

UNIT	TOPIC_CODE	TOPIC_DESP	EXPECTEDDATE	REMARKS	METHODOLOGY	MEDIA	BATCH
I	1.1	UV Visible spectroscopy Electronic transitions, chromophores, auxochromes	26/06/2023	Completed	Digital board	None	A B and C
	1.2	spectral shifts, solvent effect on absorption spectra,	27/06/2023	Completed	Digital board	None	A B and C
	1.3	Beer and Lambert's law, Derivation and deviations.	28/06/2023	Completed	Digital board	None	A B and C
	1.4	Instrumentation - Sources of radiation, wavelength selectors, sample cells	03/07/2023	Completed	Digital board	None	A B and C
	1.5	detectors- Photo tube, Photomu	05/07/2023	Completed	Digital board	None	A B and C
	1.6	Applications - Spectrophotometric titrations,	06/07/2023	Completed	Digital board	None	A B and C
	1.7	Single component and multi component analysis	10/07/2023	Completed	Digital board	None	A B and C
	1.8	Fluorimetry Theory, Concepts of singlet, doublet and triplet electronic states, internal and external conversions	12/07/2023	Completed	Digital board	None	A B and C
	1.9	factors affecting fluorescence, quenching,	13/07/2023	Completed	Digital board	None	A B and C
II	2.1	instrumentation and applications	17/07/2023	Completed	Digital board	None	A B and C
	2.1	IR spectroscopy Introduction, fundamental modes of vibrations in poly atomic molecules	18/07/2023	Completed	Digital board	None	A B and C
	2.2	sample handling, factors affecting vibrations	19/07/2023	Completed	Digital board	None	A B and C
	2.3	Instrumentation - Sources of radiation, wavelength selectors, detectors - Golay cell, Bolometer, Thermocouple	25/07/2023	Completed	Digital board	None	A B and C
	2.4	Thermister, Pyroelectric detector and applications	26/07/2023	Completed	Digital board	None	A B and C
	2.5	Flame Photometry Principle, interferences	27/07/2023	Completed	Digital board	None	A B and C
	2.6	Instrumentation and applications	31/07/2023	Completed	Digital board	None	A B and C
	2.7	Atomic absorption spectroscopy Principle, interferences	01/08/2023	Completed	Digital board	None	A B and C
	2.8	Instrumentation and applications	07/08/2023	Completed	Digital board	None	A B and C
	2.9	Nepheloturbidometry Principle, instrumentation and applications	08/08/2023	Completed	Digital board	None	A B and C
III	3.1	Introduction to chromatography Adsorption and partition column chromatography-	09/08/2023	Completed	Digital board	None	A B and C



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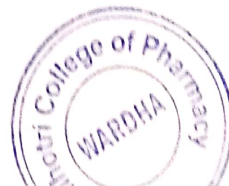


