

## SCHOOL OF CHEMICAL SCIENCES

**PROGRAMME CODES: CH5B**

**PROGRAMMES: MASTER OF SCIENCE (M.Sc.) - PHARMACEUTICAL CHEMISTRY**

### **OBJECTIVES:**

The broad objectives of the M.Sc. Programmes are as follows:

- To develop a detailed knowledge base in Chemical Sciences of potential utility in academic as well as Industrial scenarios.
- To inculcate the spirit of creative learning among the students so as to treat knowledge as a vehicle of empowerment.
- To promote thinking skills among students so that they develop a thorough enquiring mind richly blended with scientific temper.
- To give higher priority to knowledge penetration with respect to routine practice of knowledge re-rendering.
- To develop a broad outlook on science and give higher priority to classification rather than mere compartmentalization.

### **ELIGIBILITY:**

B.Sc. with Chemistry as one of subjects with at least 50% marks in aggregate or an equivalent grade for General / OBC candidates, and 45% marks in aggregate or an equivalent grade for SC/ST and Differently Abled (DA) category candidates from a recognized University / Institute.

**OR**

Candidates who have appeared in final year degree examination can also apply. Admission will be finalized if the result is declared before August 14 in the admission year and the candidate secures min. % of marks as mentioned above. Chemistry at B.Sc. level is must.

**AGE LIMIT:** As per the directives of Government of Madhya Pradesh, There is no upper age limit for admission to various programmes.

### **ADMISSION PROCEDURE:**

The admissions will be done as per merit in the entrance test conducted by the university.

**SEATS** : 20 (reservation as per state Govt. rules)

**DURATION:** Four Semesters (Two Years)

**FEE STRUCTURE (2020-22):**

Semester	Academic Fee	Development & Maintenance Fee	Students' Services Fee		Examination Fee	Total (Rs.)	
			Boys	Girls		Boys	Girls
First	2500	2000	3300	3111	2500	10300	10111
Second	2500	2000	2911	2722	2500	9911	9722
Third	2500	2000	3300	3111	2500	10300	10111
Fourth	2500	2000	2911	2722	2500	9911	9722

- Caution money (Refundable) of Rs. 4000/- will be charged additionally in the first semester.
- Alumni Fee of Rs. 500/- will be charged extra in the first semester.
- If a student repeats a paper(s) in a semester, an additional fee of Rs.500/- per paper shall be payable.
- For NRI/ FN/ PIO Candidates, a fee of US\$ 3500 Per Annum shall be payable on yearly basis. They will have to pay a refundable deposit of US\$ 500 once at the time of admission.
- Hostel Fee and Central Library Fee will be extra.

**PROGRAMME STRUCTURE (2020-22): M.Sc. (PHARMACEUTICAL CHEMISTRY)**

**First Semester:**

Code	Title	Credits (L T P)
<b>CORE COURSES</b>		
CH5B-501	Inorganic Chemistry - I	3 (2-1-0)
CH5B-503	Organic Chemistry - I	3 (2-1-0)
CH5B-505	Physical Chemistry - I	3 (2-1-0)
CH5B -507	Symmetry, Group Theory and Spectroscopy	3 (2-1-0)
<b>ELECTIVE COURSES-Generic (Any One)</b> The students can choose following course or any other PG level generic course being run in this campus.		
CH5B -551	Concepts of Mathematics	3 (2-1-0)
CH5B -553	General Biology	3 (2-1-0)
<b>LABORATORY COURSE</b>		
CH5B -509	PRACTICALS	5 (0-0-10)
	COMPREHENSIVE VIVA-VOCE	4
	<b>TOTAL CREDITS</b>	<b>24</b>

**Second Semester:**

Code	Title	Credits (L T P)
<b>CORE COURSES</b>		
CH5B-502	Inorganic Chemistry - II	3 (2-1-0)
CH5B-504	Organic Chemistry - II	3 (3-1-0)
CH5B-506	Physical Chemistry-II	3 (2-1-0)

