

Template of OBE Course Outline (Bi-Semester)

Part A- Introduction

Course Code: PHY 102	Course Title: Physics II	
Course Type: Compulsory	Level/Term: Level 1, Term 2	Pre-requisite (s): Phy 101
Credit Value: 3.0	Contact Hours: 3Hrs./Week	Total Marks: 100
<p>1. Course Summary:</p> <p>The course is about the core concepts of Electricity and magnetism, alternating current and quantum physics. The main and important form of energy is electrical energy, At electricity and magnetism chapter; it will help us to learn about the basic form of electric & magnetic behavior showed on any electrical devices which one is applicable in any modern electrical equipment's. Even though, mobile networking that's one is the best part of modern human civilization, all networking deals with the electrical signals and our course contents will help to deal with this all belongings. The topic deals with AC will make us familiar with the direction of flow charge. It will also help us to introduce with the modern physics specially quantum mechanics and the basic structure of atom in subatomic level.</p> <p>2. Course Objectives:</p> <p>The first and foremost it will help to develop anyone with a great analytical and logical skills, in addition it helps us to think out of context. The outcome of this course will help us to enhance our imaginations with concepts like relativity, and several physical observations and the theories which are consistent in nature. This is the theory which makes the prediction of the result.</p>		

Part B- Content of the Course

3. Topics to be covered/Content of the course

Topics and Contents	Time Frame/Session	Specific Outcome(<i>What students will achieve in terms of Knowledge, Skills</i>)	Teaching Strategies & Suggested Activities(i	Teaching Aids/Tools/ Materials(<i>Books, Online Resources,</i>	Assessment Technique

		<i>and Abilities, KSA)</i>	<i>n relation to each topic or lesson)</i>	<i>Multi Media, Pictures, Reports, Charts, Newspapers, handouts, etc.)</i>	
1.Introduction and Overview of the Course	Week 1 (Session 1)	a) To build rapport among students, b) To introduce each other, c) To identify the course expectations, d) To summarize general information about the course and its completion, e) To understand different components of the course outline.	Discussion, Ice Breaking Tools,	White Board, MMP, Video, Images, Online Platform, Ice Breaking Tools	Quiz game
2.Introduction of Electricity: (Contents: concepts about electricity, charge, conservation of charge, quantization of charge, coulomb's law, electric field, electric potential, electric dipole, current, current density, drift velocity, relation between current density and drift velocity, resistance, laws of resistance,	Week 1 - 5 (Session 2-13)	a) Identify the measurement of current, b) Identify the concepts measuring capacitance and resistivity of electric equipment's, c) Explain the functions of capacitor and resistor, d) Identify the shunt and galvanometer current, e) Identify the electric potential due to point charge.	Lecture, Group Study, Discussion	White Board, MMP, Video, Images, Online Platform	Quiz, Question Answer, Interactive Video with Question (Class Test 1)

Ohm's law, types of resistance, shunt ,galvanometer, ammeter, voltmeter, capacitor, types of capacitor, finding the capacitance value, meter bridge, hall effect)					
3. Study of Magnetism: (Contents: concepts about magnetism and its application, magnetic field, magnetic dipole, magnetic force, Biot savart's law & its application, Lorentz force.	Week 6-7(Session 15-19)	a)Find out the information about magnetism, b) Identify the information about magnetic fields application in electric equipment's, e) Determine the types of application of Biot-savart's law, f)Design an electric equipment's where electromagnetic current are applied	Lecture, Group Study, Discussion	White Board, MMP, Video, Online Platform	Quiz, Question Answer, Interactive Video with Question
Review on Mid Term and Preparatory Leave	Week 8(Session 20-21)	a) To review the contents of mid-term examination, b) To solve questions of different years	Discussion, Question Answer	White Board, MMP	(Class Test 2)
Mid Term Examination	Week 8-9	-	-	-	-
6. Alternating current: (Concepts of A.C, Faraday's law, Lenz's law, mutual inductance, self-	Week 10-13 (Session 22-30)	a)To identify the concepts of A.C, b)Distinguish between A.C & D.C , c) Identify the frequency affects the impedance of a series resonance	Lecture, Group Study, Discussion	White Board, MMP, Video, Online Platform	Quiz, Question Answer, Interactive video with question (Class Test 3)