3.3	• Electron impact ionization chemical field ionization FAB and MALDI APCLESI	21/10/2023	Completed	Digital Board	None	A and B
3.4	• APPI Analyzers of Quadrupole	23/10/2023	Completed	Digital Board	None	A and B
3.5	• Time of Flight Mass fragmentation and its rules	25/10/2023	Completed	Digital Board	None	A and B
3.6	• Meta stable ions Isotopic peaks and Applications of Mass spectroscopy	28/10/2023	Completed	Digital Board	None	A and B
4.1	• Chromatography Principle apparatus instrumentation	04/11/2023	Completed	Digital Board	None	A and B
4.1	• Chromatographic parameter factors affecting resolution isolation of drug from excipients	06/11/2023	Completed	Digital Board	None	A and B
4.1	• Data interpretation and applications of the following Thin Layer chromatography	07/11/2023	Completed	Digital Board	None	A and B
4.2	• High Performance Thin Layer Chromatography	08/11/2023	Completed	Digital Board	None	A and B
4.3	• Ion exchange chromatography	11/11/2023	Completed	Digital Board	None	A and B
4.4	• Column chromatography	18/11/2023	Completed	Digital Board	None	A and B
4.5	• Gas chromatography	20/11/2023	Completed	Digital Board	None	A and B
4.6	• High Performance Liquid chromatography	20/11/2023	Completed	Digital Board	None	A and B
4.7	• Ultra High Performance Liquid chromatography	21/11/2023	Completed	Digital Board	None	A and B
4.8	• Affinity chromatography	21/11/2023	Completed	Digital Board	None	A and B
4.9	• Gel Chromatography	22/11/2023	Completed	Digital Board	None	A and B
5	• 5 Electrophoresis Principle Instrumentation	22/11/2023	Completed	Digital Board	None	A and B
5.1	• Working conditions factors affecting separation	25/11/2023	Completed	Digital Board	None	A and B
5.1	• applications of the following	25/11/2023	Completed	Digital Board	None	A and B
5.2	• Paper electrophoresis Gel electrophoresis	27/11/2023	Completed	Digital Board	None	A and B
5.3	• Capillary electrophoresis	27/11/2023	Completed	Digital Board	None	A and B
5.4	• Zone electrophoresis	28/11/2023	Completed	Digital Board	None	A and B
5.4	• Moving boundary electrophoresis	28/11/2023	Completed	Digital Board	None	A and B
5.5	• Iso electric focusing	29/11/2023	Completed	Digital Board	None	A and B
5.6	• X ray Crystallography Production of X rays Different X ray	02/12/2023	Completed	Digital Board	None	A and B
5.6	• methods Braggs law	04/12/2023	Completed	Digital Board	None	A and B
5.7	• Rotating crystal technique X ray powder Technique	04/12/2023	Completed	Digital Board	None	A and B
5.8	• Types of crystals and applications of X ray diffraction	05/12/2023	Completed	Digital Board	None	A and B
6	• 6 a Potentiometry Principle working Ion selective Electrodes and Application of potentiometry	06/12/2023	Completed	Digital Board	None	A and B
6.2	• b Thermal Techniques Principle thermal transitions and	09/12/2023	Completed	Digital Board	None	A and B
6.3	• Instrumentation Heat flux and power compensation and designs	11/12/2023	Completed	Digital Board	None	A and B
6.4	• Modulated DSC Hyper DSC experimental parameters Sample Preparation	12/12/2023	Completed	Digital Board	None	A and B



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ICMPK' CYM	ICMPK' TM SP	EXPIRE DATE	REMARKS	METHODOLOGY	MEDIA	DATE
1.1	• Nuclear Magnetic Resonance Spectroscopy, Principles of ¹ H NMR			Digital Board		
1.2	• C NMR	12/12/2023	Completed	Digital Board	None	A B and C
1.3	• Chemical shift, Shielding Deshielding	13/12/2023	Completed	Digital Board	None	A B and C
1.4	• Factors affecting chemical shift	14/12/2023	Completed	Digital Board	None	A B and C
1.4	• Coupling constant, Spin-spin coupling,	15/12/2023	Completed	Digital Board	None	A B and C
1.5	• Relaxation Processes	15/12/2023	Completed	Digital Board	None	A B and C
1.5	Revision	20/12/2023	Completed	Digital Board	None	A B and C
1.6	• Instrumentation and applications	20/12/2023	Completed	Oral	None	A B and C
1.7	Mass Spectroscopy Principle	21/12/2023	Completed	Digital Board	None	A B and C
1.7	• Fragmentation Pattern	22/12/2023	Completed	Digital Board	None	A B and C
1.8	• Ionization techniques – Electron impact, chemical ionization,			Digital Board		
1.8	• MALDI, FAB	27/12/2023	Completed	Digital Board	None	A B and C
1.8	• Types of Ions in MS	28/12/2023	Completed	Digital Board	None	A B and C
1.9	• Analyzers-Time of flight and Quadrupole	29/12/2023	Completed	Digital Board	None	A B and C
1.9	• Instrumentation, applications	03/01/2024	Completed	Digital Board	None	A B and C
2.1	• Thermal Methods of analysis, Principles	04/01/2024	Completed	Digital Board	None	A B and C
2.1	• instrumentation and applications of Thermo gravimetric Analysis (TGA)	05/01/2024	Completed	Digital Board	None	A B and C
2.2	• Differential Thermal Analysis Principle	30/01/2024	Completed	Digital Board	None	A B and C
2.2	• instrumentation and applications of DTA	30/01/2024	Completed	Digital Board	None	A B and C
2.3	• Differential Scanning Calorimetry (DSC) Principle	31/01/2024	Completed	Digital Board	None	A B and C
2.4	• Differential Scanning Calorimetry, Instrumentation and application	01/02/2024	Completed	Digital Board	None	A B and C
2.5	• X Ray diffraction Methods: Origin of X-rays, basic aspects of crystals	02/02/2024	Completed	Digital Board	None	A B and C
2.5	• X-ray Crystallography	02/02/2024	Completed	Digital Board	None	A B and C
2.6	• Rotating crystal technique, single crystal diffraction	07/02/2024	Completed	Digital Board	None	A B and C
2.6	• Powder diffraction,	08/02/2024	Completed	Digital Board	None	A B and C
2.7	• Structural elucidation and applications.	09/02/2024	Completed	Digital Board	None	A B and C
3.1	• Calibration and validation-as per ICH and USFDA guidelines	09/02/2024	Completed	Digital Board	None	A B and C
3.2	• Calibration of Electronic balance	15/02/2024	Completed	Digital Board	None	A B and C




