

Table-VII: Course of study for semester VII

| Course code | Name of the course | No. of hours | Tutorial | Credit points |
|--------------------|--|---------------------|-----------------|----------------------|
| BP701T | Instrumental Methods of Analysis – Theory | 3 | 1 | 4 |
| BP702T | Industrial PharmacyII – Theory | 3 | 1 | 4 |
| BP703T | Pharmacy Practice – Theory | 3 | 1 | 4 |
| BP704T | Novel Drug Delivery System – Theory | 3 | 1 | 4 |
| BP705P | Instrumental Methods of Analysis – Practical | 4 | - | 2 |
| BP706PS | Practice School* | 12 | - | 6 |
| Total | | 28 | 5 | 24 |

* Non University Examination (NUE)

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Table-VIII: Course of study for semester VIII

| Course code | Name of the course | No. of hours | Tutorial | Credit points |
|--------------|--|--------------|-----------|---------------|
| BP801T | Biostatistics and Research Methodology | 3 | 1 | 4 |
| BP802T | Social and Preventive Pharmacy | 3 | 1 | 4 |
| BP803ET | Pharma Marketing Management | 3 + 3 = 6 | 1 + 1 = 2 | 4 + 4 = 8 |
| BP804ET | Pharmaceutical Regulatory Science | | | |
| BP805ET | Pharmacovigilance | | | |
| BP806ET | Quality Control and Standardization of Herbals | | | |
| BP807ET | Computer Aided Drug Design | | | |
| BP808ET | Cell and Molecular Biology | | | |
| BP809ET | Cosmetic Science | | | |
| BP810ET | Experimental Pharmacology | | | |
| BP811ET | Advanced Instrumentation Techniques | | | |
| BP812ET | Dietary Supplements and Nutraceuticals | | | |
| BP813PW | Project Work | 12 | - | 6 |
| Total | | 24 | 4 | 22 |

Table-IX: Semester wise credits distribution

| Semester | Credit Points |
|--|--|
| I | 27/29 [§] /30 [#] |
| II | 29 |
| III | 26 |
| IV | 28 |
| V | 26 |
| VI | 26 |
| VII | 24 |
| VIII | 22 |
| Extracurricular/ Co curricular activities | 01* |
| Total credit points for the program | 209/211[§]/212[#] |

* The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

[§]Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

[#]Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.

BP701T. INSTRUMENTAL METHODS OF ANALYSIS (Theory)

45 Hours

Scope: 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.

Course Content:

UNIT –I

10 Hours

UV Visible spectroscopy

Electronic transitions, chromophores, auxochromes, spectral shifts, solvent effect on absorption spectra, Beer and Lambert's law, Derivation and deviations.

Instrumentation - Sources of radiation, wavelength selectors, sample cells, detectors- Photo tube, Photomultiplier tube, Photo voltaic cell, Silicon Photodiode.

Applications - Spectrophotometric titrations, Single component and multi component analysis

Fluorimetry

Theory, Concepts of singlet, doublet and triplet electronic states, internal and external conversions, factors affecting fluorescence, quenching, instrumentation and applications

UNIT –II

10 Hours

IR spectroscopy

Introduction, fundamental modes of vibrations in poly atomic molecules, sample handling, factors affecting vibrations

Instrumentation - Sources of radiation, wavelength selectors, detectors - Golay cell, Bolometer, Thermocouple, Thermister, Pyroelectric detector and applications

Flame Photometry-Principle, interferences, instrumentation and applications

Atomic absorption spectroscopy- Principle, interferences, instrumentation and applications

Nepheloturbidometry- Principle, instrumentation and applications

UNIT –III

10 Hours

Introduction to chromatography

Adsorption and partition column chromatography-Methodology, advantages, disadvantages and applications.

Thin layer chromatography- Introduction, Principle, Methodology, Rf values, advantages, disadvantages and applications.

Paper chromatography-Introduction, methodology, development techniques, advantages, disadvantages and applications

Electrophoresis– Introduction, factors affecting electrophoretic mobility, Techniques of paper, gel, capillary electrophoresis, applications

UNIT –IV

08 Hours

Gas chromatography - Introduction, theory, instrumentation, derivatization, temperature programming, advantages, disadvantages and applications

High performance liquid chromatography (HPLC)-Introduction, theory, instrumentation, advantages and applications.

UNIT –V

07 Hours

Ion exchange chromatography- Introduction, classification, ion exchange resins, properties, mechanism of ion exchange process, factors affecting ion exchange, methodology and applications

Gel chromatography- Introduction, theory, instrumentation and applications

Affinity chromatography- Introduction, theory, instrumentation and applications

