



**DEVI AHILYA VISHWAVIDYALAYA, INDORE**  
**SCHOOL OF PHARMACY**

Takshashila Campus, Khandwa Road (Ring Road) Indore-452001, India  
Phone 91-731 2100605, E-mail: sopdavv@gmail.com  
Site: www.dauniv.ac.in, www.pharmacy.dauniv.ac.in



**COURSE OUTCOMES**

**M.Pharm. (Pharmaceutical Chemistry) : PCI SCHEME(2016-2017)**

| S. No. | Name of the Course                                 | Course Code/Sem.                          | Course Outcome   |
|--------|--|---|--|
| 1      | <b>Modern Pharmaceutical Analytical Techniques</b> | <b>MPC 101T</b><br><br><b>First sem.</b>  | <ul style="list-style-type: none"><li>• After completion of course student is able to know</li><li>• The analysis of various drugs in single and combination dosage forms.</li><li>• Theoretical and practical skills of the instruments such as UV, IR, NMR, Mass, spectrofluorimetry, flame emission spectroscopy and atomic absorption spectroscopy.</li><li>• Student will be able to understand theoretical concepts of chromatographic methods such as Thin Layer Chromatography, High Performance Thin Layer Chromatography, Ion Exchange Chromatography, Column Chromatography, Gas Chromatography, High Performance Liquid Chromatography, Ultra High Performance Liquid Chromatography, Affinity Chromatography and Gel Chromatography.</li><li>• Student will also be able to understand concepts of electrophoresis, x-ray diffraction and different thermal techniques and their applications in the field of Pharmacy.</li></ul> |
| 2      | <b>Advanced Organic Chemistry - I</b>              | <b>MPC 102T</b><br><br><b>First sem.</b>  | <ul style="list-style-type: none"><li>• The student shall be able to understand</li><li>• The principles and applications of retrosynthesis</li><li>• The mechanism &amp; applications of various named reactions</li><li>• The concept of disconnection to develop synthetic routes for small target molecule.</li><li>• The various catalysts used in organic reactions</li><li>• The chemistry of heterocyclic compounds</li></ul>  |
| 3      | <b>Advanced Medicinal Chemistry</b>                | <b>MPC 103 T</b><br><br><b>First sem.</b> | <ul style="list-style-type: none"><li>• The student shall be able to understand</li><li>• Different stages of drug discovery</li><li>• Role of medicinal chemistry in drug research</li><li>• Different techniques for drug discovery</li><li>• Various strategies to design and develop new drug like molecules for biological targets</li><li>• Peptidomimetics</li></ul>  |

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| 4 | <b>Chemistry of Natural Products</b>        | <b>MPC 104T</b><br><br><b>First sem.</b> | <ul style="list-style-type: none"><li>• The student shall be able to understand</li><li>• Different types of natural compounds and their chemistry and medicinal importance</li><li>• The importance of natural compounds as lead molecules for new drug discovery</li><li>• The concept of rDNA technology tool for new drug discovery</li><li>• General methods of structural elucidation of compounds of natural origin</li><li>• Isolation, purification and characterization of simple chemical constituents from natural source</li></ul>   |
| 5 | <b>Pharmaceutical Chemistry Practical I</b> | <b>MPC 105P</b><br><br><b>First sem.</b> | <ul style="list-style-type: none"><li>• The student is expected to learn practical skills for the development of analytical methods for simultaneous estimation of two and more than two drugs using UV and HPLC.</li><li>• Interpretation of UV and IR spectra.</li><li>• Practical skills for the determination of melting point, thin layer and column chromatography.</li><li>• Identification of organic compounds using various functional group tests.</li><li>• Application of different organic reaction for the synthesis of medically important compounds.</li><li>• Purification of organic solvents and isolation of plant constituents.</li></ul> |
| 6 | <b>Seminar</b>                              | <b>First sem.</b>                        | <ul style="list-style-type: none"><li>• Improve Oral and written communication skills.</li><li>• Explore an appreciation of the self in relation to its larger diverse social and academic contexts.</li><li>• Understand and discuss current and real-world issues.</li></ul>  |
| 7 | <b>Assignments</b>                          | <b>First sem.</b>                        | <ul style="list-style-type: none"><li>• Introduce students to different types of scholarly sources and how to access them</li><li>• Provide students with preliminary skills to do further research in the field of international relations</li><li>• Teach students to break down a piece of writing into its component parts and analyze the arguments.</li><li>• Give students the opportunity to read in depth on a topic</li></ul>   |

