

Sub.	Course Description – توصيف مقرر دراسي	الموضوع	 كليات المعرفة ALMAAREFA COLLEGES
Date		التاريخ	

Course Code & No	ENGR 204		رقم المقرر ورمزه
Course Name	Dynamics		اسم المقرر
Credit Hours	3 (3+1+0)		عدد الساعات المعتمدة
Pre-requisite	GE 203		المتطلب السابق

General Description	توصيف عام
Kinematics and Kinetics of a particle, kinetics of a system of particles. Kinematics and kinetics of a rigid body in plane motion.	

Course Objectives	أهداف المقرر
The course aims to provide the knowledge about kinematics and kinetics of particles, and rigid body in motion.	
By the end of the course, each student should be able to <ul style="list-style-type: none"> • Present the particle kinematics in a better way. • Able to solve real world kinematics and kinetics problems • Analyze kinetics and kinematics of rigid bodies in practical engineering problems. 	

Course Outlines	مفردات المقرر
<ul style="list-style-type: none"> • Newton's Laws and Gravitation • Kinematics of Particles: Rectilinear, Curvilinear motions, normal, tangential and polar coordinates, Relative motion. • Kinetics of particles: Newton's second law, work and kinetic energy, impulse and momentum, conservation of momentum. • Impact: Direct central and oblique central impacts • Plane Kinematics of Rigid Bodies: Relative velocity, acceleration, motion relative to rotating axis. • Plane Kinetics of Rigid Bodies: Translation, fixed-axis rotation, general plane motion, work and energy, impulse and momentum, angular impulse and momentum. 	

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References	المراجع
<p>Required Textbooks Engineering Mechanics; Meriam L, Kraige L.G., Volume 2, latest Edition, Wiley, ISBN-13: 978-0470614815</p> <p>Essential References Materials Engineering Mechanics: Dynamics; Hibbeler R.C., Latest Edition, Prentice Hall, ISBN-13: 978-0132911276</p>	