جامعة : المنصورة

كليـة : العلـــــوم

قســـم : الرياضيات

١- بيانات المقرر		
كود المادة : Math 221	**اسم المقرر :** **Mechanic 3**	**المستوى: الثانى**
التخصص : رياضيات	**عدد الوحدات الدراسية: ٣ ساعة معتمدة نظرى ٢: تمارين: ٢ عملى: ٠**	

٢- هدف المقرر :	**For students undertaking this course, the aims are to:** - be familiar with the fundamental concepts of new topics of statics. - understand and interpret some physical phenomena such as hydrostatics. - understand the fundamental concepts of statistical mechanics.
٣- المستهدف من تدريس المقرر	
أ- المعلومات و المفاهيم :	**a- Knowledge and Understanding** **completing this course, students will be able to:** a1- know the rules of statics a2 – be aware of the notions of vector integration, and moment of inertia a3 – be familiar with the notion of attraction and potential and hydrostatics
ب- المهارات الذهنية :	**b- Intellectual Skills** **completing this course, students will be able to:** b1 –solve problems concerning the attraction and potentioal and hydrostatics**.** b2- evaluate the linear, surface and volume integrals**.**
ج- المهارات المهنية الخاصة بالمقرر :	**c-Professional and Practical Skills** **completing this course, students will be able to:** c1- apply the Gauss, Stokes, and Green's theorem for finding definite multiple integrals. c2 – conduct mathematical analysis for a system representing the physical phenomenon under consideration (such as attraction and potentials for some bodies

and hydrostatics) c3 - model real practical applications**.**	
d-General and Transferable Skills **completing this course, students will be able to:** d1- Use Internet and Library to get information d2- Work in a group d3- solve mechanical problems	**د- المهارات العامة :**
– Vectors integration(line, surface and volume integrals – Integral Theorems (Gauss, Stokes Green's), vector identities, conservative field, solid angle. – Attraction and potentials (and its applications). – Moment of inertia. – Introduction to hydrostatics. – Electro-statics (Attraction and Potential)	**٤- محتوى المقرر :**
1- Lectures (2H/W) 2- Tutorials (2H/w)	**٥- أســاليــب التعليـــم و التعلـم :**
The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.	**٦- أساليب التعليم و التعلم للطــلاب ذوى القـدرات المحـدودة**
	٧- تقويـــــم الطـــلاب :
1- Oral exam to assess a1-a3, b1- b2, d1-d3 2- Final exam to assess a1- a4,b1- b4,c1-c3 3- Mid-Term Exam to assess a1-a2,b1-b2,c1,c2	**أ- الأساليب المستخدمة**
1- Oral week 14 2- Final exam week 15 3-Mid-Term Exam week 7	**ب- التوقيت**
- Mid-Term Examination 10 % - Final-Term Examination 80% - Oral Examination 10% - Practical Examination 0% - Semester work 0%	**ج- توزيع الدرجات**

- Other types of assessment 0% Total 100%	
٨- قائمة الكتب الدراسية و المراجع :	
-Yehia H. M. Particle and rigid body dynamics (in Arabic)	**أ- المذكرات**
- A.S. Ramsey, Statics, Cambridge University Press (1988)	**ب- الكتب ملزمة**
Beer, Mechanics for Engineers, Statics, Mc Graw-Hill (1999)	**ج- كتب مقترحة**
http://en.wikipedia.org	**د- دوريـــــات علميـــــة أو نشرات**

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
Vectors integration(line, surface and volume integrals	1-4	a1, a2	b1	c1, c2	d1, d2
Integral Theorems (Gauss, Stokes Green's), vector identities, conservative field, solid angle.	5-6	a1, a2	b2	c1, c2	d1, d2
Attraction and potentials (and its applications).	7-8	a3	b1	c1, c2	d1, d2
Moment of inertia.	9-11	a2	b2	c2	d1,d2,d3
Introduction to hydrostatics.	12-13	a2, a3	b2	c2-c3	d1,d2,d3

أستاذ المادة : د. عادل عبد العزيز

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