



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 – General Physics I

Course Prefix and Number – PHYS 1401

Department - PHYSICS

Division – Math & Physical Sciences

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

Course Catalog Description – This course is designed for those students whose career goals are related to medical fields (pre-med , pre-vet , pre-dent , etc), Pharmacy , Biology, Chemistry, Geology , Applied-technology, Science, Education, and other areas of study requiring fundamental principles of physics. This algebra- & trigonometry-based course includes topics on : Newtonian Mechanics, Forces, Statics, the laws of motion, Gravity, Energy, Momentum, Temperature, Specific Heat, Heat Exchange , Simple Harmonic Motion, Wave Motion and Sound.

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

Prerequisites/Corequisites - Credit for or concurrent enrollment in MATH 1316 or consent of the department head.

Approvals – the contents of this document have been reviewed and are found to be accurate.

Prepared by (Dr) K.N. SWAMY RAO	Signature <i>Swamy Rao</i>	Date AUG 30, 07
Department Head (Dr) KIRBY LOWERY	Signature <i>Kirby Lowery</i>	Date 9-4-7
Division Chair (Dr) KIRBY LOWERY	Signature <i>Kirby Lowery</i>	Date 9-4-7
Vice President (Dr) Ty PATE	Signature <i>Ty Pate</i>	Date 10-25-07



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 & Space-Shuttles : 1 Week
- Rotational Motion : Torque & Angular Momentum : 2 Weeks
- Solids & Fluids : Elastic Constants & Fluid Mechanics : 1 Week
- 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)

- o Measurements (Length, Area & Volume) & Uncertainties
- o Density of Solids/Liquids
- o Displacement, Velocity & Acceleration
- o Vector Analysis
- o Projectiles Motion
- o Equilibrium & Force Table
- o Laws of Motion & Friction
- o Work/Energy/Power
- o Collisions
- o Simple Pendulum
- o Simple Harmonic Motion
- o Specific Heat/Heat Transfer
- o Elastic Constants
- o Velocity of Sound
- o Standing Waves
- o Sound Intensity/Intensity-level (Decibels)

COURSE OBJECTIVES :

1. To perceive the distinction between Scalar- and Vector-physical quantities.
2. To understand the physical significance of various physical quantities (units and dimensions) related to each other in an equation by dimensional analysis.
3. To acquire an ability to solve word-problems from fundamental concepts of physics.
4. To visualize physics concepts by hands-on experiments in lab work and express the results with discussions in the lab report.
5. To appreciate the elegance of problem-solving by algebra & trigonometry with confidence.

II. Course Learning Outcomes

Course Learning Outcome	Method of Assessment
As listed in course objectives (1-through-5)	Four major tests Assignments Lab work + Lab report Final (comprehensive) exam + Exit test

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

TEXT : College Physics (Thomson: Brooks/Cole : 7th Edition) by Serway & Faughn
 Supplement : Physics (Prentice Hall : 3rd Edition) by J.S. Walker

IV. Suggested Course Maximum – 42 (Lectures) + 24 (Lab Work)

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

Physics lab work is required turning-in weekly lab report in addition to class-room lectures participation and taking periodic tests.

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

Grading Assessment : All Tests : 50% ; Final (comprehensive) : 25% ; Lab work + Lab Report : 10%
 Assignments/ Presentation + Research Paper : 15%

Grade-classification : A (Excellent) ; B (Good) ; C (Average) ; D (Poor) ; F (Failure) ; W (Withdrawn) ;
 I (Incomplete)

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 Checklist, including the following:

- Basic Intellectual Competencies
- Perspectives
- Exemplary Educational Objectives

- **WECM Courses**

Attach the following:

- Program SCANS Matrix
- Course SCANS Competencies Checklist



Page 1: Competencies

Course Prefix & Number: PHYS 1401		Semester Credit Hours : 4	
Competency		Method of Assessment	
READING: Reading at the college level means the ability to analyze and interpret a variety of printed materials – books, articles, and documents.		Group-discussions and periodic question-answer Class-room lecture sessions.	
WRITING: Competency in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience.		Examine & grade lab reports of students + written-material pertaining to assigned topics.	
SPEAKING: Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience.		Presentations on assigned topics are evaluated before a panel of judges (Instructors from other departments)	
LISTENING: Listening at the college level means the ability to analyze and interpret various forms of spoken communication.		Monitor class-notes and their utilization during review sessions	
CRITICAL THINKING: Critical thinking embraces methods for applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies.		Assess the ability of thinking during periodic problem-solving sessions	
COMPUTER LITERACY: Computer literacy at the college level means the ability to use computer-based technology in communicating, solving problems, and acquiring information.		For this gateway course calculator skills are ensured during tutoring/review sessions	



Page 2: Perspectives

Course Prefix & Number: PHYS 1401		Semester Credit Hours : 4
Perspective		Method of Assessment
1. Establish broad and multiple perspectives of the individual in relationship to the larger society and world in which he or she lives, and help the student to understand the responsibilities of living in a culturally- and ethically-diversified world;		
2. Stimulate a capacity to discuss and reflect upon individual, political, economic, and social aspects of life to understand ways to be a responsible member of society;		
3. Recognize the importance of maintaining health and wellness;		
4. Develop a capacity to use knowledge of how technology and science affect lives;		Tests & Final Exam .
5. Develop personal values for ethical behavior;		
6. Develop the ability to make aesthetic judgments;		
7. Use logical reasoning in problem solving;		Lab Work + Lab Report + Tests + Final Exam .
8. Integrate knowledge and understanding of the interrelationships of the scholarly disciplines		Case-studies with physics of everyday life .



Page 3: Exemplary Educational Objectives

Course Prefix & Number: PHYS 1401		Semester Credit Hours : 4	
Component Area: Natural Sciences			
Exemplary Educational Objective		Method of Assessment	
1. Understand and apply method and appropriate technology to the study of natural science.		Laboratory Experiments + Tests	
2. Recognize scientific and quantitative methods and the difference between these approaches and other methods of inquiry; and communicate findings, analyses, and interpretations both orally and in writing.		Lab Reports + + Tests	
3. Identify and recognize the differences among competing scientific theories.		Lectures + Group Discussions + Tests	
4. Demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.		Case-studies in different areas of Physics	
5. Demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.		Same as above	