



College of Humanities and Sciences

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CHS URL: <https://sites.google.com/site/dlshsichs/>

Local: 5007 (Dean's Secretary) | 1412 (Dean)
1345 (Dept. of Integrated Humanities and Sciences)
1408 (Dept. of Chemistry)
1115 (Chemistry Lab) | 1405 (Biology & Physics Lab)

COURSE SYLLABUS

DEPARTMENT	:	Integrated Humanities and Sciences
COURSE CODE/TITLE	:	PHYS 111 – GENERAL PHYSICS 1
NUMBER OF UNIT/S	:	4.0 units (3.0 units Lecture, 1.0 unit Laboratory)
PRE-REQUISITE	:	GE – MATH 101/GE-MATH 102
ROOM	:	_____
INSTRUCTOR/PROFESSOR	:	_____
CONSULTATION TIME	:	_____

COURSE DESCRIPTION:

This first introductory physics course provides the fundamentals of mechanics, mechanical waves and acoustics. This is specially designed for students who are in the fields of health and medical profession. This will guide and enable them to apply the principles and theories to their daily lives. This subject will also help them predict natural processes and explain the cause and effect of events.

In the laboratory, experiments on the principles and laws discussed in the lecture are conducted. The goal is not to disprove old laws or discover new ones but to verify the existing laws. This means that the results of every experiment are known beforehand or already has standard values. The purpose is for the students to internalize these principles and laws for a deeper understanding. In doing so, the degree of accuracy in routine laboratory work may not be as high as expected. This explains why percentage error and percentage difference are a part of almost every experiment. This is also a basis in evaluating their understanding and comprehension of the subject matter. This is specially designed for the students of health sciences that they may apply in the practice of their profession.

LEARNING OUTCOMES:

- LO1: Higher levels of comprehension (Textual, Visual, etc.);
- LO2: Understanding of basic concepts across the domains of knowledge;
- LO3: Critical, analytical and creative thinking;
- LO4: Application of different analytical modes (quantitative and qualitative, artistic and scientific. Textual and visual, experimental, observation, etc.) in tackling problems methodologically;
- LO5: Capacity to reflect critically and shared concerns and think of innovative, creative solutions guided by ethical standards;
- LO6: Working in a group effectively;
- LO7: Excellence in the application of computing and information technology to assist and facilitate research;
- LO8: Ability to negotiate the world of technology responsibly; and

LO9: Ability to solve problems (including real world problems)

LEARNING PLAN:

TOPICS	INTENDED LEARNING OBJECTIVES	TEACHING AND LEARNING ACTIVITIES	METHOD OF ASSESSMENT
<p><i>Introduction and Mathematical Concepts</i></p> <ul style="list-style-type: none"> A. The Nature of Physics B. Units C. The Role of Physics in Problem Solving D. Trigonometry E. Scalars and Vectors F. Vector Addition and Subtraction G. The Components of a Vector H. Addition of Vector by Means of Components <p><i>Activity 1</i> Familiarization of Laboratory Apparatuses</p> <p><i>Experiment 1</i> Units and Measurement</p> <p><i>Experiment 2</i> Vector Addition</p>	<p>Solve algebraic problems.</p> <p>Solve simple problems in trigonometry and geometry.</p> <p>Discover the nature of Physics.</p> <p>Define measurement and systems of units. Convert units.</p> <p>Enumerate physical quantities (basic and derived).</p> <p>Define vector and scalar.</p> <p>Add/subtract two or more vectors both graphically and with components.</p>	<p>Problem Set on Mathematical/Problem Solving Strategies</p> <p>Brainstorming on Applications of Physics to Health Sciences</p> <p>Experimentation</p> <p>Group and Individual Reports Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Report</p> <p>Individual Laboratory Report</p> <p>Laboratory Performance</p>

