Registration

Grande Prairie Regional College

Department of Science

PC 231 Mechanics 3.8(3-0-1.5) UT(3.8) Fall 91

U of A Equivalent - Physics 131

Course Outline

Instructor	Dr. Jaime P. Santiago J209 539-2865 (Office) 539-4534 (Residence)
Prerequisites:	MA 31 and PC 30
Co-requisite:	MA 212
Lecture:	T R 9:30 - 10:50 a.m.
Laboratory:	T 3:00 - 5:50 p.m.
Textbook:	**Fundamentals of Physics, 3rd Edition** by David Halliday and Robert Resnick
Laboratory Manual:	**Physics 131/137/141/143 Laboratory Manual** University of Alberta Physics Department
Assignments:	10 assignment problem sets 20% deduction for each day late

MARKS:		
	Assignments	15%
	Midterm Exam I	15%
	Midterm Exam II	15%
	Final Exam	35%
	Laboratory Work	20%

GRANDE PRAIRIE, ALBERTA CANADA T8V 4C4 ★ TELEPHONE (403) 539-2945 ★ FAX (403) 539-2832

COURSE MATERIAL:

Lecture	Date	Day	Chapter	Sections	Topics
1	Sept. 5	R	1	All	Introduction, Measurement
2	Sept. 10	T	3	3-1 to 3-5	Coordinate systems, vectors
3	Sept. 12	R	2	2-1 to 2-6	Position, Displacement, Velocity, Acceleration
4	Sept. 17	T	2	2-7	Freely falling bodies
5	Sept. 19	R	4	4-1 to 4-4	Motion in a Plane
				4-10	Relative Motion
6	Sept. 24	T	4	4-5	Projectile Motion
7	Sept. 26	R	4	4-7	Uniform Circular Motion
8	Oct. 1	T	5	5-1 to 5-5	Force, mass, Newton's Laws of Motion
9	Oct. 3	R	5	5-6 to 5-9	Mass and weight; Applying Newton's Laws of Motion
10	Oct. 8	T	6	6-1 to 6-3	Friction; Air resistance
11	Oct. 10	R	6	6-4	Centripetal force; Applying Newton's Laws of Motion including friction
	Oct. 15	**T**	**Midterm Examination I Chapters 1-5**		
12	Oct. 17	R	7	7-1, 7-2	Work done by constant force
13	Oct. 22	T	7	7-3, 7-4	Work done by variable force; work done by spring
14	Oct. 24	R	7	7-5, 7-6	Kinetic energy; Power
15	Oct. 29	T	8	8-1 to 8-4	Potential energy

Lecture	Date	Day	Chapter	Sections	Topics
16	Oct. 31	R	8	8 5 to 8-8	Conservative and Non-conservative forces; Potential energy curve; Conservation of energy
17	Nov. 5	T	9	9-1 to 9-3	Center of mass; Newton's second law for system of particles
18	Nov. 7	R	9	9-4 to 9-6	Linear momentum; Conservation of momentum
19	Nov. 12	T	10	10-1 to 10-4	Impulse; Elastic and inelastic collisions in 1 dimension
20	Nov. 14	R	10	10-5	Collisions in 2 dimensions
	Nov. 19	**T**	**Midterm Examination II Chapters 5-9**		
21	Nov. 21	R	11	11-1 to 11-5	Kinematics of rotating rigid bodies
22	Nov. 26	T	11	11-6, 11-7	Rotational kinetic energy; Moment of inertia;
23	Nov. 28	R	11	11-8 to 11-10	Torque; Newton's Second Law; Work; Power
24	Dec. 3	T	12	12-1 to 12-5	Rolling motion, torque, angular momentum
25	Dec. 5	R	12	12-6 to 12-9	Newton's Second Law for rotational motion; Rotating rigid bodies; Conservation of Angular Momentum
26	Dec. 10	T	15	15-1 to 15-8	Gravitation

LABORATORY WORK

Laboratory Marking: Prelab 5 marks

Lab Report 10 marks

Prelab work will be collected at the start of each lab period and marked during the lab period.

Laboratory reports are due at the end of the laboratory period. There will be a 20% deduction per day late for laboratory reports.

SCHEDULE

No.	Dates	Experiment	Title
1	Sept. 10/17	----------	Introduction to lab
2	Sept 24/Oct 1	A(Handout)	Addition of Vectors
3	Oct 8/15	1	Kinematics
	Oct 22		No labs during midterm exam week
4	Oct 29/Nov 5	3	Atwood's Pulley
5	Nov 12/19	6	Conservation of Mechanical Energy
6	Nov 26/Dec 3	13	Hooke's Law