Montgomery County Community College
EGR 204
Engineering Dynamics
3-2-2

COURSE DESCRIPTION:
This course is a vector approach to the study of the rectilinear and curvilinear motion of particles and rigid bodies as described by rectangular, polar, and path coordinates and the study of the forces that produce such motion as described through the application of Newton's second law of motion, work-energy relationships, and impulse and momentum principles, including rigid body rotation and relative motion. This course is subject to a course fee. Refer to http://mc3.edu/adm-fin-aid/paying/tuition/course-fees for current rates.

REQUISITES:
Previous Course Requirements
EGR 203 Engineering Statics

Concurrent Course Requirements
MAT 201 Calculus and Analytic Geometry II

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to:	LEARNING ACTIVITIES	EVALUATION METHODS
1. Apply the concepts of position, velocity, and acceleration to determine motion along a straight line, to represent the same graphically, and to characterize particle motion along a straight line using different coordinate systems. Analyze dependent motion of two particles and to be able to describe the principles of relative motion of two particles using translating axes.	Lecture Problem Solving Assignments Design of Experiments	Section Examination Design of Experiments Review

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
5. Identify the various types of rigid-body planar motion, rigid-body translation, and motion about a fixed axis, and produce a relative motion analysis of velocity and acceleration using translating and rotating frames of reference, including the identification of the inr7Qq72.264 470.59 157		

a. Energy Methods for a Rigid Body
b. Momentum Methods for a Rigid Body
c. Eccentric Impact

8. Kinetics of Rigid Bodies in Three Dimensions

a. Energy and Momentum of a Rigid Body

LEARNING MATERIALS:
Present selected text:
Beer, F.P., Johnston, E.R. Jr., Mazurek, D.F., Eisenberg, E.R. (2010). *Vector Mechanics for Engineers: Statics and Dynamics* (9th Ed.). McGraw-Hill.

Other learning materials may be required and made available directly to the student and/or via the and/or course management system.

COURSE APPROVAL:

Prepared by: William Brownlowe Date: 3/1/2004
VPAA/Provost Compliance Verification: Dr. John C. Flynn, Jr. Date: 6/9/2004

Revised by: Dr. David Brookstein, Dean for STEM Date: 3/8/2013
VPAA/Provost or designee Compliance Verification:
Victoria L. Bastecki-Perez, Ed.D. Date: 4/16/2013

Revised by: Chengyang Wang, Ph.D. Date: 12/21/2017