<p><i>Kinematics in One Dimension</i></p> <p>A. Displacement B. Speed and Velocity C. Acceleration D. Equations of Kinematics for Constant Acceleration E. Applications of the Equations of Kinematics F. Freely Falling Bodies G. Graphical Analysis of Velocity and Acceleration</p> <p><i>Experiment 3</i> Acceleration due to Gravity (The Picket Fence)</p>	<p>Define displacement, speed, velocity and acceleration.</p> <p>Use the kinematics equations to calculate the position and velocity of an object moving with a constant acceleration.</p> <p>Sketch position, velocity and acceleration as functions of time for constant velocity and accelerated motion.</p> <p>Define free-fall.</p> <p>Apply the kinematics equations to solve one dimensional free fall problems.</p>	<p>Research Paper on the Principles of Physics in Theme Parks.</p> <p>Brainstorming on Applications of Physics to Health Sciences</p> <p>Problem Sets and Exercises</p> <p>Video Clip on Motions</p> <p>Experimentation</p> <p>Group and Individual Report Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Report</p> <p>Individual Laboratory Report</p> <p>Laboratory Performance</p>
<p><i>Kinematics in Two Dimensions</i></p> <p>A. Displacement, Velocity, and Acceleration B. Equations of Kinematics in Two Dimensions C. Projectile Motion D. Relative Velocity</p> <p><i>Experiment 4</i> Projectile Motion</p>	<p>Define displacement, velocity and acceleration.</p> <p>Apply the kinematics equations to solve two dimensional projectile motion problems.</p> <p>Define relative velocity.</p>	<p>Sharing of Experiences on Amusement Parks and Outdoor Activities on the Topic</p> <p>Problem Sets and Exercises</p> <p>Video Clip on Motions</p> <p>Experimentation</p> <p>Group and Individual Report Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Report</p> <p>Individual Laboratory Report</p> <p>Laboratory Performance</p>

<p><i>Forces and Newton's Laws of Motion</i></p> <ul style="list-style-type: none"> A. The Concept of Force and Mass B. Newton's First Law of Motion C. Newton's Second Law of Motion D. The Vector Nature of Newton's Second Law of Motion E. Newton's Third Law of Motion F. Types of Forces: An Overview G. The Gravitational Force H. The Normal Force I. Static and Kinetic Frictional Force J. The Tension Force K. Equilibrium Applications of Newton's Laws of Motion L. Nonequilibrium Applications of Newton's Laws of Motion <p><i>Experiment 5</i> Forces in Equilibrium</p> <p><i>Experiment 6</i> Newton's Second Law of Motion (Predicting Accelerations)</p>	<p>Define force as the interaction between two objects.</p> <p>State Newton's laws of motion and apply them to everyday situations.</p> <p>Define and differentiate static from dynamic equilibrium.</p> <p>Define and differentiate mass from weight. Identify Action-Reaction force pairs.</p> <p>Use free body diagrams to solve dynamics problems in one and two dimensions.</p>	<p>Problem Sets and Exercises</p> <p>Sharing of Experiences on Forces Encountered in One's Daily Life</p> <p>Brainstorming on Applications of Physics to Health Sciences</p> <p>Experimentation</p> <p>Group and Individual Reports Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Individual</p> <p>Laboratory Report</p> <p>Laboratory Performance</p>
PRELIMINARY EXAMINATION			

TOPICS	INTENDED LEARNING OBJECTIVES	TEACHING AND LEARNING ACTIVITIES	METHOD OF ASSESSMENT
<p><i>Dynamics of Uniform Circular Motion</i></p> <ul style="list-style-type: none"> A. Uniform Circular Motion B. Centripetal Acceleration C. Centripetal Force D. Banked Curves E. Satellites in Circular Orbits F. Apparent Weightlessness and Artificial Gravity G. Vertical Circular Motion <p><i>Experiment 7</i> Uniform Circular Motion</p>	<p>Derive and apply the relationships among centripetal acceleration, tangential velocity, radius and period for uniform circular motion.</p> <p>Explain the vector nature of centripetal acceleration and force.</p> <p>Apply Newton’s Laws to analyze and solve circular motion and force problems.</p>	<p>Brainstorming on Applications of Physics to Health Sciences</p> <p>Problem Sets and Exercises</p> <p>Experimentation</p> <p>Group and Individual Reports Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Report</p> <p>Individual Laboratory Report</p> <p>Laboratory Performance</p>
<p><i>Work, and Energy</i></p> <ul style="list-style-type: none"> A. Work Done by a Constant Force B. The Work-Energy Theorem and Kinetic Energy C. Gravitational Potential Energy D. Conservative versus Nonconservative Forces E. The Conservation of Mechanical Energy F. Nonconservative Forces and the Work-Energy Theorem G. Power H. Other Forms of Energy and the Conservation of Energy I. Work Done by Variable Force 	<p>Define work and kinetic energy and explain their relationship through the work-kinetic energy theorem.</p> <p>Define gravitational potential energy.</p> <p>Differentiate conservative from nonconservative forces.</p> <p>Explain the law of conservation of energy and apply it to analyze everyday situations.</p> <p>Define power as the rate at which work is done.</p>	<p>Computation of Power Consumption</p> <p>Brainstorming on Applications to Health Sciences</p> <p>Problem Sets and Exercises</p> <p>Experimentation</p> <p>Group and Individual Reports Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Report</p> <p>Individual Laboratory Report</p> <p>Laboratory Performance</p>