inductance ,its application, half cycle, full cycle & r.m.s value of A.C, LR,RC,LRC.		circuits, d) to calculate the resonance frequency and resonance circuit.			
7. Modern Physics : (Contents: Photoelectric effect, atomic model, concepts about atom ,atomic nuclear, work function, threshold frequency, radioactivity, half-life, decay law, nuclear fission& fusion, nuclear reactor, Nuclear power plant, mass defect, binding energy, Compton effect, mass energy equation, theory of relativity)	Week 14-16 (Session 30-38)	a)Distinguish between classical physics and quantum physics, b)To classify atom and atomic model, c)to determine radioactive decay, d)classify nuclear and fusion reaction, e) Calculate the mass energy of a particle.	Lecture, Group Study, Discussion	White Board, MMP, Video, Online Platform	Quiz, Question Answer, Interactive Video with Question, Assignment (Class Test 4)
Presentation Topic: Presentation	Week 17 (Session 39-41)	a) Determine and develop personal presentation style, b) Find ways to overcome nervousness for presentation, c) Recognize presentation weak	Question Answer	White Board, MMP, Online Platform	Based on the rubrics of presentation

		spots and areas for improvement, d. Learn, practice and acquire the skills necessary to deliver effective, presentation with clarity and impact			
Review on Final Examination & Preparatory Leave	Week 18 (Session 42-43)	a) To review the contents of final examination, b) To solve questions of different years	Discussion, Question Answer	White Board, MMP	Question Answer
Final Examination	Week 19-20	-	-	-	-

Part C - Assessment and Evaluation

4. Assessment Pattern

a) Class Tests

Altogether 4 class tests may be taken during the semester, 2 class tests will be taken before midterm and 2 class tests will be taken for final term. Out of 4 class tests best 3 class tests will be counted. No makeup class tests will be taken. Students are strongly recommended to participate in all class tests. Class tests will be based on short question, fill in the blanks, MCQ, True/False, mathematical problems and scheduled in class time.

b) Assignment and Presentation

The students are expected to complete their assignment of this course individually. The assignment of this course is to prepare an order sheet considering that the student is customer of a specific garments. An assignment is expected to answer all the questions that a garment producer may require.

The topic will be assigned as assignment during the class which they have to prepare at home and will submit on or before the due date. No late submission of assignments will be accepted. Students will have to do the presentation on the given topic as assignment. The details of assignment and presentation is given below-

Sl. No.	Type of Assignment and Presentation	Submission Date	Contents of Assignment	Contents of Presentation
1.	Topics related to textile engineering and several	Before 15 days of final examination	Chapter 1: Introduction to the topic with objectives (What about the topic and why chosen to find what?)	Duration: 3-7 minutes a) PPT slides Contents: All the important areas of prepared

	mathematical problems	<p>Chapter 2: Methodology (How the work is done?)</p> <p>Chapter 3: Experimental Works/Data or Evidence (What have done in the paper?)</p> <p>Chapter 4: Results and Discussion (What are the outcomes?)</p> <p>Chapter 5: Conclusion (What are the final results and recommendations?)</p> <p>Chapter 6: Findings (Write about what you have learnt from the paper?)</p> <p>References</p>	<p>presentation.</p> <p>2. May use any table to describe comparison of data, use only points with minimum words</p> <p>3. May use diagram, sketch, video, image to describe the order sheet</p>
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5. Assessment and Evaluation

Grades will be calculated as per the university grading structure and individual student will be evaluated based on the following criteria with respective weights.

1. Class Tests-15%
2. Assignment-5%
3. Presentation-8%
4. Class Attendance-7%
5. Mid Term Examination-25%
6. Final Examination-40%

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Total-100%

Part D-Learning Resources

6. Textbook

1. Physics-I&II by D. Halliday & R. Resnick

Reference Books & Materials:

2. Physics for Engineers by Prof. GiasUddin Ahmad*
3. Heat and Thermodynamics by BrijLal and N. Subrahmanyam
4. Waves and Oscillations by BrijLal and N. Subrahmanyam
5. Concepts of Electricity and Magnetism: Huq, Roy and Rafiqullah
6. Atomic and Nuclear Physics: Subrahmaniyam Brijlal
7. Perspective of Modern Physics: Arthur Beiser
8. Modern Physics: B. L. Thereja

