



Purpose: It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

Course Title – College Physics II

Course Prefix and Number – PHYS 1402

Department – Chemistry, Physics and Engineering

Division – Math and Science

Course Type: (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
- Academic WCJC Core Course
- WECM course (This course is a Special Topics or Unique Needs Course: Y or N)

Semester Credit Hours # : Lecture hours # : Lab/Other Hours # 4:3:2

Equated Pay hours for course – 4.2

Course Catalog Description - Fundamental principles of physics, using algebra and trigonometry; the principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics and modern physics topics; with emphasis on problem solving. Laboratory activities will reinforce lecture.

List Lab/ Other Hours
Lab Hours 2
Clinical Hours
Practicum Hours
Other (list)

Prerequisites/Co-requisites –PHYS 1401 or consent of the Department Head.

Prepared by

Date

Reviewed by Department Head Ramiro Acevedo

Date 11-18-13

Accuracy Verified by Division Chair Kevin Dees

Date 11-18-13

Approved by Dean or Vice President of Instruction *gghunt*

Date 11-18-13



I. Topical Outline – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

Lectures

Lectures

Topical Outline: Dedicated Instructional Time:

1. Electric Field, Forces, Potential & Energ-2 weeks
2. DC Circuits-2 weeks
3. AC Circuits-2 weeks
4. Magnetism & Magnetic Induction-2 weeks
5. Optical Instruments & Wave Optics- 2 weeks
6. Relativity-1 week
7. Quantum Theory, Atomic Physics, Solids- 2 weeks
8. Nuclear Physics & Elementary Particles- 2weeks

Course Objectives:

1. To provide students an opportunity & training in fundamental concepts of physics.
2. To acquaint the students an awareness of physics of everyday life in modern society.
3. To encourage, stimulate & create an interest for further studies in physics.
4. To help the students for critical thinking in solving physics problems.
5. To provide the students a direct experience in hands-on physics lab experiments.

PHYSICS EXPERIMENTS (Lab Work)

The following lists of labs are examples of ways to fulfill the learning outcomes for the course.

Uses of a Multimeter
Ohm's Law
Series and Parallel Circuits
Capacitors
Half wave Rectifier: DC Power Supply
Transformers
Law of Reflection; Image Formation in a plane mirror
Law of Reflection; Reversibility
Dispersion and Total Internal Reflection
Conveying lens; Compound Microscope
Cylindrical and Spherical Mirrors
Polarization; Diffraction Grating

II. Course Learning Outcomes

Learning Outcomes	Methods of Assessment
<p>Upon successful completion of the course, students will:</p> <ul style="list-style-type: none"> -- Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields, and currents. -- Apply Kirchhoff's Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance. -- Solve problems in the electrostatic interaction of point charges through the application of Coulombs Law. -- Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents which produce them. -- Use Faradays and Len's laws to determine electromotive forces and solve problems involving electromagnetic induction. -- Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves. -- Describe the characteristics of light and the electromagnetic spectrum. -- Develop techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment. -- Demonstrate the collections, analysis, and reporting of data using the scientific method. -- Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports. -- Solve practical problems involving optics, lenses, mirrors, and optical instruments. 	<p>Outcomes assessed by:</p> <p>Class work, homework assignment, quizzes and/or exams teamwork rubric, poster/graph/chart oral</p> <p>Labs assessed by:</p> <p>lab notebook entry, formal lab report, lab quiz, homework assignment, and/or exam question</p>

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

Walker, James. Physics with mastering Physics. 4th Edition. Pearson.
ISBN: 9780321541635

IV. Suggested Course Maximum –

All locations 36 lecture; 24 in lab

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.

Physics lab and equipment

VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

80 % - lecture average – composed of lecture exams and homework

20% - lab average – composed of average of lab reports from lab exercises

The grade classifications as outlined in the College Catalog are employed:

A= 90-100

B= 80-89 Good

C= 70-79 Average

D= 60-69 Poor

F= 59 or below Failure

W Withdrawn

VII. Curriculum Checklist

- **Academic General Education Course** (from ACGM – but not in WCJC Core)

No additional documentation needed

- **Academic WCJC Core Course**

Attach the Core Curriculum Review Forms

- Critical Thinking
- Communication
- Empirical & Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

- **WECM Courses**

If needed, revise the Program SCANS Matrix & Competencies Checklist.



Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Critical Thinking Skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			

Department Head: _____

Date: _____



Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Communication Skills**—to include effective development, interpretation and expression of ideas through written, oral and visual communication

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
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Department Head: _____

Date: _____



Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Empirical and Quantitative Skills**—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
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Department Head: _____

Date: _____



Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Teamwork**—to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
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Department Head: _____

Date: _____