<p>Experiment 8 Work, Power and Energy</p>			
<p>Impulse and Momentum</p> <ul style="list-style-type: none"> A. The Impulse-Momentum Theorem B. The Principle of Conservation of Linear Momentum C. Collisions in One Dimensions D. Collisions in Two Dimensions E. Center of Mass <p>Experiment 9 Conservation of Momentum</p>	<p>Define momentum and impulse and explain their relationship through the Impulse-Momentum theorem.</p> <p>Derive the law of conservation of momentum by combining Newton's 3rd Law and the Impulse-Momentum theorem.</p> <p>Define and differentiate between elastic from inelastic collisions.</p> <p>Apply the law of conservation of momentum to analyze everyday situations involving collisions.</p>	<p>Car Accidents/Billiard Game Analysis</p> <p>Problem Sets and Exercises</p> <p>Brainstorming on Applications to Health Sciences</p> <p>Experimentation</p> <p>Group and Individual Reports Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Report</p> <p>Individual Laboratory Report</p> <p>Laboratory Performance</p>
<p>Fluids</p> <ul style="list-style-type: none"> A. Mass Density B. Pressure C. Pressure and Depth in a Static Fluid D. Pressure Gauges E. Pascal's Principle F. Archimedes' Principle G. Fluids in Motion H. The Equation of Continuity I. Bernoulli's Equation J. Application of Bernoulli's Equation K. Viscous Flow 	<p>Demonstrate an understanding of the concept of density, pressure, Pascal's Law, and Archimedes' Principle.</p> <p>Solve problems involving the concept of density, pressure, Pascal's Law, and Archimedes' Principle.</p> <p>Recognize the appropriate formula to use in problem solving applications.</p> <p>Discuss fluid flow and continuity and derive the governing equations.</p> <p>Formulate the Bernoulli's Equation for the change in speed, change in elevation, and the</p>	<p>Subject/Class Orientation</p> <p>Research Paper on the New Trends in Fluid Mechanics and its Practical Applications in the Field of Health and Medicine</p> <p>Brainstorming on the Applications of Fluids to Health Sciences</p> <p>Problem Sets and Exercises</p> <p>Video Clip on Fluids</p> <p>Experimentation</p>	<p>Seatwork</p> <p>Quiz</p> <p>Assignment</p> <p>Group Activity</p> <p>Group Laboratory Report</p> <p>Individual Laboratory Report</p> <p>Laboratory Performance</p>

<p>Experiment 10 Archimedes' Principle</p>	<p>general formula. Explain Bernoulli's Principle and its applications. Solve problems involving the concepts of fluid flow and Bernoulli's.</p>	<p>Group and Individual Report Writing Online Learning through Wiley Plus Technology</p>	
MIDTERM EXAMINATION			

TOPICS	SPECIFIC LEARNING OBJECTIVES	TEACHING AND LEARNING ACTIVITIES	METHOD OF ASSESSMENT
<p>Temperature And Heat</p> <ul style="list-style-type: none"> A. Common Temperature Scales B. The Kelvin Temperature Scales C. Thermometers D. Linear Thermal Expansion E. Volume Thermal Expansion F. Heat and Internal energy G. Heat and Temperature Change: Specific Heat Capacity H. Heat and Phase Change: Latent Heat I. Equilibrium Between Phases of Matter J. Humidity <p>Experiment 11 Coefficient of Linear Expansion of Metals</p> <p>Experiment 12 Specific Heat of Solids</p>	<p>Understand the nature of thermal energy. Use the Celsius and Kelvin temperature scales. Demonstrate proficiency to convert between Celsius and Kelvin. Understand the concept of thermal expansion by length, area, and volume and be able to derive the formula. Solve problems involving the concept of thermal expansion. Calculate heat transfer and be able to display an understanding on specific heat. Discuss mechanisms of heat transfer.</p>	<p>Research Paper on the Practical Applications of Temperature and Heat in the Field of Health Sciences Brainstorming on the Applications of Temperature and Heat to Health Sciences Problem Sets and Exercises Manipulation of Laboratory Apparatuses Experimentation Group and Individual Report Writing Online Learning through Wiley Plus Technology</p>	<p>Seatwork Quiz Group Activity Assignment Group Laboratory Report Individual Laboratory Report Laboratory Performance</p>

