DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2013

PC 1240 INTRODUCTORY GENERAL PHYSICS I – 3.0 (3-0-3) UT (3)

INSTRUCTOR: Dr. Robert (Bert) Hunt P. Eng. FEC, FGC **PHONE:** 780-539-2008

OFFICE: C 414 **E-MAIL:** bhunt@gprc.ab.ca

OFFICE HOURS: MTWR noon-2 pm

PREREQUISITE(S): Physics 20 or equivalent, and Pure Mathematics 30 (Math 30-1). Physics 30 is strongly recommended. Credit may be obtained for only one of PHYS 124, 144, or EN PH 131.

REQUIRED TEXT/RESOURCE MATERIALS: PHYSICS Walker 4th Edition

CALENDAR DESCRIPTION:

> **This is an algebra-based course for students in life, environmental, and medical sciences. It guides the student through two distinct types of motion: motion of matter (particles) and wave motion. Vectors, forces, bodies in equilibrium, elasticity and fracture; review of kinematics and basic dynamics; conservation of momentum and energy; circular motion; vibrations; waves in matter; wave optics; sound; black body radiation, photons, de Broglie waves; models of the atom. Examples relevant in environmental, life and medical sciences will be emphasized.**

CREDIT/CONTACT HOURS: 3 hours lecture and 3 hours lab per week

DELIVERY MODE(S): **COURSE OUTLINE**

Chapter 1 Introduction to Physics

Chapter 2 One-Dimensional Kinematics

Chapter 3 Vectors in Physics

Chapter 4 Two-Dimensional Kinematics

Chapter 5 Newton's Laws of Motion

Chapter 6 Applications of Newton's Laws

Chapter 7 Work and Kinetic Energy (Sections 7.1-2, 4)

Chapter 8 Potential Energy and Conservation of Energy (Sections 8.1-4)

Chapter 9 Linear Momentum and Collisions (Sections 9.1-7)

Chapter 10 Rotational Kinematics and Energy

Chapter 11 Rotational Dynamics and Static Equilibrium

Chapter 12 Gravity (Sections 12.1-2, 4-5)

Chapter 13 Oscillations about Equilibrium (Sections 13.1-6, except The Physical Pendulum in Section 13.6)

Chapter 14 Waves and Sound (Sections 14.1-2, 4-9)

Chapter 28 Physical Optics: Interference and Diffraction (Sections 28.1-2,4,6)

Chapter 25 Electromagnetic Waves (Sections 25.2-3)

TRANSFERABILITY : **It is a University of Alberta Course**

**** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

GRADING CRITERIA:

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	**4-point Equivalent**	**Percentage Guidelines**	**Designation**
A^{+}	**4.0**	**90 – 100**	**EXCELLENT**
A	**4.0**	**85 – 89**	
A^{-}	**3.7**	**80 – 84**	**FIRST CLASS STANDING**
B^{+}	**3.3**	**77 – 79**	
B	**3.0**	**73 – 76**	**GOOD**
B^{-}	**2.7**	**70 – 72**	
C^{+}	**2.3**	**67 – 69**	**SATISFACTORY**
C	**2.0**	**63 – 66**	
C^{-}	**1.7**	**60 – 62**	
D^{+}	**1.3**	**55 – 59**	**MINIMAL PASS**
D	**1.0**	**50 – 54**	
F	**0.0**	**0 – 49**	**FAIL**
WF	**0.0**	**0**	**FAIL, withdrawal after the deadline**

EVALUATIONS:

Assignments	15%	
Laboratories	20%	
Mid-Term Examination	20%	(Oct. 16/13)
Final Examination	45%	(TBA)

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the College Admission Guide at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at www.gprc.ab.ca/about/administration/policies/**

**Note: all Academic and Administrative policies are available on the same page.

COURSE SCHEDULE/TENTATIVE TIMELINE:

Lecture	**M W**	**10:00 - 11:20 a.m.**	**J202**
Laboratory	**W or R**	**2:30 - 5:20 p.m.**	**J103**

LABORATORY COMPONENT

Lab #	Source	Content	Week of
1	Exp. #1	Graphical Analysis	Sept. 9
2	Handout	Vector Addition	Sept. 16
3	Exp. #3	Non-Uniform Motion	Sept. 23
4	Exp. #2	Acceleration Due to Gravity	Sept . 30
5	Exp. #4	Atwood's Pulley	Oct. 7
6	Exp. #5	Potential and Kinetic Energy	Oct. 21
7	Exp. #6	Collision of Ball	Oct. 28
8	Exp. #7	Standing Waves on a String	Nov. 4
9	Exp. #8	Speed of Sound in Air	Nov. 11
10	Exp. #9	Interference of Light	Nov. 18