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3.3	• Calibration of UV Visible spectrophotometer Revision	16/02/2024	Completed	Digital Board	None	A B and C
3.4	• Calibration of IR spectrophotometer	16/02/2024	Completed	Digital Board	None	A B and C
3.5	• Calibration of Fluorimeter,	21/02/2024	Completed	Digital Board	None	A B and C
3.6	• Calibration of Flame Photometer	22/02/2024	Completed	Digital Board	None	A B and C
3.7	• Calibration of HPLC	23/02/2024	Completed	Digital Board	None	A B and C
3.8	• Calibration of GC	23/02/2024	Completed	Digital Board	None	A B and C
	Revision	28/02/2024	Completed	Digital Board	None	A B and C
		29/02/2024	Completed	Oral	None	A B and C
4.1	• Radioimmuno Assay- Importance, various components			Digital Board		
4.2	• Principle, different methods	01/03/2024	Completed	Digital Board	None	A B and C
4.3	• Limitation and Applications of Radio immuno assay	01/03/2024	Completed	Digital Board	None	A B and C
4.4	• Extraction Techniques- General principle and procedure involved in the solid phase extraction	06/03/2024	Completed	Digital Board	None	A B and C
4.5	• liquid-liquid extraction	07/03/2024	Completed		None	A B and C
	Revision	13/03/2024	Completed	Digital Board	None	A B and C
5.1	• LC-MS/MS	14/03/2024	Completed		None	A B and C
5.1	• Methods and Applications	15/03/2024	Completed	Digital Board	None	A B and C
5.2	• GC-MS/MS	15/03/2024	Completed	Digital Board	None	A B and C
5.2	• Methods and Applications	20/03/2024	Completed	Digital Board	None	A B and C
5.3	• HPTLC-MS.	21/03/2024	Completed	Digital Board	None	A B and C
5.3	• Methods and Applications	22/03/2024	Completed	Digital Board	None	A B and C
	NMR Revision	27/03/2024	Completed	Digital Board	None	A B and C
	NMR Revision	28/03/2024	Completed	Digital Board	None	A B and C
	NMR Revision	29/03/2024	Completed	Digital Board	None	A B and C
	MS Revision	03/04/2024 and 04/04/2024	Completed	Digital Board	None	A B and C




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Modern Pharmaceutical Analytical Techniques Teaching Plan 2023-2024