<p><i>Waves and Sound</i></p> <ul style="list-style-type: none"> A. The Nature of waves B. Periodic Waves C. The Speed of a Wave on a String D. The Mathematical Description of a Wave E. The Nature of Sound F. The Speed of Sound G. Sound Intensity H. Decibels I. The Doppler Effect J. Applications of Sound in Medicine K. The Sensitivity of the Human ear 	<p>Understand the nature of waves.</p> <p>Describe a wave mathematically.</p> <p>Explain that the speed of wave depends on the material medium.</p> <p>Derive the formula in calculating for the speed of sound and be able to use in dealing with problem solving applications.</p> <p>State the principle of superposition.</p> <p>Differentiate between amplitude and intensity of sound waves.</p> <p>Solve problems dealing on the wavelength, frequency and the speed of sound waves.</p> <p>State the Doppler effect and give applications.</p>	<p>Research Paper on the Practical Applications of Waves in the Field of Health Sciences</p> <p>Brainstorming on the Applications of Waves to Health Sciences</p> <p>Problem Sets and Exercises</p> <p>Video Clip on the Difference of Transverse and Longitudinal Waves</p> <p>Manipulation of Laboratory Apparatuses</p> <p>Experimentation</p> <p>Group and Individual Report Writing</p> <p>Online Learning through Wiley Plus Technology</p>	<p>Seatwork</p> <p>Quiz</p> <p>Group Activity</p> <p>Assignment</p> <p>Group Laboratory Individual</p> <p>Laboratory Report</p> <p>Laboratory Performance</p>
<p><i>The Principle of Linear Superposition and Interference Phenomena</i></p> <ul style="list-style-type: none"> A. The Principle of Linear Superposition B. Constructive and destructive Interference of Sound waves C. Diffraction D. Transverse Standing waves E. Longitudinal Standing Waves 	<p>State the principle of superposition.</p> <p>Demonstrate the different properties of sound waves.</p> <p>Discuss transverse and longitudinal standing waves.</p>	<p>Research Paper on How the Human Ears Detect and Absorb Sound</p> <p>Brainstorming on the Applications of Sound to Health Sciences</p> <p>Problem Sets and Exercises</p> <p>Manipulation of Laboratory Apparatuses</p> <p>Experimentation</p>	<p>Seatwork</p> <p>Quiz</p> <p>Group Activity</p> <p>Assignment</p> <p>Group Laboratory Individual</p> <p>Laboratory Report</p> <p>Laboratory Performance</p>

F. Complex sound Waves <i>Experiment 13</i> Speed and Wavelength of Sound Waves		Group and Individual Report Writing Online Learning through Wiley Plus Technology	
Culminating Activities		Presentation, Defense and Evaluation of the Final Product	
FINAL TERM EXAMINATION			

FINAL COURSE OUTPUT:

Physics is Fun!!

On completion of the course, the students are expected to submit a report in a form of a video presentation regarding the Physics laws and principles in the activities experienced in the Educational Trip. This will be an extensive report and must include the discussions on the Physics laws behind each everyday activity. This will help the students to appreciate Physics and have fun with it while learning.

LEARNING OUTCOME	REQUIRED OUTPUT	DUE DATE
LO1 – LO9	A video presentation is expected to be submitted by the students at the end of the semester.	2 weeks before final exam

RUBRIC FOR ASSESSMENT:

ELGA: God-Loving

CRITERIA	Excellent (4)	Very Satisfactory (3)	Satisfactory (2)	Developing (1)	SCORE
Appreciation	Physics topics are presented as designed and created by God to improve the way of life	Physics topics are presented simply to improve the way of life	Physics topics are applied for technological purposes only	Physics topics are seen only as a requirement	
Application	Shows the application of physics in dealing with others	Shows the application of physics in dealing with others as seen through	Shows the application of physics on one's self as seen through the	Shows the application of physics only as a requirement.	

	and the environment as seen through the light of the gospel.	the light of the gospel.	light of the gospel.		
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ELGA: Person-Oriented

