Shobhit University
EDUCATION EMPOWERS

Babu Vijendra Marg, Adarsh Institutional
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# School of Pharmacy (AVIPS)

## Master of Pharmacy (Pharmaceutical Chemistry)

Program Outcomes, Program Specific Outcomes & Course Outcomes
(POs, PSOs& COs)

### Program Outcomes

| Program Outcome | | Statement |
|---|---|---|
| PO 1 | Knowledge Application: | Graduates will apply advanced knowledge of pharmaceutical sciences to solve complex problems in drug development, formulation, and patient care. |
| PO 2 | Research Proficiency | Graduates will demonstrate the ability to conduct independent research, critically analyze data, and contribute to scientific literature in the field of pharmacy. |
| PO 3 | Clinical Judgment | Graduates will make informed clinical decisions based on evidence-based practices, optimizing therapeutic outcomes for patients. |
| PO 4 | Communication Skills | Graduates will effectively communicate pharmaceutical information, both orally and in writing, to diverse audiences, including patients, healthcare professionals, and regulatory bodies. |
| PO 5 | Ethical Standards | Graduates will adhere to ethical principles in all aspects of pharmaceutical practice, ensuring patient safety and promoting public health. |
| PO 6 | Team Collaboration | Graduates will work effectively in interdisciplinary teams, contributing to comprehensive patient care and fostering collaboration among healthcare providers. |
| PO 7 | Lifelong Learning | Graduates will exhibit a commitment to lifelong learning, seeking out continuing education opportunities to stay updated with advancements in the pharmaceutical field. |
| PO 8 | Regulatory Knowledge | Graduates will understand and navigate the regulatory landscape governing pharmaceutical products, ensuring compliance with laws and guidelines. |
| PO 9 | Patient-Centered Care | Graduates will provide patient-centered pharmaceutical care, considering individual patient needs, preferences, and values in their practice. |
| PO 10 | Innovation and Entrepreneurship | Graduates will demonstrate the ability to innovate and explore entrepreneurial opportunities in the pharmaceutical industry, contributing to the development of new products and services. |
| PO 11 | Research Methodology and Scientific Communication | Develop research skills to conduct independent studies, analyze scientific literature, and effectively communicate research findings in written and oral formats. |

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| | | |
|---|---|---|
| PO 12 | Drug Synthesis and Chemical Characterization | Acquire advanced skills in the synthesis, isolation, and characterization of pharmaceutical compounds, employing techniques such as chromatography, spectroscopy, and other analytical methods. |

## Program Specific Outcomes (PSOs)

| Program Specific Outcome | Statement |
|---|---|
| PSO 1 | Advanced Chemical Knowledge: Graduates will demonstrate a thorough understanding of organic, inorganic, and medicinal chemistry principles as they apply to drug design and development. |
| PSO2 | Synthesis and Characterization: Graduates will be skilled in the synthesis, purification, and characterization of pharmaceutical compounds using modern analytical techniques. |
| PSO 3 | Drug Design and Development: Graduates will apply knowledge of structure-activity relationships (SAR) and molecular modeling to design and develop new pharmaceutical agents. |
| PSO 4 | Analytical Method Development: Graduates will be proficient in developing and validating analytical methods for the quantitative and qualitative analysis of pharmaceutical substances. |

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# Course Outcomes (COs)

## 1st Semester

### Course: Analytical Techniques

| Course Outcomes | Statement |
|---|---|
| CO 1 | The analysis of various drugs in single and combination dosage forms |
| CO 2 | Theoretical and practical skills of the instruments |

### Course: Advanced Organic Chemistry-I

| Course Outcomes | Statement |
|---|---|
| CO 1 | The principles and applications of reterosynthesis |
| CO 2 | The mechanism & applications of various named reactions |
| CO 3 | The concept of disconnection to develop synthetic routes for small target molecule. |
| CO 4 | The various catalysts used in organic reactions |
| CO 5 | The chemistry of heterocyclic compounds |

### Course: Advanced Medicinal Chemistry

| Course Outcomes | Statement |
|---|---|
| CO 1 | Different stages of drug discovery |
| CO 2 | Role of medicinal chemistry in drug research |
| CO 3 | Different techniques for drug discovery |
| CO 4 | Various strategies to design and develop new drug like molecules for biological targets |
| CO 5 | Peptidomimetics |

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**Course: Chemistry of Natural Products**

| Course Outcomes | Statement |
|---|---|
| CO 1 | Different types of natural compounds and their chemistry and medicinal importance |
| CO 2 | The importance of natural compounds as lead molecules for new drug discovery |
| CO 3 | The concept of rDNA technology tool for new drug discovery |
| CO 4 | General methods of structural elucidation of compounds of natural origin |
| CO 5 | Isolation, purification and characterization of simple chemical constituents from natural source |

## Course Outcomes (COs)
## 2nd Semester

**Course: Advanced Spectral Analysis**

| Course Outcomes | Statement |
|---|---|
| CO 1 | Interpretation of the NMR, Mass and IR spectra of various organic compounds |
| CO 2 | Theoretical and practical skills of the hyphenated instruments |
| CO 3 | Identification of organic compounds |

**Course: Advanced Organic Chemistry-II**

| Course Outcomes | Statement |
|---|---|
| CO 1 | The principles and applications of Green chemistry |
| CO 2 | The concept of peptide chemistry. |
| CO 3 | The various catalysts used in organic reactions |
| CO 4 | The concept of stereochemistry and asymmetric synthesis. |

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**Course: Computer Aided Drug Design**

| Course Outcomes | Statement |
|---|---|
| CO 1 | Role of CADD in drug discovery |
| CO 2 | Different CADD techniques and their applications |
| CO 3 | Various strategies to design and develop new drug like molecules. |
| CO 4 | Working with molecular modeling softwares to design new drug molecules |
| CO 5 | The in silico virtual screening protocols |

**Course: Pharmaceutical Process Chemistry**

| Course Outcomes | Statement |
|---|---|
| CO 1 | The strategies of scale up process of a pis and intermediates |
| CO 2 | The various unit operations and various reactions in process chemistry |

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