COURSE OUTLINE: PHY125 - PHYSICS

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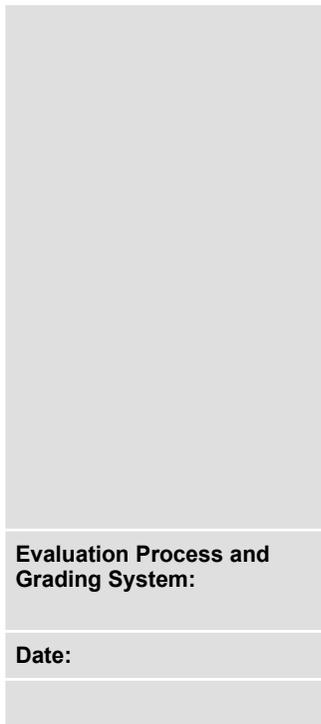Approved: Greg Mapp, Chair, Aviation Technology - Flight

Course Code: Title	PHY125: PHYSICS
Program Number: Name	4061: AVIATION TECHNOLOGY
Department:	AVIATION TECHNOLOGY
Semesters/Terms:	18F
Course Description:	The intention of this course is to provide both a review of, and a more in-depth study of the many concepts of applied physics introduced in the secondary school physics curricula. An attempt is made to limit the topics to those which should prove to be relevant to the aviation flight student.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	AFT120, AVF122, AVT123, ELR104
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 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. 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.
Course Evaluation:	Passing Grade: 50%, D
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**	**Learning Objectives for Course Outcome 1**
	Introduction and Mathematical Concepts	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	**Learning Objectives for Course Outcome 2**
Introductory Kinematics and Dynamics	a) Distance and displacement b) Speed and velocity c) Acceleration d) Equations of ÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬Ãƒ... uniform accelerated motionÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬Ãƒ`Ã`Â□ e) Acceleration due to gravity ÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬ 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 NewtonÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬ÃƒÂ three laws of motion k) ÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬Ãƒ... normal forceÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬ and NewtonÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬Ãƒ¢ Ã`Â¢s third law of motion l) Static and kinetic frictional forces m) The tension (tensile) force n) Static equilibrium problems
Course Outcome 3	**Learning Objectives for Course Outcome 3**
Introductory WORK, ENERGY, IMPULSE, MOMENTUM and ROTATIONAL KINEMATICS	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 describeÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã`Â¬Ãƒ`Ã`Â□simpleÃƒÆ`Ã`Â¢ÃƒÂ¢`Ã 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 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
Course Outcome 4	**Learning Objectives for Course Outcome 4**
MECHANICAL PROPERTIES OF SOLIDS, LIQUIDS AND GASES	a) Mass density b) Weight density c) Specific gravity d) Define pressure e) Units of pressure measurement

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		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	**Learning Objectives for Course Outcome 5**
	TEMPERATURE and HEAT	a) Define and describe temperature b) Convert between various temperature scales c) Define and describe heat 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 sta 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

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Tests	100%	

Date: July 30, 2018

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