



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 I

Course Prefix and Number – PHYS 1401

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 classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton’s Laws of Motion, and gravitation and other fundamental forces; 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 – MATH 1314, MATH 1316, or MATH 2312

Prepared by

Date 11-18-13

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 *ggghunt*

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):

- Introduction: Measurement Uncertainties, Dimensional Analysis, Conversion of units: 1 week
- Kinematics: One- and Two-dimensions, Vectors: 2 weeks
- Newton’s Laws of Motion: Statics, Friction: 1 week
- Work, Energy & Power: 1 week
- Collisions: Impulse & Momentum: 1 week
- Gravitation: Circular Motion, Kepler’s Laws & Thermodynamics: 2 weeks
- Heat: Kinetic Theory, Specific/Latent Heat & Thermodynamics: 2 weeks
- Vibrations & Waves: Simple Harmonic Motion & Simple Pendulum: 2 weeks
- Sound: Standing Waves, Resonance, Beats & Doppler Effect: 2 weeks

LAB WORK (Experiments)

Propagation of Errors

The Force Table

Simple Harmonic Motion

Graph Matching

Cart on a Ramp

g on the Incline

Projectile Motion

Newton’s Second Law

Atwood’s Machine

Pendulum Periods

Conservation of

Momentum

Sound Waves; Beats

Make-up labs – as needed

Standing Waves on a String

Speed of Sound

II. Course Learning Outcomes

Learning Outcomes	Methods of Assessment
<p>Upon successful completion of this course, students will:</p> <ul style="list-style-type: none"> -- Demonstrate techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment. -- Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in 	<p>Outcomes are assessed with:</p> <p>Quizzes, Final Exam, Exit Exams, Class work, Homework,</p>

<p>written reports.</p> <ul style="list-style-type: none"> -- Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration. -- Apply Newton's laws to physical problems including gravity. -- Solve problems using principles of energy. -- Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level. -- Use principles of impulse and linear momentum to solve problems. -- Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion. -- Solve problems involving rotational and linear motion. -- Demonstrate an understanding of equilibrium, including the different types of equilibrium. -- Discuss simple harmonic motion and its application to quantitative problems or qualitative questions. -- Solve problems using the principles of heat and thermodynamics. -- Solve basic fluid mechanics problems. 	<p>Some objectives assessed with: poster presentation, oral presentation, teamwork rubric</p> <p>Labs assessed by:</p> <p>lab notebook entry, formal lab report, lab quiz, homework assignment, and/or exam question</p>
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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 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

- A= 90-100
- B= 80-89
- C= 70-79
- D= 60-69
- F= 59 and below

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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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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