

Grande Prairie Regional College

Department of Science

PC1240 INTRODUCTORY GENERAL PHYSICS I 3.0 (3-0-3) UT(3)

Lectures	T R	13:00 - 14:20	J229
Laboratory	W or R	14:30 - 17:20	J103

INSTRUCTOR:	Dr. Tanvir Sadiq, P. Eng.
OFFICE:	J 209
PHONE:	539-2865
E-MAIL:	tsadiq@gprc.ab.ca
TEXT:	Physics: James S. Walker, 3rd Edition (Pearson – Prentice Hall)

COURSE CONTENT:

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.

PRE-REQUISITE: Physics 20 or equivalent, Pure Mathematics 30. Physics 30 is strongly recommended.

Credit may normally be obtained for only one of PC1010, PC1020, PC1080, PC1240, PC1440, or PC1310.

MARK DISTRIBUTION:	Assignments	12%
	Quizzes	3%
	Laboratories	20%
	Mid-Term Examination	20% (Oct. 25/06 evening)
	Final Examination	45% (TBA)

LABORATORY COMPONENT

Lab #	Source	Content	Week of
1	Exp. #1	Graphical Analysis	Sept 11
2	Handout	Vector Addition	Sept 18
3	Exp. #3	Non-Uniform Motion	Sept 25
4	Exp. #2	Acceleration Due to Gravity	Oct 02
5	Exp. #4	Atwood's Pulley	Oct 09
6	Exp. #5	Potential and Kinetic Energy	Oct 16
7	Exp. #6	Collision of Ball	Oct 30
8	Exp. #7	Standing Waves on a String	Nov 06
9	Exp. #8	Speed of Sound in Air	Nov 13
10	Exp. #9	Interference of Light	Nov 20

GRADING GUIDELINES

Descriptor	Percentage	Alpha Grade	4 - point Equivalent
Excellent	90 - 100	A+	4.0
	85 - 89	A	4.0
Very Good	80 - 84	A-	3.7
	76 - 79	B+	3.3
Good	73 - 75	B	3.0
	70 - 72	B-	2.7
Satisfactory	67 - 69	C+	2.3
	64 - 66	C	2.0
	60 - 63	C-	1.7
Poor	50 - 59	D+	1.3
Minimal Pass	50 - 54	D	1.0
Fail	≤ 49	F	0.0

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, excluding <i>The Physical Pendulum</i> 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)
Chapter 30	Quantum Physics