



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. Biswanath Ghosh

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

Days	Monday	Tuesday	Wednesday	Thursday	Friday
Time/period		11:40 AM to 12:40 AM		11:40 AM to 12:40 AM	
Section B		09:40 AM to 10:40 AM		09:40 AM to 10:40 AM	

Available Periods/week _____ 2 _____ Available periods in the total semester _____ 29 _____ Extra Classes: NA

Guest Lectures planned if any with justification: NIL

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-II (Mr. Biswanath Ghosh)

Sl. No.	Date	Day	Title to be covered	Teaching Pedagogy / T.L.P.	Suggested Knowledge Resources
1.	30/07/26	Thursday	Introduction;IR spectroscopy	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
2.	04/08/26	Tuesday	Principle of IR spectroscopy	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
3.	06/08/26	Thursday	fundamental modes of vibrations in poly atomic molecules	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
4.	11/08/26	Tuesday	Factors affecting vibrations, Sample handling	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
5.	13/08/26	Thursday	Instrumentation	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
6.	18/08/26	Tuesday	Instrumentation	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
7.	20/08/26		Application of IR spectroscopy	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
8.	25/08/26	Tuesday	Flame Photometer-Principle, Types of Detectors in AAS	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
9.	27/08/26	Thursday	Flame Photometer-Interference	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
10.	08/09/26	Tuesday	FP-Instrumentation and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
11.	10/09/26	Thursday	Atomic absorption spectrophotometer-Principle	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
12.	15/09/26	Tuesday	AAS-Interference, AAS-instrumentation and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
13.	17/09/26	Thursday	Nepheloturbidometry- Principle, instrumentation and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma

Daily Teaching Schedule for UNIT-IV (Mr. Biswanath Ghosh)

Sl. No.	Date	Day	Title to be covered	Teaching Pedagogy / T.L.P.	Suggested Knowledge Resources
1.	22/09/26	Tuesday	Gas chromatography - Introduction, theory	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
2.	24/09/26	Thursday	instrumentation,	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
3.	29/09/26	Tuesday	derivatization, temperature programming,	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
4.	01/10/26	Thursday	advantages, disadvantages and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma

5.	06/10/26	Tuesday	High-performance liquid chromatography (HPLC)- Introduction, theory,	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
6.	08/10/26	Thursday	instrumentation,	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
7.	13/10/26	Tuesday	instrumentation,	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
8.	27/10/26	Tuesday	advantages and applications.	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
9.	29/10/26	Thursday	Troubleshooting of HPLC	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma

Daily Teaching Schedule for UNIT-V (Mr. Biswanath Ghosh)

Sl. No.	Date	Day	Title to be covered	Teaching Pedagogy / T.L.P.	Suggested Knowledge Resources
1.	03/11/26	Tuesday	Ion exchange chromatography- Introduction, classification	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
2.	05/11/26	Thursday	Ion exchange resins, properties, mechanism of ion exchange process,	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
3.	12/11/26	Thursday	Factors affecting ion exchange, methodology and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
4.	17/11/26	Tuesday	Gel chromatography- Introduction, theory	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
5.	19/11/26	Thursday	Instrumentation and applications	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
6.	24/11/26	Tuesday	Affinity chromatography- Introduction, theory	Chalk Board & Verbal Narration/ Power point	Instrumental Methods of Chemical Analysis, B. K. Sharma
7.	26/11/26		Instrumentation and applications		
Grand total number of classes planned for the semester				29	

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. Biswanath Ghosh