

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Statics		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code			
ECTS Credits	6.0		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department		College	
Module Leader	Dr. Nebras Hussein Ghaeb	e-mail	nebras@kecbu.uobaghdad.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D
Module Tutor		e-mail	
Peer Reviewer Name	Dr. Husam Kadum	e-mail	Hussam@kecbu.uobaghdad.edu.iq
Scientific Committee Approval Date		Version Number	1

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	<p>The aim of this course is to learn students to be able to solve the basic mechanics problems for biomedical applications. The course covers exercises corresponding the following topics:</p> <ol style="list-style-type: none"> 1. Drawing the free body diagram for any systems and find out the external forces.

	<ol style="list-style-type: none"> Learn how to find the internal forces that causes the equilibrium state. Specify the center of gravity, the moment of inertia, and learn how to find the mechanical work and energy.
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<p>The expected outcomes for this course will be:</p> <ol style="list-style-type: none"> Learn to draw and calculate the force vectors with the equilibrium theory for any biomedical rigid system. Calculate the internal forces for any medical system that causes the equilibrium state. Calculate the center of mass effect (center of gravity), center of geometry (centroid), and moment of inertia. Understand the work and potential energy.
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>The indicative contents for this course contents:</p> <p>Part A (Basic free body diagram and force vector):</p> <p>In this part the starting point of learning is to understand the main idea behind drawing the Free body diagram (FBD), for any medical system prior to any mechanical analysis. This FBD will be affected by the external forces that should be analyzed through the use of the vector analysis to calculate both values and direction during the equilibrium state.</p> <p>Part B (Internal forces and their position of effect):</p> <p>In this part the analysis will be internally for the medical system, here student will learn how to calculate the friction, the normal and tangential forces and their position of effect. Center of mass (for gravity effect), center of geometry (centroid) and the moment of inertia (the effect of mass rotation in uniform speed).</p> <p>Part C (Work and potential Energy)</p> <p>In this part the vector analysis of the forces, the internal force calculation and the center of effect for the gravity will be collect all together to study the required Work to change the position for the mechanical parts of the medical system with the final evaluation of the potential energy.</p>

<p>Learning and Teaching Strategies</p> <p>استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>The main strategies that will be used in this course module are:</p> <ol style="list-style-type: none"> Review the previous information and mechanical skills that the students have already gained in the primary school. The starting here, is to evaluate the final information and start to add the missing engineering sense and behaviour through specifying a template for the solution procedure. In class work, tutorials, work in groups, solve in a minute challenges with the standard lecture notes presentation are activities will be done through the structural and unstructured working load. Critical thinking, brain storm and interactivity during the course work and subject's discussions.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.5
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	4	10% (10 Marks)	2, 4, 8 and 10	Learning Objectives 1, 2, 3 and 4
	Assignments	4	10% (10 Marks)	3, 7, 10 and 13	Learning Objectives 1, 2, 3 and 4
	Projects	1	5% (10 Marks)	Continuous	All
	Report	1	5% (10 Marks)	12	Learning Objectives 1, 2, 3 and 4
Summative assessment	Midterm Exam	1 (1h)	20% (10 Marks)	6	Learning Objectives 1, 2
	Final Exam	1 (2h)	50% (50 Marks)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	General principals and review of previous material.
Week 2	Force vectors.
Week 3	Equilibrium.
Week 4	Force vector system and resultants.
Week 5	Equilibrium of a Rigid Body.
Week 6	Midterm Exam.

Week 7	Analysis of medical system.
Week 8	Internal Forces.
Week 9	Friction.
Week 10	Center of Gravity and Centroid.
Week 11	Center of Gravity and Centroid.
Week 12	Report discussions.
Week 13	Moments of Inertia.
Week 14	Work and Energy.
Week 15	Work and Energy.
Week 16	Final Exam.

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Mariam, JL, Kraige, LG and Bolton JN, Engineering Mechanics, Volume 1, Statics, 9 th edition, John Wiley and sons, 2018.	Yes
	2. Hibbeler RC, Engineering Mechanics, Statics, 15 th edition, Pearson Education, 2023.	Yes

Recommended Texts	Gross D, Ehlers W, Wriggers P, Schroder J, and Muller R, Statics Formula and Problems, Engineering Mechanics 1, Springer 2017.	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.