توصيف مقرر دراسي

جامعة : المنصورة
كـليـة : العلـــــوم
قســم : الرياضيات

١- بيانات المقرر		
الرمز الكودى :Math 122	**أسم المقرر: Mechanics 2**	**المستوى: الأول**
التخصص: إحصاء وعلوم الحاسب	**عدد الوحدات الدراسية: ٣ ساعة معتمدة نظرى ٢ : تمارين: ٢ عملى: ٠**	

٢- هدف المقرر :	**For students undertaking this course, the aims are to:** 1 - Introduce the basic principles of mechanics. 2- Develop mathematical tools for the solution of simple problems in kinematics and kinetics. 3-Illustrate the ideas of mechanics by applying them to certain key problems.
٣- المستهدف من تدريس المقرر	
أ- المعلومات و المفاهيم :	**a- Knowledge and Understanding :** **On completing this course, students will be able to:** a1 - Understand and be able to apply Newton's laws to simple problems in particle dynamics a2- Be with notions in mechanics, such as oscillations, circular motion and impulse and collisions a3- Know and understand the motion on conical pendulium
ب- المهارات الذهنية :	**b- Intellectual Skills:** **On completing this course, students will be able to:** b1- Solve problems on the equilibrium of systems b2- Apply the second law of Newton for the motion in plane using polar coordinates b3- Find the shearing forces as well as the bending moments b4- Apply the virtual work principle on mechanical systems
ج- المهارات المهنية الخاصة بالمقرر :	**c-Professional and Practical Skills:** **On completing this course, students will be able to:** c1- Use logical steps in solving problems c2- Solve mechanical problems analytically c3- Model real practical application
د- المهارات العامة :	**d-General and Transferable Skills:** **On completing this course, students will be able to:** d1- Benefit from developing his problem solving skills, modelling skills, logical thought and analysis d2- Use Internet and Library efficiently d3- Problem solving d4- Work in a team
٤- محتوى المقرر :	1 - Motion of particle in a straight line 2- Motion in a resisting medium 3- Motion of bodies having variable mass (Motion of Rockets(4- Shearing forces and bending moments 5- Mechanical system-Virtual work principle 6- Impulse, impulse forces and impact of elastic bodies 7 - Circular Motion

٥- أســـاليـــب التعليـــم و التعلـم	1 - Lectures (2H/W) 2 - Tutorial (2H/w)
٦- أساليب التعليم و التعلم للطـــلاب ذوى القـدرات المحـدودة	The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.

٧- تقويـــــم الطـــــلاب :

أ- الأساليب المستخدمة	1- Final examination	to assess	a1-a3, b1-b4, d1-d4
	2- Oral examination	to assess	a1-a3
	3- Mid_Term Examination	to assess	a1-a3, b1-b4, d1-d4
ب- التوقيت	1- Final examination	week	15
	2- Oral examination	week	15
	3- Mid_Term Examination	week	7

ج- توزيع الدرجات

Weighting of Assessments

Final-Term Examination	80%
Oral Examination	10 %
Practical Examination	0%
Mid-Term Exam	10%
Other types of assessment	0%
Total	100%

٨- قائمة الكتب الدراسية و المراجع :

أ- المذكرات	1 - departmental course notes
ب- الكتب ملزمة	1 - An Introduction to Mechanics, D. Kleppner & Robert J. Kolenkow, McGraw-Hill, 1973 2 - Basaly, W. A. Dynamics of particles and rigid bodies , 1969 (in Arabic)
ج- كتب مقترحة	1- Targ. S., Theoretical Mechanics A Short Course, English Translation, Mir publisher , 1976 . 2- Loney S. L. Dynamics of particles , Cambridge, 1960
د- دوريات علمية أو نشرات..	1- http://ia.wikipedia.org/wiki/Dynamica

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
Motion of particle in a straight line	1-3	a1- a3	b1	c1- c3	d1,d3,d4
Motion in a resisting medium	4-5	a1- a3	b1, b2	c1- c3	d1,d3,d4
Motion of bodies having variable mass (Motion of Rockets)	6-7	a1- a3	b3, b4	c1- c3	d1,d3,d4
Shearing forces and bending moments	8-9	a1- a3	b3, b4	c1- c3	d1-d4
Mechanical system-Virtual work principle	10-11	a1- a3	b3, b4	c1- c3	d1-d4
Impulse, impulse forces and impact of elastic bodies	12	a1- a3	b3, b4	c1- c3	d1-d4
Circular Motion	13	a1- a3	b3, b4	c1- c3	d1-d4

أستاذ المادة : د. الشحات عبد العزيز محمد صالح

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