



BENGAL SCHOOL OF TECHNOLOGY

AUTONOMOUS

Estd. by Supreme Educational Development and Charitable Organization (SEDCO)

Recognised by UGC & included u/s 2(f) of UGC Act 1956

Approved by Pharmacy Council of India, New Delhi

Affiliated to: Maulana Abul Kalam Azad University of Technology (MAKAUT) &

West Bengal State Council of Technical and Vocational Education and Skill Development (WBST&VE&SD)

Accredited by NAAC with "A" Grade, NBA for B. Pharm & QCI

Lesson Plan

Class: B. PHARM, 4TH YEAR, 7TH SEM

Session: 2026-2027

Date of Commencement of Session: 30/07/2026

Subject Name: Instrumental Methods of Analysis

Subject code: PT-711 & PT-791

Faculty In charge: Mr. Manoj Mana

Schedule of allotted class work (w.e.f)

Days	Monday	Tuesday	Wednesday	Thursday	Friday
Time/period	10:40 AM to 11:40 AM		10:40 AM to 11:40 AM		
Section A					
Section B	12:40 PM to 1:40 PM		11:40 AM to 12:40 PM		

Available Periods/week 2 Available periods in the total semester 26 Extra Classes NA

Guest Lectures planned if any with justification NA

Scope & Objective of the course: This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.

Objectives: Upon completion of the course the student shall be able to

1. Understand the interaction of matter with electromagnetic radiations and its applications in drug analysis
2. Understand the chromatographic separation and analysis of drugs.
3. Perform quantitative & qualitative analysis of drugs using various analytical instruments

Reading materials:

A. Text Books

Sl. No.	Name of the Text Book(s)	Author	Edition	Publisher	Accession No.	Rack No
1	Organic Spectroscopy	William Kemp	-	PALGRAVE	BST-7400	49-B
2	Instrumental Methods of Analysis	B K Sharma vol-1	2Thirty three 2023	GOEL PUBLISHING	BST 12194	268A 268 B

B. Reference Books

Sl. No.	Name of the Text Book(s)	Author	Edition	Publisher	Accession No.	Rack No
1	Instrumental Methods of Analysis	Willard	7 th	CBS		

C. Journals / Website/Any other resources

Sl. No.	Name of the journal (s)/website/others	Source	Vol. no.	Month & Year
	NA			

Daily Teaching Schedule for UNIT-I (Mr. Manoj Mana)

Sl. No.	Date	Day	Title to be covered	Teaching Pedagogy / T.L.P.	Suggested Knowledge Resources
1.	03/08/26	Monday	Introduction of UV-Visible Spectroscopy	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
2.	05/08/26	Wednesday	Electronic transitions	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
3.	10/08/26	Monday	Chromophores and auxochromes	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
4.	12/08/26	Wednesday	Spectral shifts, solvent effect on absorption spectra	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
5.	17/08/26	Monday	Beer and Lambert's law, Derivation and deviations.	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
6.	19/08/26	Wednesday	Instrumentation - Sources of radiation, wavelength selectors	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
7.	24/08/26	Monday	Sample cells, detectors- Photo tube, Photomultiplier tube, Photo voltaic cell, Silicon Photodiode.	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
8.	31/08/26	Monday	Applications - Spectrophotometric titrations, Single component analysis	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
9.	07/09/26	Monday	Applications - Spectrophotometric multi component analysis	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
10.	09/09/26	Wednesday	Fluorimetry: Theory, Concepts of singlet, doublet and triplet electronic states	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
11.	14/09/26	Monday	Internal and external conversions, factors affecting fluorescence	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
12.	16/09/26		Quenching	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
13.	21/09/26	Monday	Instrumentation and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma

Daily Teaching Schedule for UNIT-III (Mr. Manoj Mana)

Sl. No.	Date	Day	Title to be covered	Teaching Pedagogy / T.L.P.	Suggested Knowledge Resources
1.	23/09/26	Wednesday	Adsorption and partition column chromatography-Principle, Methodology.	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
2.	28/09/26	Monday	Advantages, disadvantages and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
3.	30/09/26	Wednesday	Thin layer chromatography-Introduction, Principle	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
4.	05/10/26	Monday	Methodology, Rf value calculation	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
5.	07/10/26	Wednesday	Advantages, disadvantages and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma

6.	12/10/26	Monday	Paper chromatography- Introduction, methodology	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
7.	14/10/26	Wednesday	Development techniques of Paper Chromatography	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
8.	28/10/26	Wednesday	Advantages, disadvantages and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
9.	02/11/26	Monday	Electrophoresis– Introduction	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
10.	04/11/26	Wednesday	Electrophoretic mobility, Factors affecting electrophoretic mobility	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
11.	18/11/26	Wednesday	Techniques of paper electrophoresis	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
12.	23/11/26	Monday	Gel, Capillary electrophoresis	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
13.	25/11/26	Wednesday	Applications of electrophoresis	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
Grand total number of classes planned for the semester					26

