

Semester Pattern: 2024-25

Instructions to submit Second Semester Assignments

1. Following the introduction of semester pattern, it becomes **mandatory for candidates to submit assignment for each course.**
2. Assignment topics for each course will be displayed in the A.U, CDOE website (**www.audde.in**).
3. Each assignment contains 5 questions and the candidate should answer all the 5 questions. Candidates should submit assignments for each course separately. (5 Questions x 5 Marks =25 marks).
4. Answer for each assignment question should not exceed 4 pages. Use only A4 sheets and write on one side only. **Write your Enrollment number on the top right corner** of all the pages.
5. Add a template / content page and provide details regarding your Name, Enrollment number, Programme name, Code and Assignment topic. Assignments without template/ content page will not be accepted.
6. Assignments should be handwritten only. Typed or printed or photocopied assignments will not be accepted.
7. **Send all Second semester assignments in one envelope.** Send your assignments by Registered Post to The Director, Center for Distance and Online Education, Annamalai University, Annamalai Nagar – 608002.
8. Write in bold letters, “**ASSIGNMENTS – SECOND SEMESTER**” along with PROGRAMME NAME on the top of the envelope.
9. Assignments received after the **last date with late fee** will not be evaluated.

Date to Remember

Last date to submit Second semester assignments : **15.04.2025**

Last date with late fee of Rs.300 (three hundred only) : **30.04.2025**

Dr. T. SRINIVASAN
Director

CENTRE FOR DISTANCE AND ONLINE EDUCATION

S019 – M.Sc. PHYSICS

FIRST YEAR – II SEMESTER

ASSIGNMENT TOPICS

019E1210: MICROPROCESSORS AND MICROCONTROLLER

1. Explain the bus structure of 8085 microprocessor
2. Explain the various addressing modes of 8085 microprocessor with example.
3. **a.** Discuss register organisation in 8086
b. Write an assignment on interrupt structures.
4. Write simple programs of 8051 microcontroller.
i) addition, **ii)** subtraction, **iii)** multiplication and **iv)** division.
5. Explain the architecture of 8255 and also discuss the operating modes of 8255.

019E1220: QUANTUM MECHANICS - I

1. **a.** Deduce Schrodinger wave equation and obtain for the wavefunction for a free particle
b. Explain probability current density.
2. **a.** Derive the wave function of a particle in a box. Also find the Eigen value and Eigen function using Schrödinger's Equation
b. What are symmetric and Anti-symmetric wave function? Show how they lead to the Pauli's Exclusion principle.
3. **a.** Obtain Schrödinger's equation for a linear harmonic oscillator and solve it to obtain its energy eigen values.
b. Solve the radial part of the Schrödinger's equation for hydrogen atom and obtain energy eigen values.
4. **a.** Distinguish between Schrodinger, Heisenberg & interaction representation &, obtain the equation of motion in each representation.
b. Define the Clebsch-Gordan coefficient and discuss their symmetry properties.
5. **a.** Explain partial wave analysis.
b. Define optical theorem.

019E1230: ELECTROMAGNETIC THEORY

1. **a.** State Gauss's law and derive Gauss's law in differential form.
b. Explain Poisson's equation and Laplace's equation..
2. **a.** Evaluate (i) Curl of magnetic induction B and (ii) Divergence of magnetic induction B .
b. Elaborate ferromagnetic materials and Weiss theory of ferromagnetic materials.
3. **a.** Deduce Maxwell's equation in free space.
b. State and explain pointing theorem.
4. **a.** Discuss propagation of electromagnetic waves in ionised gases
b. Analyze Gauge transformation
5. **a.** Formulate the Fresnel's equations when E is perpendicular to the plane of incidence.
b. Derive the boundary conditions at the surface of discontinuities.