CRITERIA	Excellent (4)	Very Satisfactory (3)	Satisfactory (2)	Developing (1)	SCORE
Teamwork	100% of students participate	75% of students participate	50% of students participate	25% of students participate	
Professional Care And Compassion	Shows great care and compassion towards people as part of the physics world	Shows care and compassion towards people as part of the physics world	Shows minimal care and compassion towards people	Shows very minimal care and compassion towards people	

ELGA: Patriotic Health Professional

CRITERIA	Excellent (4)	Very Satisfactory (3)	Satisfactory (2)	Developing (1)	SCORE
Identification of Physics Related Health Issues	Has identified more than five issues	Has identified five issues	Has identified three issues	only one issue has been identified	
Addressing Health Issues	Has responded correctly to 4 given situations and addressed 1 actual circumstance	Has responded correctly to 3 given situations and addressed 1 actual circumstance	Has responded correctly to 2 given situations and addressed 1 actual circumstance	Has responded correctly to 1 given situations and addressed 1 actual circumstance	

REQUIREMENTS AND ASSESSMENTS:

Aside from the final output, the students are assessed at other times during the term by the following:

Active Class Participation
Laboratory Performance
Laboratory Reports/Experiments

Problem Sets
Assignments
Examinations

Exercises
Seatwork
Quizzes

Rubric for Laboratory Group Performance/Report

CRITERIA	Excellent	Very Satisfactory	Satisfactory	Developing	SCORE
Knowledge	Demonstrates superb knowledge of the lab procedures. Willingly helps other students to follow and understand procedures. Thoroughly and carefully follows and checks off each step before moving on to the next step. (12 pts.)	Demonstrates sound knowledge of lab procedures. Will discuss with peers to solve problems in procedures. Carefully follows each step and checks them off as they are completed. (9 pts.)	Demonstrates good knowledge of the lab procedures. Will ask peers for help with problems in lab procedures, before asking the teacher. Works to follow each step before moving on to the next step. (6 pts.)	Lacks the appropriate knowledge of the lab procedures. Often requires help from the teacher to complete basic procedures. (3 pts.)	
Scientific Accuracy	The data are complete and experimentally accurate and show innovation. Includes appropriate symbols, labels, graphs, and units, where appropriate. (12 pts.)	The data are complete but contain some explainable errors. Includes symbols, units, and graphs, where appropriate. (9 pts.)	The data are complete but contain some unexplainable errors that affect the generality of the report. Only two or three minor errors using symbols, labels, graphs, and units where appropriate. (6 pts.)	The data are incomplete, inaccurate and contain unexplainable errors. There are three or more minor errors using symbols, labels, graphs, and units where appropriate. (3 pts.)	
Presentation	Work is neat, organized, following the proper format, and with complete elements. (8 pts.)	Work is generally neat, organized, following the proper format with one incomplete element. (6 pts.)	Work is organized, but with improper formatting, and one incomplete element. (4 pts.)	Work is organized but with improper formatting, and several missing elements. (2 pts.)	
Guide Questions	Answers are complete and correct. (4 pts.)	Answers are complete but some are irrelevant. (3 pts.)	Some answers are incomplete. (2 pts.)	Most answers are incomplete and incorrect. (1 pt.)	
Clean up	Proper borrowing and returning of materials are followed. Station left neat and clean, pitches in a helps others clean up. (4 pts.)	Proper borrowing and returning of materials are followed. Station generally neat and clean. (3 pts.)	The group is reminded on proper borrowing and returning of materials. Station generally left clean. (2 pts.)	The group is reminded more than once on proper borrowing and returning of materials. Two or more items were left at station or station not cleaned. (1 pt.)	

