UNIVERSITY COLLEGE of the FRASER VALLEY

COURSE IMPLEMENTATION DATE:	Fall 1995
COURSE REVISED IMPLEMENTATION DATE:	September 2003
COURSE TO BE REVIEWED: (Four years after implementation date)	September 2007 (MONTH YEAR format)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT:	**Science/Physics**	
PHYS 105		**4**
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS

NON-CALCULUS PHYSICS
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

Though suitable for all science students, this course is of particular interest to students taking biology and chemistry. Topics include: thermodynamics, waves, geometric and wave optics, electricity and instrumentation, and an introduction to quantum phenomena. This course can be taken by students who only need one non-calculus physics course, and already have Grade 12 physics, or can be the second half of a full-year non-calculus program. The course can also be used in combination with Physics 111 as an entry into a UCFV physics major, although Physics 111 and 112 is the preferred route.

Note: Both PHYS 101 and PHYS 105 are often required for transfer.

PREREQUISITES: **Principles of Math 12 and Physics 11. One of: Physics 12 or PHYS 101 or PHYS 111 highly recommended.**

COREQUISITES:

SYNONYMOUS COURSE(S)		SERVICE COURSE TO:
(a) Replaces: **PHYSICS 102** *(Course #)*		**Biology And Chemistry** *(Department/Program)*
(b) Cannot take: _____ *(Course #)*	for further credit.	_____ *(Department/Program)*

TOTAL HOURS PER TERM:	**105**	TRAINING DAY-BASED INSTRUCTION	
STRUCTURE OF HOURS:		LENGTH OF COURSE:	**n/a**
Lectures:	**75** Hrs	HOURS PER DAY:	**n/a**
Seminar:	Hrs		
Laboratory:	**30** Hrs		
Field Experience:	Hrs		
Student Directed Learning:	Hrs		
Other (Specify):	Hrs		

MAXIMUM ENROLLMENT:	**36**	
EXPECTED FREQUENCY OF COURSE OFFERINGS:	**Annually**	
WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☐ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☒ Yes	☐ No

AUTHORIZATION SIGNATURES:

Course Designer(s): T. Cooper; revised P. Mulhern	Chairperson: T. Cooper; revised G. Schlitt *(Curriculum Committe*
Department Head: T. Cooper; revised P. Mulhern	Dean: K.W. Welsh, revised J. Snodgrass
PAC Approval in Principle Date:	PAC Final Approval Date: December 4, 2002

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

This course emphasizes the physics of greatest importance in the life sciences, and also serves as an overview of several topics for students interested in physics.
Students should be able to successfully understand:

1. Understand the fundamental laws behind the topics covered in the course
2. Apply physics principles to everyday situations involving these topics
3. Perform fundamental laboratory experiments, and interpret the data obtained
4. Develop a feeling for the order of magnitude of physical quantities in real experiments

METHODS:

Lecture, demonstration, small group practice, discussion, and laboratory.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check :) ☒ Yes ☐ No

METHODS OF OBTAINING PLAR:

Course challenge plus evidence of having appropriate laboratory skills.

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

Cutnell and Johnson, Physics 4th ed.

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Final exam	45%
Midterm Exam	25%
Laboratory	20%
Homework	10%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

Week 1	Chap 2/Chap 4	Kinematics and Forces
Week 2	Chap 6	Work and Energy
Week 3	Chap 18/19	Electric Field and Potential
Week 4	Chap 20	Ohm's Law, Circuits, and Power
Week 5	Chap 16	Waves
Week 6	Chap 17	Waves II
Week 7	Chap 12	Temperature
Week 8	Chap 13	Heat Transfer
Week 9	Chap 14/15	Ideal Gas Law and Kinetic Theory/Thermodynamics
Week 10	Chap 15	Thermodynamics
Week 11	Chap 25	Geometric Optics: Reflection
Week 12	Chap 26	Geometric Optics: Refraction
Week 13	Chap 27/29	Interference/Brief overview of "Modern" Physics

Laboratory Experiments

Week 1	Introduction, Error analysis, and Propagation of Errors
Week 2	Circuit Elements and Ohm's Law

Week 3	Series and Parallel resistance
Week 4	Standing Waves on a Wire
Week 5	Standing Waves in an Air Column
Week 6	Calorimetry (Specific Heat of Assorted Metals)
Week 7	Conservation of Energy (Electrical Equivalent of Heat)
Week 8	Geometric Optics and Thin Lenses
Week 9	Interference and Diffraction
Week 10	Multiple Slit Diffraction (Grating Spectrometer)
Week 11	Hydrogen Spectra and the Bohr Atom