COURSE OUTLINE

PHY125

Prepared: Douglas McKinnon   Approved: Greg Mapp

Course Code: Title	PHY125: PHYSICS
Program Number: Name	4061: AVIATION TECHNOLOGY
Department:	AVIATION TECHNOLOGY
Course Description:	Topics included are properties of fluids, forces, and pressure involved in hydrostatics and hydraulics, wave motion and propagation, properties and intensity levels of sounds.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
This course is a pre-requisite for:	AFT120
Essential Employability Skills (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.
	#2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.
	#3. Execute mathematical operations accurately.
	#4. Apply a systematic approach to solve problems.
	#5. Use a variety of thinking skills to anticipate and solve problems.
	#7. Analyze, evaluate, and apply relevant information from a variety of sources.
	#8. Show respect for the diverse opinions, values, belief systems, and contributions of others.
	#10. Manage the use of time and other resources to complete projects.
	#11. Take responsibility for ones own actions, decisions, and consequences.
General Education Themes:	Science and Technology
Course Evaluation:	Passing Grade: 50%, D
Evaluation Process and	Tests is 100% of the total grade

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Grading System:	
Books and Required Resources:	Physics by James S. Walker Publisher: Pearson Addison-Wesley Edition: 5 ISBN: 9780321976444
Course Outcomes and Learning Objectives:	**Course Outcome 1.** Introduction and Mathematical Concepts **Learning Objectives 1.** a) Mathematics of basic physics b) Units of measurement c) Base quantities and units d) S.I. metric prefixes and their abbreviations e) Derived quantities and derived units f) Conversion of units of measure g) Significant figures h) Numerical accuracy and precision i) Vector and scalar quantities **Course Outcome 2.** Introductory Kinematics and Dynamics **Learning Objectives 2.** a) Distance and displacement b) Speed and velocity c) Acceleration

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d) Equations of "uniform accelerated motion"
e) Acceleration due to gravity – free fall
f) Projectile motion
g) Definition and characteristics of forces
h) Types of forces
i) Distinguish between mass and weight
j) Definition and application of Newton's three laws of motion
k) "normal force" and Newton's third law of motion
l) Static and kinetic frictional forces
m) The tension (tensile) force
n) Static equilibrium problems

Course Outcome 3.

Introductory WORK, ENERGY, IMPULSE, MOMENTUM and ROTATIONAL KINEMATICS

Learning Objectives 3.

a) Define and describe work and energy
b) Distinguish between kinetic and potential energy
c) Gravitational potential energy
d) Conservation of energy and mechanical energy
e) Definition of power
f) Efficiency
g) Mechanical advantage
h) Velocity ratio
i) Analyze and describe"simple" machines
j) Define and describe Momentum
k) Define and describe Impulse
l) Understand the conservation of momentum
m) Describe and determine Angular measurement and derivation of velocity and acceleration
n) Equations and attributes of rotational kinematics
o) Describe the relationship between angular and linear motion
p) Define and describe normal and centripetal forces.
q) Quantify normal and centripetal forces

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Course Outcome 4.

MECHANICAL PROPERTIES OF SOLIDS, LIQUIDS AND GASES

Learning Objectives 4.

a) Mass density
b) Weight density
c) Specific gravity
d) Define pressure
e) Units of pressure measurement
f) Pressure at a depth in a liquid
g) Atmospheric, absolute and gauge pressure
h) Pascals Law
i) Describe the hydraulic press
j) Understand and apply Archimedes Principle
k) Fluids in motion
l) Understand and apply Bernoullis Principle and Equation

Course Outcome 5.

TEMPERATURE and HEAT

Learning Objectives 5.

a) Define and describe temperature
b) Convert between various temperature scales
c) Define and describe heat

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	d) Quantify thermal linear, area and volume expansion of solids e) Quantify thermal volume expansion of liquids f) Define specific heat capacity g) Define and describe physical characteristics of changes of state h) Describe and quantify specific heat of fusion and vaporization i) Understand various methods of heat transfer j) Understand and quantify the ideal and general gas laws k) Awareness of Boyles, Charles and Gay-Lussacs gas laws
Date:	Friday, July 14, 2017