Rubric for Scientific Paper

CRITERIA	Excellent	Very Satisfactory	Satisfactory	Developing	SCORE
Neatness and Organization	<p>The lab report is computer generated. The lab sections are in correct order. No more than 3-spelling/grammatical errors. Required font style/size, and spacing are followed. The report is neat and with no erasures. (6 pts.)</p>	<p>The lab report is computer generated. The lab sections are in correct order. No more than 3-spelling/grammatical errors. Required font style/size, and spacing are not followed. The report has erasures. (4 pts.)</p>	<p>The lab report is computer generated. The lab sections are in correct order. More than 3-spelling/grammatical errors are observed. Required font style/size, and spacing are not followed. The report has erasures. (3 pts.)</p>	<p>The lab report is computer generated. The lab sections are not in correct order. More than 3-spelling/grammatical errors are observed. Required font style/size, and spacing are not followed. The report has erasures. (2 pts.)</p>	
Cover Page	<p>Complete header (school and college's name and logo) is displayed. Title and experiment number are present. Date is recorded and accurate. Full name/s of the student/s and group number are included. Laboratory Instructor's full name is included. (4 pts.)</p>	<p>Complete header (school and college's name and logo) is displayed. Title and experiment number are present. Date is recorded and accurate. Full name/s of the student/s is included. Group number and instructor's full name are not included. (3 pts.)</p>	<p>Complete header (school and college's name and logo) is not displayed. Title and experiment number are present. Date is not recorded nor accurate. Full name/s of the student/s is included. Group number and instructor's full name are not included. (2 pts.)</p>	<p>The content is handwritten. (1 pt.)</p>	
Abstract	<p>Contains the following sections: Background, Statement of Purpose, Summary of Procedure, Summary of Results, Significance of Findings (12 pts.)</p>	<p>One of the sections is missing. (9 pts.)</p>	<p>Two of the sections are missing. (6 pts.)</p>	<p>Three of the sections are missing. (3 pts.)</p>	
Introduction	<p>Successfully establishes the scientific concept of the lab. Effectively presents the objectives and purpose of the lab.</p>	<p>Successfully establishes the scientific concept of the lab. Simply copies the objectives and purpose of the lab.</p>	<p>Successfully establishes the scientific concept of the lab. Simply copies the objectives and purpose of the lab.</p>	<p>No scientific concepts of the lab. (2 pts.)</p>	

	(8 pts.)	(6 pts.)	(4 pts.)		
Procedure	Procedure is a brief summary of each of the steps taken in completing the lab. It is presented in a schematic diagram. (8 pts.)	Procedure is mostly copied directly from the lab description, with a little attempt of brevity It is presented in a schematic diagram. (6 pts.)	Procedure is mostly copied directly from the lab description, with a little attempt of brevity It is not presented in a schematic diagram. (4 pts.)	Procedure is missing important parts. (2 pts.)	
Data and Results	Opens with effective statement of overall findings. Presents visuals clearly and accurately. Presents verbal findings clearly and with sufficient support. Successfully integrated verbal and visual representations. (4 pts.)	Opens with effective statement of overall findings. Presents visuals clearly and accurately. Presents verbal findings clearly and with sufficient support. (3 pts.)	Presents visuals clearly and accurately. Presents verbal findings clearly and with sufficient support. (2 pts.)	Presents visuals clearly. Presents verbal findings clearly without sufficient support. (1 pts.)	
Interpretation of Data and Results	The relationship between the variables is discussed and trends/patterns logically analyzed. Predictions are made about what might happen if part of the lab were changed or how the experimental design could be changed. (16 pts.)	The relationship between the variables is discussed and trends/patterns logically analyzed. (12 pts.)	The relationship between the variables is discussed but no patterns, trends or predictions are made based on the data. (8 pts.)	The relationship between the variables is not discussed. (4 pts.)	
Conclusion	Objectives are verified completely and supported by experimental findings. (8 pts.)	Objectives are inadequately verified and supported by experimental findings. (6 pts.)	Objectives are inadequately verified and not supported by experimental findings. (4 pts.)	Conclusion shows little effort and reflection or no relevance to the experiment. (2 pts.)	
References	All the references used are cited. References are written in correct APA format	All the references used are cited. References are written in correct APA format.	All the references used are cited. References are not written in correct APA format.	Some references are missing. References are not written in correct APA format.	

	References are in alphabetical format. (4 pts.)	References are not in alphabetical format. (3 pts.)	References are not in alphabetical format. (2 pts.)	References are not in alphabetical format. (1 pt.)	
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LEVELS OF ASSESSMENT:

Preliminary Term, Midterm and Final Term Grades

Lecture	
FORM OF ASSESSMENT	PERCENTAGE WEIGHT
Major Examination	50%
Long Test	35%
Quizzes, Seatwork, Homework, Problem Sets	15%
Total	100%

Laboratory	
FORM OF ASSESSMENT	PERCENTAGE WEIGHT
Major Examination	35%
Practical Examination	35%
Individual Report	15%
Group Report	15%
Total	100%

COMPUTATION OF GRADES

Each form of assessment will be computed as follows:

$$\text{ASSESSMENT SCORE} = \frac{\text{RAW SCORE}}{\text{TOTAL SCORE}} \times 50 + 50$$

