COURSE OUTLINE: MCH111 - APPLIED MECHANICS

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Approved: Greg Mapp, Chair, Aviation Technology - Flight

Course Code: Title	MCH111: APPLIED MECHANICS
Program Number: Name	4061: AVIATION TECHNOLOGY
Department:	AVIATION TECHNOLOGY
Semesters/Terms:	18F
Course Description:	This course advances the study of mechanics into the area of dynamics. Topics include: KINEMATICS (uniformly accelerated motion, projectile motion, circular motion, Newton`s Second Law rectilinear and angular motion), inertia, dynamic equilibrium (work, energy forms, power, efficiency), impulse and momentum (linear and angular), dynamic friction.
Total Credits:	4
Hours/Week:	3
Total Hours:	45
Prerequisites:	MCH110
Corequisites:	There are no co-requisites for this course.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
General Education Themes:	Science and Technology
Course Evaluation:	Passing Grade: 50%, D
Books and Required Resources:	Applied Mechanics for Engineering Technology by Keith M. Walker Publisher: Pearson Prentice-Hall Edition: 8 ISBN: 9780131721517
Course Outcomes and Learning Objectives:	(see below)

Course Outcome 1	Learning Objectives for Course Outcome 1
Kinematics of Particles	a) Distance and Displacement b) Speed and Velocity c) Acceleration d) Uniformly Accelerated Motion e) Falling Bodies - the acceleration due to gravity

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		f) Projectiles and Projectile Motion
	Course Outcome 2	**Learning Objectives for Course Outcome 2**
	Rotational Motion	a) Angular Displacement (radians) b) Angular Velocity c) Angular Acceleration d) Angular Motion with uniform acceleration e) Relationship between Rectilinear Motion and Angular Motion f) Normal and Tangential Acceleration g) Total Angular Acceleration
	Course Outcome 3	**Learning Objectives for Course Outcome 3**
	Kinetics: Forces and General Planar Motion	a) Newton`s Second Law of Motion b) Accelerating Forces - horizontal and vertical motion c) Dynamic Equilibrium - the Linear Inertia Force d) Angular Dynamic Equilibrium - the Angular Inertia Torque
	Course Outcome 4	**Learning Objectives for Course Outcome 4**
	Work, Energy and Power	a) the concept of work b) Work done by constant forces c) Work done by variable forces d) Energy e) Gravitational Potential Energy f) Kinetic Energy g) Conservation of Energy Translational h) Moment of Inertia of bodies i) Kinetic Energy of Rotation j) Conservation of Energy - Angular k) Power l) Efficiency
	Course Outcome 5	**Learning Objectives for Course Outcome 5**
	Impulse and Momentum	a) Linear Impulse b) Linear Momentum c) Angular Impulse d) Angular Momentum e) Conservation of Momentum

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Quizzes	40%	
Tests	60%	

Date: July 30, 2018

Please refer to the course outline addendum on the Learning Management System for further information.