Daily Teaching Schedule for Practical

Sl. No.	Date	Day	Title to be covered
1.	30/07/26		Introduction about lab safety
2.	03/08/26	Monday	Determination of absorption maxima and effect of solvents on absorption maxima of organic compounds
3.	04/08/26	Tuesday	Determination of absorption maxima and effect of solvents on absorption maxima of organic compounds
4.	05/08/26	Wednesday	Determination of absorption maxima and effect of solvents on absorption maxima of organic compounds
5.	06/08/26	Thursday	Determination of absorption maxima and effect of solvents on absorption maxima of organic compounds
6.	10/08/26	Monday	Estimation of dextrose by colorimetry
7.	11/08/26	Tuesday	Estimation of dextrose by colorimetry
8.	12/08/26	Wednesday	Estimation of dextrose by colorimetry
9.	13/08/26	Thursday	Estimation of dextrose by colorimetry
10.	17/08/26	Monday	Estimation of sulphanilamide by colorimetry
11.	18/08/26	Tuesday	Estimation of sulphanilamide by colorimetry
12.	19/08/26	Wednesday	Estimation of sulphanilamide by colorimetry
13.	20/08/26	Thursday	Estimation of sulphanilamide by colorimetry
14.	24/08/26	Monday	Simultaneous estimation of Ibuprofen and Paracetamol by UV spectorscopy
15.	25/08/26	Tuesday	Simultaneous estimation of Ibuprofen and Paracetamol by UV spectorscopy
16.	26/08/26	Wednesday	Simultaneous estimation of Ibuprofen and Paracetamol by UV spectorscopy
17.	27/08/26	Thursday	Simultaneous estimation of Ibuprofen and Paracetamol by UV spectorscopy
18.	31/08/26	Monday	Revision Simultaneous estimation of Ibuprofen and Paracetamol by UV spectorscopy
19.	07/09/26	Monday	Assay of Paracetamol by UV spectrophotometry
20.	08/09/26	Tuesday	Assay of Paracetamol by UV spectrophotometry
21.	09/09/26	Wednesday	Assay of Paracetamol by UV spectrophotometry
22.	10/09/26	Thursday	Assay of Paracetamol by UV spectrophotometry
23.	14/09/26	Monday	Estimation of Quinine Sulphate by fluorimetry
24.	15/09/26	Tuesday	Estimation of Quinine Sulphate by fluorimetry
25.	16/09/26	Wednesday	Estimation of Quinine Sulphate by fluorimetry
26.	17/09/26	Thursday	Estimation of Quinine Sulphate by fluorimetry
27.	21/09/26	Monday	Study of quenching of fluorescence
28.	22/09/26	Tuesday	Study of quenching of fluorescence
29.	23/09/26	Wednesday	Study of quenching of fluorescence
30.	24/09/26	Thursday	Study of quenching of fluorescence
31.	28/09/26	Monday	Determination of potassium by flame photometry
32.	29/09/26	Tuesday	Determination of potassium by flame photometry
33.	30/09/26	Wednesday	Determination of potassium by flame photometry
34.	01/10/26	Thursday	Determination of potassium by flame photometry
35.	05/10/26	Monday	Determination of chlorides and sulphides by nepheloturbidimetry

36.	06/10/26	Tuesday	Determination of chlorides and sulphides by nepheloturbidimetry
37.	07/10/26	Wednesday	Determination of chlorides and sulphides by nepheloturbidimetry
38.	08/10/26	Thursday	Determination of chlorides and sulphides by nepheloturbidimetry
39.	12/10/26	Monday	Separation of amino acids by paper chromatography
40.	13/10/26	Tuesday	Separation of amino acids by paper chromatography
41.	14/10/26	Wednesday	Separation of amino acids by paper chromatography
42.	15/10/26	Thursday	Separation of amino acids by paper chromatography
43.	26/10/26	Monday	Revision of Determination of potassium by flame photometry
44.	27/10/26	Tuesday	Revision of Determination of potassium by flame photometry
45.	02/11/26	Monday	Separation of sugars by thin layer chromatography
46.	03/11/26	Tuesday	Separation of sugars by thin layer chromatography
47.	04/11/26	Wednesday	Separation of sugars by thin layer chromatography
48.	05/11/26	Thursday	Separation of sugars by thin layer chromatography
49.	16/11/26	Monday	Separation of plant pigments by column chromatography
50.	17/11/26	Tuesday	Separation of plant pigments by column chromatography
51.	18/11/26	Wednesday	Separation of plant pigments by column chromatography
52.	19/11/26	Thursday	Separation of plant pigments by column chromatography
53.	23/11/26	Monday	Assay of Paracetamol by HPLC
54.	24/11/26	Tuesday	Assay of Paracetamol by HPLC
55.	25/11/26	Wednesday	Assay of Paracetamol by HPLC
56.	26/11/26	Thursday	Assay of Paracetamol by HPLC

Signature of Faculty:

Mr. Manoj Mana