### 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.

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<thead>
<tr>
<th>FACULTY/DEPARTMENT:</th>
<th>PHYSICS 093</th>
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<tbody>
<tr>
<td>COURSE NAME/NUMBER</td>
<td>Preparatory College Physics II</td>
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<tr>
<td>FORMER COURSE NUMBER</td>
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<td>UCFV CREDITS</td>
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**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

**SYNONYMOUS COURSE(S)**

(a) Replaces: n/a

(b) Cannot take: n/a for further credit.

**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 |

**MAXIMUM ENROLLMENT:** 24

**EXPECTED FREQUENCY OF COURSE OFFERINGS:** Once per year

**WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)**

- [X] Yes
- [ ] No

**WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)**

- [ ] Yes
- [X] No

**TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:**

- [X] Yes
- [ ] No

**AUTHORIZATION SIGNATURES:**

<table>
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<tr>
<th>Course Designer(s):</th>
<th>Chairperson:</th>
<th>Dean:</th>
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<tbody>
<tr>
<td>George McGuire/revised by: Norm Taylor</td>
<td>Gillian Mimmack (Curriculum Committee)</td>
<td>Jackie Snodgrass</td>
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<tr>
<th>Department Head:</th>
<th>UPAC Approval in Principle Date:</th>
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<tr>
<td>Norm Taylor</td>
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UPAC Approval in Principle 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)
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