Camosun College Physics Department

Physics 150– Technical Physics 1
Q1, 2002/2003

Course description: PHYS 150 is a first course in physics with application to engineering technology, recommended for students who took Physics 11 several years ago. Students are introduced to the nature of physics and the methodology of problem-solving and data analysis. Topics include measurement, graphs, 1-D kinematics, dynamics, mechanical and thermal energy.

Pre or Corequisite: Math 172 or Math 11 or assessment.

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Office Hours: posted on office door

Grade Calculation:

The final grade will be calculated according to the following breakdown:

Quizzes (4 or 5)	30%
Assignments	10%
Lab work	10%
Final exam	50%

Note: The lowest quiz grade will be dropped when calculating the average of your quizzes. This allows a student to be absent on any one quiz day for any reason, including illness, without penalty. There is no provision for "making up" a missed quiz.

Note: If your final exam grade is higher than your term work grade and your term work is judged satisfactory, then your final exam grade will count as 90% of your final grade with the other 10% being your lab mark.

Labs:

There will be 10 labs given in this course. Nine of the ten labs must be completed to pass this course. If you miss a second lab for any reason, the lab must be made up outside of class time, and except for extraordinary reasons, the missed lab must be made up within a week of the original lab. If you complete all ten labs, the lowest lab mark will be dropped.

To pass this course, you must pass the lab portion with a minimum average of 60%. However, if you get less than 60% on any individual lab, you may fix your mistakes on that lab and turn it in again for a passing grade.

In addition, all labs must be handed in to the lab instructor before the final exam, or the student will not be allowed to write the final.

Materials required:

Scientific Calculator (any calculator is acceptable, with the exception of personal computers)
Ruler and Protractor
Graph Paper (must be either 10 lines/inch or millimetre graph paper)
Bound full-size lab notebook (spiral-bound is fine)

Study Time:

It is recommended that between 5 and 10 hours per week (or more for students with a weak background) be spent studying for this course outside of class time.

Grade Scale:

Final letter grades are normally assigned as follows (subject to the conditions above):

Percentage	**Letter Grade**
95 to 100	A+
90 to 94	A
85 to 89	A-
80 to 84	B+
75 to 79	B
70 to 74	B-
65 to 69	C+
60 to 64	C
50 to 59	D
below 50	

Course Outline:

Introduction to Measurement:
- concepts of physics
- precision and accuracy
- significant figures
- scientific notation
- SI units, base units, prefixes, derived units
- unit conversion
- problem solving ---------- Assignment #1, Test #1 ----------

Newton's First Law:
- vectors and scalars
- forces
- free-body diagrams
- mass vs. weight
- Newton's First Law
- equilibrium problems
- graphical intro to forces in 2D ---------- Assignment #2, Test #2 ----------

Kinematics:
- intro to kinematics
- kinematic quantities
- average speed/velocity
- instantaneous velocity
- kinematic equations
- kinematic graphs ---------- Assignment #3, Test #3 ----------

Newton's Second Law:
- 2^{nd} Law problems
- falling objects

Newton's Third Law:
- free-body diagrams
- 3^{rd} law concept problems ---------- Assignment #4, Test #4 ----------

Work, Energy, & Power
- work
- kinetic energy
- gravitational potential energy
- elastic potential energy
- conservation of energy
- power and efficiency ---------- Assignment #5, Test #5 ----------

Review