

Lesson Plan

MCM DAV College for Women, Sector – 36A, Chandigarh Monthly Teaching Plans (Odd Semester) Session – (2025-26)

Name of the Teachers: Dr. Manjot Kaur, Dr Shilpa Dogra

Department: Chemistry

Class: M.Sc II
(CH-513)

Subject: Heterocyclic Chemistry

Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
From	To		
24-07-2025	11-08-2025	UNIT 1: Nomenclature of Heterocycles Replacement and systematic nomenclature (Hantzsch-widman System) for monocyclic fused and bridged heterocycles Aromatic Heterocycles. General chemical behaviour of aromatic heterocycles classification (structural type) criteria of aromaticity (bond length ring current and chemical shift in ¹ H NMR- Spectra empirical resonance energy delocalization energy and Dewar resonance energy Diamagnetic susceptibility exaltations) Non- aromatic Heterocycles. Strain-bond angle and torsional strains and their consequences in small ring heterocycles.	Lecture Method & Group Discussion about Introduction to relevant reference books And marking system in final paper
12-08-2025	16-09-2025	UNIT 1: Nomenclature of Heterocycles Non- aromatic Heterocycles. Strain-bond angle and torsional strains and their consequences in small ring heterocycles. Conformation of six-membered heterocycles with reference to molecular Geometry, barrier to ring inversion, pyramidal inversion and 1,3-diaxial interaction. Stereo-electronic effects- anomeric and related effects Attractive interactions-hydrogen bonding and intermolecular nucleophilic electrophilic interactions.	Lecture Method & Case Studies. For Practice of nomenclature
17-09-2025	08-10-2025	. UNIT 2: Heterocyclic synthesis Principles of heterocyclic synthesis involving cyclization reactions and cycloaddition Reactions. Three- membered and four-membered heterocycles-synthesis and reactions of aziridines, oxiranes, thiiranes, azetidines, oxetanes and thietanes.	Lecture Method & Group Discussion for paper solving by giving Assignment

09-10-2025	Till exam	UNIT 2: Heterocyclic synthesis Synthesis and reaction including medicinal applications of benzo pyrroles, benzofurans and benzothiophenes	Lecture Method & group Discussion. Revision and question papers discussion
24-07-2025	30-8-2025	UNIT 3: Meso-ionic Heterocycles General classification chemistry of some important meso-ionic heterocycles of type-A and B and their applications. Six-Membered Heterocycles with One Heteroatom Synthesis and reactions of pyrylium salt and pyrones and their comparison with Pyridinium & thiopyrylium salt and Pyridones synthesis and reactions of Quinolizinium and benzopyrylium salt coumarins and chromones Six-Membered Heterocycles with Two or More Heteroatoms: Synthesis and reactions of diazines, triazines, tetrazines and thiazine	
1-9-2025	30-9-2025	Unit 4: 1,2-Azoles: pyrazoles, isothiazoles and isoxazoles Introduction to 1,2-azoles, synthesis of 1,2-azoles. Addition on nitrogen: protonation, N-alkylation, N-acylation. Reaction with electrophilic and nucleophilic reagents. Reaction with bases: reaction of N-metallated pyrazole, reaction of C-metallated 1,2-azoles. Reaction with oxidizing and reducing agents	
1-10-2025	Till exams	Unit 4: 1,3-Azoles: imidazole, thiazoles and oxazoles Introduction to 1,3-azoles, synthesis of 1,3-azoles. Addition at nitrogen: protonation, N-alkylation, N-acylation. Reaction with electrophilic and nucleophilic reagents. Reaction with bases: reaction of N-metallated imidazole, reaction of C-metallated 1,3-azoles. Reaction with oxidizing and reducing agents. Synthesis and reaction of quaternary 1,3-azolium salt and 1,3-azole-N-oxide.	
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans			
27 th August, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan		
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans			
24 th Sep tember, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan		

Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
29 th October, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
10th November, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc. Other Methods adopted by the teacher – Please write the specific teaching method