Term Grade will be computed as follows:

$$\text{Term Grade} : 60\% \text{ Lecture Grade} + 40\% \text{ Laboratory Grade}$$

At the end of the course, the final course grade will be computed as follows:

$$\text{FINAL COURSE GRADE} = \left(\frac{\text{PRELIM GRADE} + \text{MIDTERM GRADE} + \text{FINAL GRADE}}{3} \times 0.9 \right) + (\text{FINAL COURSE OUTPUT SCORE} \times 0.1) = 100$$

TEXTBOOK:

Cutnell, J.D. and Jonson, K.W. (2015). *Introduction to Physics with Wiley Plus. 10th Edition*: 2013 John Wiley and Sons (Asia) Pte. Ltd.

REFERENCES:

Beiser, Arthur. (2001). *Modern technical physics*. Singapore: Addison-Wesley Publishing Company, Inc.
Giambattista, A. et al. (2007). *College physics 2nd edition*. New York: McGraw-Hill Book Companies Inc.
Halliday, D. et. al. (2001). *Fundamentals of physics, 2001 edition*. Canada: John Wiley and Sons
Serway, R.A. and Vuille, C.(2014). *College Physics, 9th Edition*: Cengage Learning Asia Pte Ltd.
Tipler, P.A. (1999). *Physics for Scientists and Engineers, 4th Edition*: W.H. Freeman and Company
Urone, P. P. (2000). *Physics with health science applications*. New York: John Wiley and Sons
Young, H.D. (2008). *University Physics with Modern Physics. 12th Edition*: Singapore:Pearson Education Asia

ONLINE RESOURCES:

Phslet at University of Colorado, Boulder. www.phet.colorado.edu
Physlet at Davidson College, <http://webphysics.davidson.edu/applets/applets.html>
Physlet at Boston University, <http://physics.bu.edu/~duffy/classroom.html>

COURSE POLICIES:

1. Students are allowed 20% of the total number of school days of absences inclusive of tardiness. All absences after that shall mean excessive absences, which will merit a grade of 0.00.
2. Students who arrive beyond the allowable time for tardiness maybe allowed to enter the class but are marked absent. Attendance Policies found in the Student Handbook apply.
3. Three (3) accounts of tardiness are computed as one (1) session absence for the subject.
4. The students will be given a score of zero (0) with corresponding grade of zero percent (0%) in a requirement which is not submitted on the prescribed time and date and in a quiz which is given during their absence.
5. Only excused students are given the chance to make-up for missed requirements. Failure to appear on the scheduled make-up quiz/seatwork will be given a score of zero (0) with corresponding grade of zero percent (0%).
6. Absentees who filed for an excused absence should present the excuse slip to their professor/instructor within 48 hours upon return to the College.
7. Special major exams are scheduled one week after the administration of the major exams. No special exams will be given thereafter EXCEPT IN SPECIAL SITUATIONS.
8. Home works and individual laboratory reports will be due at the beginning of the class. No home works and individual laboratory reports will be accepted thereafter.
9. Students must be honest at all times; cheating and plagiarism in any form will merit a grade of 0.00.

10. Cellular/Mobile phones should always be in silent mode during class hours; the use of cellular phones is prohibited in class unless a special permission is sought. Cellular phones cannot also be used as calculator during examination.
11. The use of video cameras, cameras, cellular phones, MP3 player, Ipod, tablets, and other similar devices are prohibited inside the classroom unless the photo or video shall be used for documentation purposes.
12. Borrowing of calculators, pencils, pen/s, erasers, or other materials is prohibited during the administration of the assessment.
13. Any complaints (teaching, grades, etc.) against the teacher or against classmates (relative to the class) should be properly addressed to the subject-teacher for appropriate action. Students may seek the help and guidance of their academic/registration adviser in resolving the issue with the subject–teacher.

All policies (attendance, tardiness, decorum, grievances, etc.) will be subject to the provisions of the latest revision of the Student Handbook.

ENDORSED:



ENGR. EDUARDO B. TIBAYAN JR., MSc, PhD
Cluster Coordinator, Natural Sciences

RECOMMENDED:



ILUMINADA A. RONIO, MSc
Department Chair, Integrated Humanities and Sciences

APPROVED:



MARGEL C. BONIFACIO, RCH, PhD
Dean