وزارة التعليم العالي والبحث العلمي جـــهاز
الإشـــراف والتقـــويم العلـمي
دائرة ضمان الجودة والاعتماد الأكاديمي

استمارة وصف البرنامج الاكاديمي للعام الدراسي ٢٠٢٤_٢٠٢٥ للكليات والمعاهد

الجامعة : جامعة شط العرب الاهلية
الكلية /المعهد : الكلية التقنية الهندسية
القسم العلمي : قسم هندسة تقنيات الأجهزة الطبية
تاريخ ملء الملف : 2025/8/4

التوقيع :
اسم رئيس القسم : أ.م.د. نبيل حسين
التاريخ : 2025/8/4

التوقيع :
اسم المعاون العلمي: أ.د. كامل حسين السوداني
التاريخ : 4/8/2025

الاستاذ الدكتور
كامل حسين السوداني
كيمياء تحليلية

الكلية التقنية الهندسية
اللجنة الامتحانية
هندسة تقنيات الاجهزة الطبية

دقق الملف من قبل
شعبة ضمان الجودة والأداء الجامعي
اسم مدير شعبة ضمان الجودة والأداء الجامعي: التاريخ
/ /
التوقيع

مصادقة السيد العميد

أ.م.د. مازن عبدالاله علوان
عميد الكلية التقنية الهندسية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mechanics**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐**Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIET 1203**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGI		**Semester of Delivery**		2
Administering Department	MIET		**College**	EETC	
Module Leader	Abbas Sheyaa Alwan		**e-mail**	Abbas_sheyaa@mtu.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Dr. Ghaidaa Abdulrahman Khalid		**e-mail**	ghaidaakhalid@mtu.edu.iq	
Scientific Committee Approval Date	8/11/2023		**Version Number**	1.0	

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

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

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

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

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1:	• Introduction to Engineering Mechanics • Basic Concepts and Definitions
Week 2:	**Introduction to Statics and Vectors (Part 1)** • Course introduction, syllabus, and importance of Statics. • Fundamentals of forces, types of forces. • Scalars and vectors. • Vector addition and subtraction. • Vector components and unit vectors.
Week 3:	
Week 4:	**Introduction to Statics and Vectors (Part 2)** • Resultant of force systems (graphical method). • Resultant of force systems (analytical method). • Moments of forces (torque). • Conditions for equilibrium. • Free-body diagrams and solving equilibrium problems.
Week 5:	
Week 6:	**Stress, Strain, and Material Properties (Part 1)** • Stress and types of stress. • Strain and types of strain. • Hooke's Law and material properties. • Stress-strain diagrams. • Thermal stress and strain.
Week 7:	
Week 8:	**Mid-term Exam**
Week 9:	**Stress, Strain, and Material Properties (Part 2)** • Simple strain and deformation. • Stress and strain transformations. • Shear and axial deformation. • Review and applications of stress and strain. • Assignment on stress and strain analysis.
Week 10:	

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Engineering Mechanic's Statics, 12th Edition by R. C. Nibbler, 1995.	Yes
Recommended Texts	2- Engineering Mechanic's Statics, 7th Edition by James, L. Meriam, L. G Kraige, 1995.	No
Websites		

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

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