COURSE IMPLEMENTATION DATE: December 1996
COURSE REVISED IMPLEMENTATION DATE: September 2006
COURSE TO BE REVIEWED: December 2009
(Four years after UPAC final approval date) (MONTH YEAR)

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: **Faculty of Science, Health & Human Services / Physics**

PHYSICS 093		**4**
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS

Preparatory College Physics II
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

This is a college preparatory course equivalent to the Physics 12 course taught in B.C.'s high schools. Successful completion of this course gives the prerequisites to enrol in Phys 111 at UCFV. The concepts covered are mechanics, electricity, and magnetism. In mechanics the topics are kinematics with emphasis on 2D motion, vectors, Newton's laws, Newton's gravitational law, projectile motion, centripetal force, conservation of energy, work, conservation of momentum. In electricity and magnetism the topics are: Coulomb's law, electric fields, potential and potential difference, Ohm's law, circuits, resistances in series and parallel, Kirchhoff's laws, magnetic fields and their sources, and forces produced by magnetic fields. A large number of experiments will be assigned to provide correlation between the classroom theory and practical applications.

PREREQUISITES: **Any BC Math 11, Math 084 or Math 085, and one of PHYS 083, Physics 11 or PHYS 100**
COREQUISITES:

SYNONYMOUS COURSE(S)
(a) Replaces: **n/a** *(Course #)*
(b) Cannot take: **n/a** *(Course #)* for further credit.

SERVICE COURSE TO: *(Department/Program)* *(Department/Program)*

TOTAL HOURS PER TERM: **90**
STRUCTURE OF HOURS:

Lectures:	**45**	Hrs
Seminar:		Hrs
Laboratory:	**45**	Hrs
Field Experience:		Hrs
Student Directed Learning:		Hrs
Other (Specify):		Hrs

TRAINING DAY-BASED INSTRUCTION
LENGTH OF COURSE:
HOURS PER DAY:

MAXIMUM ENROLLMENT: **24**
EXPECTED FREQUENCY OF COURSE OFFERINGS: **Once per year**

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): George McGuire/revised by: Norm Taylor
Chairperson: Gillian Mimmack *(Curriculum Committee)*
Department Head: Norm Taylor
Dean: Jackie Snodgrass
UPAC Approval in Principle Date:
UPAC Final Approval Date: December 14, 2005

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

After successfully completing this course the students should be able to:

1. Discuss the basic ideas of simple 2-dimensional Kinematics, conservation of energy and momentum, physical in 2D and simple circuits and magnetics;
2. Apply those basic ideas of physics to increase their understanding of the physical world;
3. Further practice gathering and analyzing data in a lab report;
4. Solve various problems in each of the topic areas listed in the Calendar Description section;
5. Deepen their understanding of the scientific methods of physics;
6. More realistically assess their chance for a successful career in a science related field, or some branch of the technologies.

METHODS:

1. The course will be presented using a variety of techniques: classroom lectures; laboratory experiments; activities; films; and demonstrations.
2. Close coordination will be maintained between the theoretical and laboratory work.
3. Weekly assignments will be used to evaluate the rate of learning and the depth of the students' comprehension.
4. At least half of the classroom time will be spent on laboratory related activities.
5. The experiments will be used to interact with the students on a more personal and intimate level. This time can be used to give individual help.
6. The periods are 3.0 hours long, with two periods per week, and one break of twenty minutes is given after the instructional time. In this way many students will begin their labs at different intervals and this makes individual help much easier to obtain.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

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

METHODS OF OBTAINING PLAR:

Departmental Review and/or Course Challenge

TEXTBOOKS, REFERENCES, MATERIALS:

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

Hirsh, Physics for a Modern World, Wiley, 1986

SUPPLIES / MATERIALS:

Fully-equipped physics lab

STUDENT EVALUATION:

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

Assignments	10%
Experiments	10%
Quizzes	20%
Midterm Exam	20%
Final Exam	40%

COURSE CONTENT:

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

1. Measurement
2. Vectors
3. Kinematics 1-D
4. Kinematics 2-D
5. Dynamics (Forces)
6. Conservation Laws (Emphasis 2D) Energy and Momentum
7. The Fundamental Forces (Gravity, Electric, Magnetic)
8. Force Fields
9. Circuits and Currents
10. Magnetic Fields and Devices (optional)

POSSIBLE LABORATORY EXPERIMENTS

Between ten and twenty experiments will be attempted in the Physics 093 course, In this curriculum guide there are suggestions for experiments, lab activities and home projects for some or all of the topics listed below.

Unit 1 - Measurement

Unit 2 - Vectors

Unit 3 - Kinematics 1D

Unit 4 - Motion in 2D

Unit 5 - Dynamics

Unit 6 - Energy, Work, Momentum

Unit 7 - Fundamental Forces

Unit 8 - Fields

Unit 9 - Circuits

Unit 10 - Magnetic Fields