

وصف مقرر دراسي Course Description

متطلب متزامن Co-Req.	متطلب سابق Pre-Req	تأريخ TU	عملي LB	نظري LT	الساعات CR	اسم المقرر Course Title	رقم ورمز المقرر Course Code
	201 هعم GE 201	1	-	3	3	الديناميكا Dynamics	202 هعم GE 202

محتويات المقرر:

كينماتيكا الجسيمات : الحركة الانحنائية ؛ الحركة النسبية ؛ كينماتيكا الأجسام الجاسئة ؛ السرعة والتسارع النسبيين ؛ المحاور الدوارة ؛ كينماتيكا الجسيم : قانون نيوتن ؛ الشغل والطاقة و الدفع وكمية الحركة و التصادم للجسيمات ؛ الكينماتيكا المستوية للأجسام الجاسئة ؛ الانتقال ؛ الدوران حول محور ثابت ؛ الحركة العامة ؛ الكينماتيكا المستوية للأجسام الجاسئة ، المعادلة العامة للحركة ، الشغل والطاقة والدفع وكمية الحركة للأجسام الجاسئة .

Course Contents:

Kinematics of a particle: curvilinear motion, and relative motion; Kinetics of particles: Newton's law, work and energy, impulse and momentum, and impact; Kinematics of a rigid body in plane motion: relative velocity and acceleration, and rotating axes; Kinetics of a rigid body in plane motion: translation, fixed axis rotation, general equation of motion, work and energy, and impulse and momentum..

Course Objectives:

To develop student's skills to understand and postulate modeling assumptions that lead to well-posed equations, establish coordinates, sign conventions, variables, and parameters that quantify physical conditions or states, draw clear and rigorous Free Body Diagrams that accurately describe physical systems, maintaining consistency with assumptions and quantifiers. Write equations (in vector form) that govern the behavior physical systems, and check that the equations are well-posed , determine the solutions using mathematical techniques that are appropriate to their level (e.g. calculus, vector algebra, modest computing). distinguish kinematics principles from kinetics principles. distinguish particles from rigid bodies, and translation from rotation, use balance laws of linear momentum, angular momentum, and energy.

Evaluation Methods:

1. Midterm exams
2. Assignments
3. Quizzes
4. Final exam

Text Book and References:

- Textbook** J.L. Meriam and LG. Kraige , "Engineering Mechanics; Volume II, DYNAMICS", Wiley, 2003,
- References**
- 1) Russel C. Hibbeler, Engineering Mechanics: Dynamics, SI Version, Prentice Hall, 1997.
 - 2) F. P. Beer and E. R. Johnston Jr., Vector Mechanics for Engineers, Dynamics, 6th Edition, McGraw-Hill, 1996.
 - 3) I. H. Shames, Engineering Mechanics: Dynamics, 4th Edition, Prentice Hall, 1998.