M. Pharm I Semester

Faculty Name: Ms. Khushbu B. Vyas

UNIT	TOPIC CODE	TOPIC_DESP	EXPECTED DATE	REMARKS	METHODOLOG	MEDIA	BATCH
1	1.1	• UV Visible spectroscopy Introduction Theory Laws	04/09/2023	Completed	Digital Board	None	A and B
	1.1	• Instrumentation associated with UV Visible spectroscopy	05/09/2023	Completed	Digital Board	None	A and B
	1.1	• Choice of solvents and solvent effect and Applications of UV Visible	06/09/2023	Completed	Digital Board	None	A and B
	1.1	• spectroscopy	09/09/2023	Completed	Digital Board	None	A and B
	1.1	• Difference/ Derivative spectroscopy	11/09/2023	Completed	Digital Board	None	A and B
	1.2	• IR spectroscopy Theory Modes of Molecular vibrations	12/09/2023	Completed	Digital Board	None	A and B
	1.2	• Sample handling Instrumentation of Dispersive and Fourier	13/09/2023	Completed	Digital Board	None	A and B
	1.2	• Transform IR Spectrometer	16/09/2023	Completed	Digital Board	None	A and B
	1.2	• Factors affecting vibrational frequencies Applications of IR spectroscopy Data Interpretation	18/09/2023	Completed	Digital Board	None	A and B
	1.3	• Spectrofluorimetry Theory of Fluorescence Factors Affecting fluorescence Characteristics of drugs that can be analysed by fluorimetry	20/09/2023	Completed	Digital Board	None	A and B
	1.3	• Quenchers	23/09/2023	Completed	Digital Board	None	A and B
	1.3	• Instrumentation, Applications of fluorescence spectrophotometer	25/09/2023	Completed	Digital Board	None	A and B
	1.4	• Flame emission spectroscopy	26/09/2023	Completed	Digital Board	None	A and B
	1.4	• Atomic absorption spectroscopy Principle	27/09/2023	Completed	Digital Board	None	A and B
	1.4	• Instrumentation Interferences and Applications	30/09/2023	Completed	Digital Board	None	A and B
	2.1	• NMR spectroscopy Quantum numbers and their role in NMR	03/10/2023	Completed	Digital Board	None	A and B
	2.2	• Principle Instrumentation	04/10/2023	Completed	Digital Board	None	A and B
	2.3	• Solvent requirement in NMR Relaxation process	07/10/2023	Completed	Digital Board	None	A and B
	2.4	• NMR signals in various compounds Chemical shift Factors influencing chemical shift	09/10/2023	Completed	Digital Board	None	A and B
	2.5	• Spin Spin coupling, Coupling constant	10/10/2023	Completed	Digital Board	None	A and B
	2.6	• Nuclear magnetic double resonance	11/10/2023	Completed	Digital Board	None	A and B
	2.7	• Brief outline of principles of FT NMR	14/10/2023	Completed	Digital Board	None	A and B
	2.8	• ¹³ C NMR Applications of NMR spectroscopy	16/10/2023	Completed	Digital Board	None	A and B
	3.1	• Mass Spectroscopy Principle Theory	17/10/2023	Completed	Digital Board	None	A and B
	3.2	• Instrumentation of Mass Spectroscopy	18/10/2023	Completed	Digital Board	None	A and B



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3.3	• Electron impact Ionization chemical field ionization FAB and MALDI APCTESI	21/10/2023	Completed	Digital Board	None	A and B	
3.4	• APPI Analyzers of Quadrupole	23/10/2023	Completed	Digital Board	None	A and B	
3.5	• Time of Flight Mass fragmentation and its rules	25/10/2023	Completed	Digital Board	None	A and B	
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4.1	• Data interpretation and applications of the following Thin Layer chromatography	07/11/2023	Completed	Digital Board	None	A and B	
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4.4	• Column chromatography	18/11/2023	Completed	Digital Board	None	A and B	
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4.6	• High Performance Liquid chromatography	20/11/2023	Completed	Digital Board	None	A and B	
4.7	• Ultra High Performance Liquid chromatography	21/11/2023	Completed	Digital Board	None	A and B	
4.8	• Affinity chromatography	21/11/2023	Completed	Digital Board	None	A and B	
4.9	• Gel Chromatography	22/11/2023	Completed	Digital Board	None	A and B	
5	5.1	• 5 Electrophoresis Principle Instrumentation	22/11/2023	Completed	Digital Board	None	A and B
	5.1	• Working conditions factors affecting separation	25/11/2023	Completed	Digital Board	None	A and B
	5.1	• applications of the following	25/11/2023	Completed	Digital Board	None	A and B
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	5.3	• Capillary electrophoresis	27/11/2023	Completed	Digital Board	None	A and B
	5.4	• Zone electrophoresis	28/11/2023	Completed	Digital Board	None	A and B
	5.4	• Moving boundary electrophoresis	28/11/2023	Completed	Digital Board	None	A and B
	5.5	• Iso electric focusing	29/11/2023	Completed	Digital Board	None	A and B
	5.6	• X ray Crystallography Production of X rays Different X ray	02/12/2023	Completed	Digital Board	None	A and B
	5.6	• methods Braggs law	04/12/2023	Completed	Digital Board	None	A and B
	5.7	• Rotating crystal technique X ray powder Technique	04/12/2023	Completed	Digital Board	None	A and B
	5.8	• Types of crystals and applications of X ray diffraction	05/12/2023	Completed	Digital Board	None	A and B
	6.1	• 6 a Potentiometry Principle working Ion selective Electrodes and Application of potentiometry	06/12/2023	Completed	Digital Board	None	A and B
	6.2	• b Thermal Techniques Principle thermal transitions and	09/12/2023	Completed	Digital Board	None	A and B
	6.3	• Instrumentation Heat flux and power compensation and designs	11/12/2023	Completed	Digital Board	None	A and B
	6.4	• Modulated DSC Hyper DSC experimental parameters Sample Preparation	12/12/2023	Completed	Digital Board	None	A and B



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