A N N A M A L A I U N I V E R S I T Y

(Accredited with 'A^{+}' Grade by NAAC)

CENTRE FOR DISTANCE AND ONLINE EDUCATION

Annamalainagar – 608 002

Assignment Submission Instructions for Fourth Semester Students of the Academic Year 2026-27 (July Session)

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 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	:	15.10.2026
Last date with late fee of Rs.300 (three hundred only)	:	30.10.2026

Dr. S.ARULSELVI
Director

CDOE (chemistry wing)-Assignments
Ivthsemester

Course code: 020E2410- S410 (organic chemistry) - IV

1. Illustrate the varies green techniques used in organic synthesis including the use of super critical fluids and microwave.
2. (A) describe the various non-covalent interactions involved in super molecular chemistry.
   (B) Explain the synthesis and applications of cyclodextrins sand dendrimers.
3. Describe the process of drug discovery and design, including drug receptor interaction, structure – activity relationship and quantitative structure – activity relationship (QSAR) using morphines and penicillin's as case studies.
4. (A) explain synthesis and pharmacological applications of sulfonylurea's as hypoglycaemic reagents.
   (B) Discuss the mechanism of action of aminoquinolines as antimalarials.
5. Describe the industrial importance and reaction mechanism of sulphonation and halogenations.

Course code020E2420- S420 (Inorganic chemistry) - IV

1. Using tanabe-sugano diagram, explain the electronic spectrum of d^6octahedral complex in detail
2. Describe the principle, instrumentation, and applications of ESR spectroscopy in transition metal complexes.
3. Give a detailed account of Mossbauer spectroscopy with reference to isomer shift, quadrupole splitting, and magnetic interactions.
4. Discuss the theory, instrumentation and structural elucidation capabilities of power X-ray diffraction techniques.
5. Explain the octant rule and its role in determining the absolute configuration of organic molecule using ORD and CD techniques.

Course code: 020E2430 - S430 (physical chemistry) - IV

1. (A) derive the Kelvin equation and discus its significance in surface chemistry
   (b) Explain the classification of surfactant with examples.
2. (A) discuss the principle of photolysis and its applications
   (b) Explain chemistry of vision and its importance.
3. With neat diagrams explain the properties and applications of ferroelectric and piezoelectric materials
4. Elaborate on NLO and photo chromic material, highlighting their principles and significance in modern material science.
5. Construct the character table for the C_{3v}point group and explain the selection rules for IR and Raman spectroscopy using the water molecule as an example.

Course code: 020E2440- S440 (Advanced Techniques)

1. Discuss the principle and application of scanning probe lithography (SPL) IN nanomaterial characterisation.
2. Explain the principles, instrumentations and applications of DSC in thermal analysis of material
3. Explain the basic principles and ionization techniques used in mass spectrometry (EI, CI, FAB, and SIMS) with suitable examples.
4. Explain the principles of h1 NMR spectroscopy. Discuss the factors influencing chemical shift and couplings constant with example of simple organic molecules
5. Describe the principle, types and applications of 2D NMR techniques such as HSQC and HMBC