

Division: INSTRUCTIONAL

DATE: May 27, 1997

Department: SCIENCE & TECHNOLOGY

Revision of Course
Information form: X

DATED: 30 May, 1996

C: PHYS 210

D: Electromagnetism, Optics, Modern Physics

E: 5

Subject & Course No.

Descriptive Title

Semester-Credit

Calendar Description

Summary of Revisions
(Enter date & section)

Topics include electrostatics

circuits; magnetic force and field

ac circuits; wave nature of light; geometric

nuclear physics

1997-05-29

This is a calculation based course. Topics

capacitance; direct current

electromagnetic induction;

Type of Instruction

Hours Per Week/
Per Semester

H - Course Prerequisites

PHYS 110 / 112 PHYS 107

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

Halliday, D. P. Resnick, & Walker, C. Fundamentals of Physics, Fourth Edition, 1975, Wiley, New York, NY.

College Physics 210 Lab Manual Douglas College, PHYSICS 210 LABORATORY EXPERIMENTS

Under the Following Headings:

Complete Form with Entries

Course Content: O. Method of Instruction:

O. Course Objectives: P. C

R. Course Evaluation

O. Course Objectives:

The student will:

- 1) demonstrate an understanding of the basic principles and terms of electrostatics and elementary modern physics;
- 2) be able to apply the theory to the solution of problems in these areas and to the development of expressions required to describe particular examples not covered formally in the class goals.

- 3) perform laboratory experiments and analyze the data obtained using appropriate graphing techniques, scientific notation, significant figures, and experimental uncertainty consideration;
- 4) be able to write formal laboratory reports in the conventional format required for submissions to journals in physics.

Course Content:

P.

1. Electricity and Magnetism:

- Gauss' law
- Electric potential
- Capacitance and dielectrics
- Direct current circuits
- Magnetic forces
- Biot-Savart law and Ampere's law
- Electromagnetic induction
- Magnetic properties of materials
- ac circuits

P. Course Content continued....

2. Optics:

- Wave nature of light
- Reflection and Refraction
- Geometric optics
- Interference and diffraction
- Polarization

3. Modern Physics:

Quantum physics

Atomic physics
Nuclear physics

4. Laboratory Experiments:

Resistance Measurements

Microscope Applications
Moving Charge in a Magnetic Field
Thin Lenses
Spectrometer
Wavelength Determinations

Wave Optics
Radioactivity

Q. Method

Divided between the presentation and discussion of basic concepts on the one hand and the application of these concepts in problem solving, laboratory experiments and projects on the other. The course will be divided into three sessions, each of which will include a minimum of two laboratory experiments.

Classroom time will be divided between the presentation and the application of concepts.

R. Course Evaluation

The final grade for the course will be based upon the following components:

- 1) final examination - maximum of 30%
- 2) a minimum of three tests administered during the semester - minimum of 45% and a maximum of 50% and
- 3) submitted laboratory reports - minimum of 20% and a maximum of 25%.