

  
**ANNAMALAI UNIVERSITY**

(Accredited with 'A+' Grade by NAAC)

CENTRE FOR DISTANCE AND ONLINE EDUCATION

Annamalainagar – 608 002

**Semester Pattern: 2025-26 [JANUARY SESSION]**

**Instructions to submit Fourth 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](http://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 Fourth semester assignments in one envelope.** Send your assignments by Registered Post to The Director, Centre for Distance and Online Education, Annamalai University, Annamalai Nagar – 608002.
8. Write in bold letters, “ASSIGNMENTS – FOURTH 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 Fourth semester assignments : 15.04.2026  
Last date with late fee of Rs.300 (three hundred only) : 30.04.2026

**Dr. S.ARULSEVI**  
**Director**

**M.Sc. Chemistry (CDOE) – Assignment topics**  
**II Year - Fourth Semester**

**020E2410 – Organic Chemistry- IV**

1. Discuss the uses of super critical fluid extraction in organic synthesis.
2. Explain the synthesis and applications of cyclodextrins and cyclophane.
3. Illustrate the structure activity relationship of Morphine.
4. Write a brief note on analgesics and antipyretics drugs.
5. Explain the aromatic sulphonation reactions with examples.

**020E2420 – Inorganic Chemistry- IV**

1. Explain the construction and interpretation of Tanabe–Sugano diagrams for  $d^4$ ,  $d^5$ ,  $d^6$ , and  $d^7$  metal ions.
2. Write a brief note on chemical shifts in X-ray photoelectron spectroscopy (XPS)
3. Describe the instrumentation and working of Mössbauer spectroscopy and its use in studying tin compounds.
4. Illustrate the principle and applications of electron diffraction method.
5. Discuss the application of HPLC in various field.

**020E2430 – Physical Chemistry- IV**

1. Explain the GIBBS Adsorption isotherm and Freundlich Adsorption Isotherm.
2. Discuss the following:  
(a) Cyanines (b) Uvinul (c) Tinuvin (d) Fluorescent whitening agents
3. Describe the piezoelectric and pyroelectric materials.
4. How do you explain the band theory and mention the advantages of semiconductors and superconductors?
5. Discuss the Representation theory.

**020E2440 – Advanced Techniques- IV**

1. Discuss the following terms  
(a) SEM (b) TEM and (c) SPM
2. How will you explain TGA, DTA and DSC? Mention its application
3. Explain the mass spectra of hydrocarbons, alcohols, phenols and carboxylic acids with examples.
4. What are the factors affecting the Chemical shifts? and discuss it.
5. Illustrate the following topics
  - (i) HOMOCOSY
  - (ii) HSQC
  - (iii) HMBC
  - (iv) TOCSY