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| 8  | <b>Advanced Spectral Analysis</b>       | <b>MPC 201T</b><br><br><b>Second sem.</b> | <ul style="list-style-type: none"><li>• Student will learn the various hyphenated analytical instrumental techniques</li><li>• Student will deal with different analytical data from different principle instrument.</li><li>• The fellow student will gain the interpretation skills</li><li>• Student will expose to different analytical data like LC-MS, GC-MS, ATR-IR, DSC etc. theoretically and practically.</li><li>• Fellow student will be able to handle different analytical data to predict the unknown structures</li><li>• At the end of the course student should know how to handle different hyphenated instruments data</li></ul>   |
| 9  | <b>Advanced Organic Chemistry – II</b>  | <b>MPC 202T</b><br><br><b>Second sem.</b> | <ul style="list-style-type: none"><li>• Utilization of green chemistry concepts and to be the effective substitute for conventional chemistry.</li><li>• Application of catalysis in single and multistep process in manufacturing of drugs and drug intermediates</li><li>• Synthesis of novel peptidomimetics using peptide chemistry.</li><li>• Stereo-chemical features including conformation and stereo electronic effects; reaction dynamics, and photochemical reactions</li></ul>   |
| 10 | <b>Computer Aided Drug Design</b>       | <b>MPC 203T</b><br><br><b>Second sem.</b> | <ul style="list-style-type: none"><li>• Role of CADD in drug discovery</li><li>• Different CADD techniques and their applications</li><li>• Various strategies to design and develop new drug like molecules.</li><li>• Working with molecular modeling softwares to design new drug molecules</li><li>• The in silico virtual screening protocols</li></ul>   |
| 11 | <b>Pharmaceutical Process Chemistry</b> | <b>MPC 204T</b><br><br><b>Second sem.</b> | <ul style="list-style-type: none"><li>• Exposure to develop safe, cost-effective, environmentally friendly, and efficient synthetic routes.</li><li>• It would impart knowledge on the development and optimization of a synthetic route/s.</li><li>• The pilot plant procedure for the manufacture of Active Pharmaceutical Ingredients and new chemical entities for the drug development phase.</li><li>• Exposure on different separation procedures.</li><li>• Prediction of the outcome of organic reactions using a basic understanding of the general reactivity of functional groups and mechanism.</li><li>• The principles and applications of modern chemical instrumentation, experimental design, and data analysis.</li></ul> |

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|----|--|-------------------------|--|
| 12 | Pharmaceutical Chemistry Practicals – II | MPC 205P<br>Second sem. | <ul style="list-style-type: none"><li>• Interpretation of UV, IR, NMR and Mass spectra</li><li>• Practical knowledge for the selection of most appropriate synthetic route for the synthesis of medicinally important compounds.</li><li>• Direct and indirect approaches of drug design.</li><li>• Exposure to different molecular modelling softwares.</li></ul>   |
| 13 | Seminar                                  | Second sem.             | <ul style="list-style-type: none"><li>• Improve Oral and written communication skills.</li><li>• Explore an appreciation of the self in relation to its larger diverse social and academic contexts.</li><li>• Understand and discuss current and real-world issues.</li></ul>   |
| 14 | Assignments                              | Second sem.             | <ul style="list-style-type: none"><li>• Introduce students to different types of scholarly sources and how to access them</li><li>• Provide students with preliminary skills to do further research in the field of international relations</li><li>• Teach students to break down a piece of writing into its component parts and analyze the arguments.</li><li>• Give students the opportunity to read in depth on a topic</li></ul>  |
| 15 | Research Methodology & Biostatistics     | MPC 301T<br>Third Sem.  | <ul style="list-style-type: none"><li>• Students should be able to distinguish a purpose statement, a research question or hypothesis, and a research objective.</li><li>• Students should be able to design a good quantitative purpose statement and good quantitative research questions and hypotheses.</li><li>• Students should be familiar with the steps involved in identifying and selecting a good instrument to use in a study.</li><li>• Students should be familiar with conducting a literature review for a scholarly educational study:</li><li>• Study of different parametric and non-parametric test would help in proper use of these test</li><li>• Ethical aspects of medical research</li><li>• Complete knowledge of CPCSEA guidelines.</li></ul> |

*Signature*

*Rajesh*  
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