**Course-12 Title: Physics – II Sessional**

**Course Code: PHY 122 Credit: 0.75 Contact Hour: 1 per week Total marks: 100**

**11.1 Rationale:**

Students can apply the basic theories and principles of physics to generate problem solving such as analytical, mathematical and solution finding skills to develop their career as a computer engineer; this course will equip them with the concepts of Properties of matter, Atomic physics, Nuclear physics and Optics.

**11.2 Objectives:**

Students will be able to:

1. Apply the concepts, ideas and methods of Physics to solve problems in engineering studies.
2. Acquire knowledge in different laws and models of Physics will develop analytical capabilities in students.
3. Apply the laws of physics will help in higher or research studies in the field of engineering.
4. Understand the applied field in Properties of matter, Atomic physics, Nuclear physics and Optics.
5. Apply physics to explain everyday things that happening around us.

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| **11.3**  **Learning Outcomes** | **11.4**  **Course Content** | **11.5**  **Teaching / Learning Strategy** | **11.6 Assessment Strategy** |
| 1. Define surface tension.  2. Find surface tension of a mercury.  3. Discuss Quinck’s method. and conclude angle of contact.  4. Apply bending method and conclude Young’s modulus. | | **Properties of matter:**  1.To determine the surface tension of mercury and the angle of contact by using Quinck’s method.  2.To determine the Young’s modulus by the flexure of a beam by using bending method. | 1. Lecture 2. Group Discussion. 3. Exercise | 1. Short answer 2. Practical exam 3. Discussion 4. Observation 5. Reports 6. Viva voce 7. Assignment | |
| 1.Deduce Bragg’s law.  2.Produce X-ray diffraction useing Bragg’s law. | | **Crystallography:**  1.Determine the X-ray diffraction by applying Bragg’s law. | 1. Lecture 2. Group Discussion. 3. Exercise | 1.Short answer  2.Practical exam  3.Discussion  4.Observation  5. Reports  6.Viva voce  7.Assignment | |
| 1.Determine the refractive index of a liquid.  2.Describe pin method.  3.Evaluate the specific rotation of a sugar solution by means of a polarimeter. | | **5.Optics:**  1.To determine the refractive index of a liquid by pin method using a plane mirror and a convex lens.  2.To calibrate a polarimeter and hence determine the specific rotation of a sugar solution by means of a polarimeter. | 1. Lecture 2. Group Discussion. 3. Exercise 4. Assignment | 1.Short answer  2.Practical exam  3.Discussion  4.Observation  5. Reports  6.Viva voce | |

**RECOMMENDED BOOKS AND PERIODICALS**

**Text Books**: