



A: Division: INSTRUCTIONAL DATE: May 27, 1997

Department: SCIENCE & TECHNOLOGY New Course: \_\_\_\_\_

Revision of Course Information form: X

DATED: November 20, 1993

C: <u>PHYS 207</u>	D: <u>Introduction General Physics II</u>	E: <u>5</u>
Subject & Course No.	Descriptive Title	Semester Credit

F: Calendar Description: This is a non-calculus based course. Topics include geometric optics; waves; interference; diffraction; and polarization of light.

Summary of Revisions: (Enter date & section)

laws of thermodynamics.

H

Per Semester PHYS 107 or Math 12 (C or higher) with either

K: Maximum Class Size: \_\_\_\_\_

M: Transfer Credit: \_\_\_\_\_

Granted X

Unassigned Credit as Appropriate

U.B.C.  
S.F.U. (Attached)  
U. Vic  
OTHER:

*[Handwritten signature]*

N: Textbooks and materials to be purchased by students  
(Use Bibliographic Form):

Cutnell and Johnson, Physics, Second Edition, Wiley and Sons, 1992.

Complete Form with Entries Under the Following Headings:

O. Course Objectives: P. Course Content: Q. Method of Instruction:

R. Course Evaluation:

O. Course Objectives:

The student will be able to:

- 1) identify the following mechanical quantities and their units (where applicable):  
 wavelength, frequency, velocity, index of refraction, focal length, radius of curvature, electric field, electric potential difference, capacitance, permittivity, dielectric constant, electromotive force, current, resistance, resistivity, galvanic cell, Faraday constant, inductance, energy, time constant, magnetic field, magnetic flux, magnetic moment, magnetic field, half life, temperature, coefficient of expansion, pressure, volume, mass, mole, gas constant, molecular mass, energy, work, efficiency.

2) demonstrate an understanding of the following concepts, procedures, and principles of mechanics through the solution of problems:

- 2.1) law of reflection
- 2.2) law of refraction/Snell's law
- 2.3) total internal reflection
- 2.4) mirror equation
- 2.5) lens makers equation
- 2.6) thin lens equation

O. Course Objective (continued)

- 2.19) Ohm's law
- 2.20) resistance and resistivity
- 2.21) electric energy and power
- 2.22) resistor combinations
- 2.23) Kirchhoff's rules
- 2.24) capacitor charging
- 2.25) magnetic force on moving charge

- 2.40) thermodynamic processes
- 2.41) efficiency
- 2.42) Carnot cycle
- 2.43) entropy

3. perform laboratory experiments and analyze the data obtained using appropriate graphing techniques, scientific notation, significant figures, and experimental uncertainty consideration.

4. write a formal laboratory report in the conventional format required for submissions to scientific journals.

P. Course Content

1. Light

- 1.1) Wave nature of light
- 1.2) Reflection and refraction
- 1.3) Mirrors and lenses
- 1.4) Optical devices
- 1.5) Polarization of light

2. Electricity and Magnetism -

- 2.1) Electrostatic force and field
- 2.2) Electric potential
- 2.3) Capacitance
- 2.4) Direct current circuit elements
- 2.5) Direct current circuit analysis
- 2.6) Magnetic force and field
- 2.7) Magnetic force applications
- 2.8) Ampere's law
- 2.9) Direct current meters
- 2.10) Electromagnetic induction

P. Course Content (continued)

- 3. Heat
  - 3.1) Temperature and thermometers
  - 3.2) Thermal expansion of solids and liquids
  - 3.3) Calorimetry
  - 3.4) Heat capacity and latent heats
  - 3.5) Heat transfer
  - 3.6) Thermodynamics
  
- 4. Laboratory Experiments -
  - 4.1) The Spectrometer
  - 4.2) Wavelength Determinations
  - 4.3) Thin Lenses and Spherical Mirrors
  - 4.4) Charged Particles in an Electric Field
  - 4.5) Capacitors
  - 4.6) Inductance
  - 4.7) Radioactivity
  - 4.8) Motion of Charged Particles in a Magnetic Field
  - 4.9) Thermal Linear Expansion of Solids
  - 4.10) Heating Effect of an Electric Current

Q. Method of Instruction

Classroom time will be spent reviewing the fundamentals and discussing the concepts in microphysics. The majority of time devoted to the latter. The laboratory program will involve weekly three-hour sessions. The laboratory program will be conducted in the following manner:

a) a minimum of three tests administered during the semester, minimum 45% / maximum of 55%

b) a minimum of three tests administered during the semester, minimum 45% / maximum of 55%

M. Transfer Credit

U.B.C. - with 107, Physics 110

- S.F.U. - i) Physics 100 and 130
- ii) with 107, Physics 100, 130, plus five units unassigned (Physics)
- iii) with 107 and grades of A or B in both, Physics 101, 102, 130 plus two units unassigned

U Vic - with 107, Physics 102\*

~~If a grade of A or B is obtained in the combination, a student should contact Department of Physics about placement.~~  
 \*If a grade of A or B is obtained in the combination, a student should contact Department of Physics about placement.