# Department of Mathematical and Physical Sciences (MPS)
# East West University

## Semester- Spring 2024
## Course Outline for PHY-209(6)

**Course Code** : PHY 209(6)
**Course Title** : Engineering Physics-II
**Prerequisite** : MAT -101 &MAT-102
**Credit Hours** : 3 (Theory)
**Class Time** :

| Section | Day | Time | Room |
|---|---|---|---|
| 1(Theory) | S | 10:50-12:05 PM | FUB-603 |
| 1(Theory) | T | 10:50-12:05 PM | FUB-603 |

**Make-up/ extra class**: Make-up/extra class, if needed, will be suitably arranged.


**Course Instructor** : Prof. Dr. Md. Shafiqul Islam(SHAFIQ)
**Email** : shafiqul.islam@ewubd.edu
**Office** : Room- FUB-1004
**Phone** : **01761043958**


**Office Hours** :

| Day | Time |
|---|---|
| **S** | **09:20-10:40 AM & 12:10 -01:30 PM** |
| **T** | **09:20-10:40 AM & 12:10 -01:10 PM** |

**Course Objective:-**

This is an introductory course to modern physics and aims to cover quantum physics. The primary objective of this course is to develop familiarity with the physical concepts and facility with the mathematical methods of quantum mechanics. A secondary, but still very important objective is to cultivate your skills at formulating and solving physics problems. A subsidiary objective is to encourage the development of self-discipline and work habits that are useful both in academic course work and in the real world.

**Course Contents:-**

1. **Matrix Formulation of Quantum Mechanics:** State Vectors in Hilbert Space; Bra and Ket Notations; Operators and their Representation; Transformation Theory; Schrödinger, Heisenberg and Dirac, Representation; Parity Operators; Density, Matrix; Harmonic Oscillator. (6-7 Lectures).
2. **Quantum Dynamics:** Schrödinger, Heisenberg and Dirac pictures; Equations of motion in Schrödinger, Heisenberg and Dirac pictures; Linear harmonic oscillator (8-9 Lectures).
3. **Theory of Angular Momentum:** Orbital angular momentum operators and their representation in spherical polar co-ordinates; Eigenvalues and Eigen functions of Angular Momentum; Commutation relations among orbital angular momentum operators; Ladder operators; Spin angular momentum; Addition of Angular Momenta; Eigenvalues and Eigen functions of total angular momentum operators.

**Books recommended:**


**1. Nouredine Zettili; Quantum Mechanics**
**2. L. I. Schiff; Quantum Mechanics**
**3. Gupta Kumar Sharma**

**Last Date of Classes: 28th May 2024**

**Exam Dates:-**

| Section | Mid-Term Examination | Final Examination |
|---|---|---|
| **1** | **26th March (Tuesday) 2024** | **02nd June (Sunday) 2024** |

**Marks Distribution :**

| | |
|---|---|
| Class Attendance | : 10% |
| Mid Term | : 30% |
| Class test/Quiz | : 20% |
| Assignment& Presentation | : 10% |
| Final exam | : 30% |

**Grading Policy :**

| Numerical Scores | Letter Grade | Grade Point |
|---|---|---|
| **80% and Above** | **A+** | **4.00** |
| **75% to less than 80%** | **A** | **3.75** |
| **70% to less than 75%** | **A-** | **3.50** |
| **65% to less than 70%** | **B+** | **3.25** |
| **60% to less than 65%** | **B** | **3.00** |
| **55% to less than 60%** | **B-** | **2.75** |
| **50% to less than 55%** | **C+** | **2.50** |
| **45% to less than 50%** | **C** | **2.25** |
| **40% to less than 45%** | **D** | **2.00** |
| **less than 40%** | **F** | **0.00** |

**Special Instructions :**

1. This is a general guideline. Course contents and number of lectures may change depending on need.
2. EWU has a zero-tolerance policy for students involved in any form of cheating in exam.
3. **Students must bring their own calculators, pens etc in the exam hall. No borrowing in any exam (including class tests).**
4. **No talking to other students while exam in progress (including class tests).**
5. Unless otherwise specified, if an exam cannot be taken in due date, it will be shifted to the next class day.
6. Any student with less than 80% class attendance will not be allowed to sit for the final exam.

Prof. Dr. Md. Shafiqul Islam
Adjunct Faculty, Dept. of MPS

THEORY CLASS OF PHY-209(6)
Google Meet joining info:-
Class Code:- 7u3pqjx
Video call link:- https://meet.google.com/dcb-xaot-vqo