|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Daffodil International University**  **Department of Software Engineering (SWE)**  **Course Outline** | | | | | | ca65f0521ed1c09a70ea48be492796de |
| **Course Code:** | PHY 101 | | | | | | |
| **Course Title:** | Physics-I | | | | | | |
| **Program:** | B.Sc. in SWE | | | | | | |
| **Faculty:** | Faculty of Science and Information Technology (FSIT) | | | | | | |
| **Semester:** | Summer | | **Year:** | | 2022 | | |
| **Credit:** | 3 | | **Contact Hour:** | | 3 (Per Week) | | |
| **Course Level:** | L1T2 | | **Prerequisite:** | | None | | |
| **Course Category:** | Basic Course | | | | | | |
| **Instructor Name:** | Dr. Sk. Abdul Kader Arafin Ph.D. | | | | | | |
| **Designation:** | Associate Professor | | | | | | |
| **Email:** | [skak\_arafin@daffodilvarsity.edu.bd](mailto:skak_arafin@daffodilvarsity.edu.bd) | | | | | | |
| **Office Address:** | 1st Floor, Exam Building, Main Campus, DIU | | | | | | |
| **Class Hours:** | **Section** | **Class Day** | | **Class Hours** | | **Classroom** | |
|  |  | |  | |  | |
|  | |  | |  | |
| **Google Classroom Code:** |  | | | | | | |

**Course Rationale:** All courses reflect curriculum for excellence values, purposes and principles.This course provides learners with opportunities to continue their learning on the basis of their own departments. This course will provide the basic concepts of Newtonian mechanics and is application, importance of light and waves and its essentiality for Software engineering aspect. Some shorts of idea and knowledge gathering regarding physics for modern world.

**Course Objective :** This course will provide the basic idea regarding mental development ‘why basic physics for software engineering students’. Able to apply their knowledge on Newtonian mechanics for introducing motion software, able to apply their knowledge in waves and optical sense in their core courses and will apply their knowledge in the field of modern engineering of physics to our evolving historical and global context.

**Course Outcomes (CO’s)**

|  |  |
| --- | --- |
| **CO1** | Will be able to know the basic of physics and their utilization for software development |
| **CO2** | Will be able to explain for basic physical formula of physics in some cases |
| **CO3** | Will be able to apply their knowledge in practical field in some case of daily life problem solution |

**Program Outcomes (PO’s)**

Program Outcomes are reported in Appendix-I.

**CO-PO Mapping**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PO’s  CO’s | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | √ |  |  |  |  |  |  |  |  |  |  |  |
| CO2 |  | √ |  |  |  |  |  |  |  |  |  |  |
| CO3 |  |  |  | √ |  |  |  |  |  |  |  |  |

* 1. **CO Assessment Scheme**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Assessment Task** | **CO’s** | | | **Mark**  **(Total=100)** |
| **CO1** | **CO2** | **CO3** |
| Attendance | -- | -- | -- | 7 |
| Class Test (CT1, CT2, CT3) | -- | -- | -- | 15 |
| Assignment | -- | -- | -- | 5 |
| Presentation | -- | -- | -- | 8 |
| Midterm Examination | 5 | 10 | 10 | 25 |
| Semester Final Examination | 10 | 15 | 15 | 40 |
| Total Mark | 15 | 25 | 25 | 100 |

# **Strategies and approaches to learning**

# **Teaching and Learning Activities (TLA)**

|  |  |
| --- | --- |
| **TLA1** | Lectures twice a week using different learning tools (like duster-marker, multimedia etc) on particular topics. |
| **TLA2** | Active discussion in class regarding topics issues. |
| **TLA3** | Group discussion and presentation regarding using based on situation |
| **TLA4** | Evaluation of class performances and overall performance on each evaluation criteria |

**Course Schedule and Structure**

**Textbook:** Physics for Engineers by Prof. GiasUddin Ahmad\*

**Reference Books:**

* + Physics-I&II by D. Halliday& R. Resnick
  + Waves and Oscillations by BrijLal and N. Subrahmanyam
  + Modern Physics by AutherBiser

|  |  |  |  |
| --- | --- | --- | --- |
| Learning Outcomes | Course Content | Teaching/ Learning Strategy | Assessment Strategy |
| Understand the Basic Concepts of Mechanics and Physics in general and will be able to explain Particle dynamics in general development of motion | Basic Concepts of Mechanics and Physics in general | Lecture, Discussion, Demonestration | Assignment, Q/A, MCQ |
| Motion in one dimension, Motion in a plane, Particle dynamics | Lecture, Discussion | Assignment, Q/A, MCQ |
| Work and Energy (Conservation of Energy) Circular motion (Rotational motion) Rotation of rigid bodies | Lecture, Discussion | Assignment, Q/A, MCQ |
| Be able to use these concepts in vibrational energy transfer | Simple harmonic motion (S. H. M) &Simple harmonic oscillation (differential equation). Wave motion and propagation Power and intensity in wave motion | Lecture, Discussion | Assignment, Q/A, MCQ |
| Be able to use the acquired knowledge in real life engineering problems in the field of light | Theory of light, Huygens‘s principle, Reflection, Refraction Electromagnetic wave | Lecture, Discussion | Assignment, Q/A, MCQ |
| Interference, Diffraction, Polarization | Lecture, Discussion | Assignment, Q/A, MCQ |
| Able to know about basic of atomic structure and some explanation due to modern development due to Physics | Atomic nucleus (Nuclear Physics), Structure and bonding | Lecture, Discussion | Assignment, Q/A,MCQ |
| Basic of quantum mechanics. | Lecture, Discussion | Assignment, Q/A,MCQ |
| Photoelectric effect, Compton effect, pair production and problem regarding Photoelectric effect,Compton effect | Lecture, Discussion | Assignment, Q/A,MCQ |
|  |  |

**Assessment Methods:**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Total Marks** | **Weight** |
| **Attendance** | **7** | **7%** |
| **Class Test** | **15 (Average of Three Class Test)** | **15%** |
| **Presentation** | **8 (May be in different mood)** | **8%** |
| **Assignment** | **5 (One or more assignmet may be given)** | **5%** |
| **Mid-Term** | **25** | **25%** |
| **Final Exam** | **40** | **40%** |
| **Total** | | **100%** |

**Grading System:**

|  |  |  |
| --- | --- | --- |
| **Numerical Grade** | **Letter Grade** | **Grade Point** |
| 80-100 | A+ | 4.00 |
| 75-79 | A | 3.75 |
| 70-74 | A- | 3.50 |
| 65-69 | B+ | 3.25 |
| 60-64 | B | 3.00 |
| 55-59 | B- | 2.75 |
| 50-54 | C+ | 2.50 |
| 45-49 | C | 2.25 |
| 40-44 | D | 2.00 |
| Less than 40 | F | 0.00 |

**Additional Support for Students:**

* Blended learning Center (BLC)

http://elearn.daffodil.versity

* Student Portal:

<http://studentportal.diu.edu.bd/>

* Academic Guidelines

<https://daffodilvarsity.edu.bd/article/academic-guidelines>

* Rules and Regulations of DIU

<https://daffodilvarsity.edu.bd/article/rules-and-regulation>

* Career Development Center:

<https://cdc.daffodilvarsity.edu.bd/>

* For general queries:

<http://daffodilvarsity.edu.bd/>