's Rule.)
Week 11	Vector Spaces (Linear Combinations of Vector, span.)
Week 12	Vector Spaces (Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix.)
Week 13	Vector Spaces (Linear Transformations.)
Week 14	Diagonalization (Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem.)
Week 15	Diagonalization (Eigenvalues and Eigenvectors, Diagonalizing Matrices.)
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	David C. Lay, Judi J. McDonald, Steven R. Lay, "Linear Algebra and Its Applications", Pearson Education, 6th edition (July 10th 2020), ISBN-13: 978- 0136880929.	No
Recommended Texts	Gilbert Strang, " Linear Algebra and Its Applications", Cengage Learning, 4th edition, (January 1, 2006), ISBN-13: 978 0030105678.	No
Websites	https://www.udemy.com/course/linear-algebra-with-applications/	

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 Logic Design**			**Module Delivery**	
Module Type	**Core**			**✓ Theory** **Lecture** **✓ Lab** **✓Tutorial** **Practical Seminar**	
Module Code	CET12301				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGx11 UGI	**Semester of Delivery**		2
Administering Department		Cybersecurity	**College**	Engineering Technology	
Module Leader	Jannat Tariq Fannos		**e-mail**	jannat.tariq@gu.edu.iq	
Module Leader's Acad. Title		Assist. Lec.	**Module Leader's Qualification**		MSc
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To be able to deal with the number systems and codes. 2. To understand the functionality of logic gates. 3. To have the skill to use the logic gates in designing logic circuits. 4. To have the skill to simplify the digital circuits. 5. To learn the simplification process, Boolean expression, Demorgans law, and Karnaugh map. 6. To understand the principles for designing logic circuits. 7. To understand adder, subtractor, decoder, encoder, multiplexer, demultiplexer, and comparator circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize each type of number system. 2. Identify the process of converting between number systems. 3. Summarize the types of logic gates. 4. Discuss the use of each gate. 5. Describe the design of a logic circuit by using logic gates. 6. Explain the simplification processes. 7. Explain Boolean expression and Demorgan's law. 8. Explain the Karnaugh map for different numbers of bits. 9. Discuss the design of the logic circuit before and after simplification. 10. Explain the combinational logic circuit. 11. Identify the adder, subtractor, decoder, encoder, multiplexer, demultiplexer. 12. Identify the basic circuit elements and their applications. 13. Identify the basic concepts of flip flops and its applications in synchronous and asynchronous counters
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Number systems - decimal, binary, octal, hexadecimal number system, conversion, operation. [10 hrs] Codes- excess-3, gray code, conversions, operations, complements [5 hrs] Logic gates-NOT, AND, OR, NOR, NAND, XOR, XNOR. [5 hrs] Logic simplification- Boolean theorem and Demorgans law. [10 hrs] Karnaugh map-SOP, POS, and don't care. [15 hrs]

	Arithmetic operations Part A- adder, parallel binary adder, subtractor, adder- subtractor. [10 hrs] Arithmetic operations Part B- multiplexer, demultiplexer, decoder, encoder. [10 hrs] Flip Flops types and applications [4] Synchronous and Asynchronous Counters [6]

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 the type of simple experiments involving some interesting sampling activities for the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	**Unstructured SWL (h/w)** الحمل الدراسي 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, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	7	15% (15)	Continuous	
	Report	1	5% (5)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO # 1-7
	Final Exam	4hr	50% (40+10)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Number systems (decimal, binary, octal, conversions, operations)
Week 2	Number systems (hexadecimal, BCD, conversions, operations)
Week 3	Number systems (excess-3, gray code, conversions, operations, complements)
Week 4	Logic gates (AND, OR, NOT, NAND, NOR, XOR, XNOR)
Week 5	Logic simplification (Boolean theorem)
Week 6	Logic simplification (Demorgan's theorem)
Week 7	Karnaugh maps (2-variables, 3-variables)
Week 8	Karnaugh maps (4-variables (SOP, POS, don't care))
Week 9	Karnaugh maps (5-variables, (SOP, POS, don't care))
Week 10	Arithmetic operations (adder, parallel binary adder)
Week 11	Arithmetic operations (subtractor, adder-subtractor circuit)
Week 12	Arithmetic operations (decoder, encoder)
Week 13	Arithmetic operations (Multiplexer, Demultiplexer)
Week 14	Flip-flop types and operation
Week 15	Synchronous and Asynchronous Counter
Week 16	**Preparatory week before the Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: logic gates (NOT, AND, OR)
Week 2	Lab 2: Logic gates (NOR.NAND)
Week 3	Lab 3: Logic gates (XOR, XNOR)
Week 4	Lab 4: Boolean theorem
Week 5	Lab 5: Demorgan's law

Week 6	Lab 6: Karnaugh map
Week 7	Lab 7: SOP
Week 8	Lab 8: POS, don't care
Week 9	Combinational circuit (half adder, full adder)
Week 10	Combinational circuit (Half subtractor, full subtractor)
Week 11	Decoder and Encoder circuits
Week 12	Multiplexer and Demultiplexer circuits
Week 13	Flip Flop Latch
Week 14	Counters

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Digital Fundamentals by Floyed	Yes
Recommended Texts	Digital circuit analysis and design with Simulink modeling by Steven T. Karris	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/computer-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	**Engineering Workshops**			**Module Delivery**	
Module Type	**Support or related learning activity**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CET12305				
ECTS Credits	**6**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CET		**College**	TCE	
Module Leader	**Samer Razzaq Hilal**		**e-mail**	**samer.r.hilal@gu.edu.iq**	
Module Leader's Acad. Title	Assist. Lecturer		**Module Leader's Qualification**	MSc	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
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 والمحتويات الإرشادية

Module Aims أه داف المادة الدراسية	The objective of studying Electrical, Electronic, and Mechanical workshops is to enable students to acquire the necessary skills and knowledge to deal with electrical, electronic, and mechanical systems and devices. This subject aims to teach students how to diagnose faults, repair systems, and perform maintenance on these systems and devices. By studying Electrical, Electronic, and Mechanical workshops, students can understand the principles of electricity, electronics, and mechanics, as well as how to read engineering diagrams and use various tools and equipment to work on them. They also learn how to diagnose faults, repair them, and properly maintain different devices in a safe manner. In general, studying this subject aims to prepare students to become skilled technicians in the field of electrical, electronic, and mechanical engineering. They can work in areas such as industrial maintenance and repair, electrical and electronic installations, automation and robotics, medical devices, and other modern technologies
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes of studying Electrical, Electronic, and Mechanical workshops include: 1. Acquisition of diagnostic and repair skills: Students learn how to analyze problems, identify faults in electrical, electronic, and mechanical systems, and implement appropriate repair procedures. 2. Understanding of electrical, electronic, and mechanical principles: Students gain knowledge of engineering and technical fundamentals related to electricity, electronics, and mechanics, including reading engineering diagrams and practical understanding of circuits, electronic devices, and mechanical components. 3. Development of practical work skills: Students have the opportunity to learn hands-on and practice using various tools and equipment used in electrical, electronic, and mechanical workshops. 4. Ability to perform preventive maintenance: Students learn how to maintain systems and devices and carry out preventive maintenance to ensure proper and sustainable performance. 5. Enhancement of teamwork and communication skills: Studying Electrical, Electronic, and Mechanical workshops promotes collaboration among students and the ability to work as a team in problem-solving and executing practical projects.
	Overall, studying this subject prepares students to enter the job market in various technical and engineering fields, such as industrial maintenance, electrical and electronic installations, automation and robotics, medical devices, and other modern technologies.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Electronic workshop</u> In this part, we will learn how to check the elements in the electrical circuits, what is the way each element works, how to check it, and find out what is damaged and replace it. [15 hrs] We will also talk about conductors and semiconductors [10 hrs] <u>Part B – Elctrical workshop</u> 1. Principles of Industrial Safety in Electrical Workshops[6 hrs.] 2. Tools Used in Electrical Workshops[6 hrs.]. 3. Power Sources and Characteristics[6 hrs.] 4. Multimeter and Wire Size Measurement[6 hrs.] <u>Part C – Mechanical workshop</u> 1. Different Types of Welding Irons and Spot Welding[6 hrs.] 2. Electric Transformers[6 hrs.] 3. Electric Circuits and Transformer Operation[6 hrs.]. 4. Types of Electric Motors[6 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 labs, 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 ل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل ل	86	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل ل	150		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظر ي	
	Material Covered
Week 1,2	✞ Use different measuring devices in the workshop ✞ 1- Principles of Industrial Safety in Electrical Workshops. 2- Different Types of Welding Irons (with different capacities) and Spot Welding
Week 3,4	✞ How to use irons, types of soldering used, and how to useabsorbent soldering irons ✞ 1- Electric Circuits and Transformer Operation. 2- Electrical Installations and Types of Wiring (Surface and Concealed)
Week 5,6,7	✞ Electronic components (resistor , inductors , capacitors) ✞ 1- ONE LAMP CONTROLLED BY ONE SWITCH 2- Parallel Wiring of Two Lamps with a Switch and Socket 3- Drawing a Staircase Lamp (Two-Way Switch) Circuit
Week 8	**Mid-term Exam**
Week 9 ,10	✞ Electronic components (Battery , jumper, fuse, push button, switch, rotary switch) ✞ 1-Introduction to Workshop Safety 2- Turning Process and Instrumentation Measures

