

### **DEPARTMENT OF SCIENCE**

### **COURSE OUTLINE - FALL 2012**

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

**INSTRUCTOR:** Dr. Robert (Bert) **PHONE:** 780-539-2008

Hunt P. Eng. FEC

**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. 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 4<sup>th</sup> 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	Percentage	Designation			
	Equivalent	Guidelines				
A⁺	4.0	90 – 100	EXCELLENT			
Α	4.0	85 – 89				
<b>A</b> <sup>-</sup>	3.7	80 – 84	FIRST CLASS STANDING			
B⁺	3.3	77 – 79				
В	3.0	73 – 76	GOOD			
B <sup>-</sup>	2.7	70 – 72	GOOD			
C <sup>+</sup>	2.3	67 – 69				
С	2.0	63 – 66	SATISFACTORY			
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. 17/12)

Final Examination 45% (TBA)

# STATEMENT ON PLAGIARISM AND CHEATING:

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

# **COURSE SCHEDULE/TENTATIVE TIMELINE:**

Lecture	M W	10:00 - 11:20 a.m.	J202	
Laboratory	W or P	2·20 E·20 n m	1102	
Laboratory	W or R	2:30 - 5:20 p.m.	J103	

### **LABORATORY COMPONENT**

Lab # Source		Content	Week of
1	Exp. #1	Graphical Analysis	Sept. 10
2	Handout	Vector Addition	Sept. 17
3	Exp. #3	Non-Uniform Motion	Sept. 24
4	Exp. #2	<b>Acceleration Due to Gravity</b>	Oct . 1
5	Exp. #4	Atwood's Pulley	Oct. 8
6	Exp. #5	Potential and Kinetic Energy	Oct. 22
7	Exp. #6	Collision of Ball	Oct. 29
8	Exp. #7	Standing Waves on a String	Nov. 5
9	Exp. #8	Speed of Sound in Air	Nov. 12
10	Exp. #9	Interference of Light	Nov. 19

<sup>\*\*</sup>Note: all Academic and Administrative policies are available on the same page.