Week 11,12	✞ Electronic components **(**Diode , Transistor, Transformer**)** ✞ 1- Cutting Tools 2-Practical Exercise - Horizontal Turning
Week 13,14	✞using bread board and Vero board, Building a Circuit on Breadboard, Building a Circuit on Vero board ✞1- Turning Different Shapes 2- Introduction to Filing Process (practical Exercise)
Week 15	**Preparatory week before the final Exam**
Week 16	**Final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	1- Encyclopedia of Electronic Components Volume 1 (Charles Platt). 2- J. Smith and E. Johnson, "Electrical Engineering Workshop: Theory and Practice	Yes / online
Recommended Texts		No
Websites		

Grading Scheme

مخطط الدرجات

Group	**Grade**	ال تقد ير	**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	م تو سط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقب ول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	قيد المعالجة (راسب)	(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	**Support or related learning activity**	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code			
ECTS Credits	2		
SWL (hr/sem)	**125**		

Module Level	1	**Semester of Delivery**	2
Administering Department	CET	**College**	TCE
Module Leader		**e-mail**	
Module Leader's Acad. Title	Assistant Instructor	**Module Leader's Qualification**	M.A
Module Tutor	Ast. Inst. Sura Dhiaa	**e-mail**	sura.d.ibraheem@gu.edu.ia
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The module aims of English Language (Beginner) are designed to help learners at the beginner level develop their English language skills and achieve specific learning objectives. While I don't have access to the specific module aims of this coursebook, I can provide you with a general outline of the typical aims for a beginner-level English course: 1. To introduce beginner-level learners to the English language, focusing on building vocabulary and acquiring essential language structures. 2. To develop listening and speaking skills through interactive activities and engaging in basic conversational practice. 3. To enhance reading comprehension abilities by introducing simple texts and emphasizing v 4. To provide foundational writing skills, including sentence formation, paragraph writing, and completing basic forms. 5. To cultivate cultural awareness and equip learners with practical language skills for everyday situations, such as ordering food, shopping, and asking for directions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The module learning outcomes for the English Language (Beginner) module are as follows: 1. Develop basic proficiency in listening and understanding spoken English at a beginner level. 2. Demonstrate improved speaking skills by participating in simple conversations and expressing basic ideas and opinions. 3. Comprehend and interpret basic written texts, including short passages and simple dialogues. 4. Produce written texts using basic grammatical structures and vocabulary appropriate for beginner-level communication. 5. Increase vocabulary knowledge and usage to communicate in everyday situations effectively. 6. Develop an awareness of cultural aspects related to English-speaking countries and demonstrate cross-cultural understanding in language use. 7. Apply basic language skills in practical situations, such as greetings, introductions, making requests, and asking for and giving simple directions.

Indicative Contents المحتويات الإرشادية	• Unit 1: Hello! [3 hrs.] • Unit 2: Your world. [3 hrs.] • Unit 3: All about you. [3 hrs.] • Unit 4: Family and friends. [3 hrs.] • Unit 5: The way I live. [3 hrs.] • Unit 6: Every day[3 hrs.] • Unit 7: My favorites. [3 hrs.] • Unit 8: Where I live, Times past. [3 hrs.] • Unit 9: We had a great time!, I can do that! [3 hrs.] • Unit 10: Please and thank you, Here and now. [3 hrs.] • Unit 11: It's time to go!, Getting to know you. [3 hrs.] • Unit 12: The way we live, It all went wrong. [3 hrs.] • Unit 13: Let's go shopping! [3 hrs.] • Unit 14: What do you want to do? [3 hrs.] • Unit 15: Tell me! What's it like? [3 hrs.]

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 pro 1. mote 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			
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	15% (15)	5, 10	
	Assignments	2	15% (15)	2, 12	
	Projects / Lab.				
	Report	1	10% (10)	14	
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO # 1-6
	Final Exam	3hr	40% (50)	16	All
	Final Lab Exam	1hr	10% (10)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	• Hello
Week 4	• Your world
Week 5	• All about you
Week 6	• Every day
Week 7	• My favorite
Week 8	• Where I live • Times Past
Week 9	• We had a great time • I can do that
Week 10	• Please and thank you • Here and now
Week 11	• It's time to go! • Getting to know you
Week 12	• The way we live • It all went wrong
Week 13	• Let's go shopping!
Week 14	• What do you want to do?
Week 15	• Tell me! What's it like?
Week 16	• Preparatory week before the final exam

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. • 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.	
Websites		

Grading Scheme مخطط الدرجا ت				
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