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<b>ELECTIVE COURSES-DISCIPLINE CENTRIC</b>		
CH5B-522	Chemistry of Drugs	3 (2-1-0)
<b>ELECTIVE GENERIC: (Any One)</b> The students can choose following course or any other PG level generic course being run in this campus.		
CH5B-552	Computer Applications in Chemistry	3 (2-1-0)
CH5B-554	Computer Programming	3 (2-1-0)
<b>LABORATORY COURSE</b>		
CH5B -508	PRACTICALS	5 (0-0-10)
	COMPREHENSIVE VIVA-VOCE	4
	<b>TOTAL CREDITS</b>	<b>24</b>

### Third Semester:

<b>Code</b>	<b>Title</b>	<b>Credits (L T P)</b>
<b>CORE COURSES</b>		
CH5B-601	Molecular Spectroscopy	3 (2-1-0)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC</b>		
CH5B-603	Organic Photochemistry	3 (2-1-0)
CH5B-605	Bio-inorganic Chemistry	3 (2-1-0)
CH5B- 607	Drug Design and Analysis	3 (2-1-0)
<b>ELECTIVE GENERIC: (Any One)</b> The students can choose following course or any other PG level generic course being run in this campus		
CH5B-621	Advanced Medicinal Chemistry	3 (2-1-0)
CH5B-623	Pharmaceutical Biotechnology	3 (2-1-0)
CH5B-625	Pharmacognosy	3 (2-1-0)
<b>LABORATORY COURSE</b>		
CH5B -609	PRACTICALS & SPECTRAL INTERPRETATION	5 (0-0-10)
	COMPREHENSIVE VIVA-VOCE	4
	<b>TOTAL CREDITS</b>	<b>24</b>

### Fourth Semester:

<b>Code</b>	<b>Title</b>	<b>Credits (L T P)</b>
<b>CORE COURSES</b>		
CH5B-602	Advances in Analytical Chemistry	3 (2-1-0)
CH5B-604	Environmental Chemistry	3 (2-1-0)
CH5B-606	Chemical Pharmacology	3 (2-1-0)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One)</b>		
CH5B-622	Bio-organic Chemistry	3 (2-1-0)
CH5B-624	Chemical Toxicology	3 (2-1-0)
CH5B-626	Biochemistry	3 (2-1-0)
CH5B-628	Pharmaceutics	3 (2-1-0)
CH5B-630	<b>Research Project / Internship (compulsory)</b>	8
	COMPREHENSIVE VIVA-VOCE	4

	<b>TOTAL CREDITS</b>	<b>24</b>
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Note: The above programme structure can be modified as per requirement from time to time in accordance with University Ordinance No. 14.

### **PROGRAMME OUTCOMES (POs)**

Learning objectives of School of Chemical Sciences essentially focus on 'Creative Learning' of the students with a view to empower them with contemporary knowledge domain so as to enhance connectivity thereof towards academic and industrial institutions.

Programme outcomes basically aim at incorporation of chemical sciences in the mindset of students in an embedded state. With such association, students are expected to improve their critical thinking, accommodating both logical and intuitive approaches. With immense association of scientific approaches, new ideas may creep in the mind of students so that they can evolve innovative pathways. Standards and achievements are impressive for both taught courses and research.

Our distinguishing features are:

- Up-to-date knowledge of broad range of disciplines of chemical sciences
- Theoretical and practical knowledge of Instrumental Techniques
- Interpretation of various types of spectra viz., Nuclear Magnetic Resonance (NMR), Electron Spin Resonance (ESR), Infrared (IR), Ultraviolet-Visible (UV-Visible), Mössbauer, XPS, and Mass.

### **PROGRAMME SPECIFIC OUTCOMES (PSOs)**

Programme specific outcomes pertain to exploration of knowledge of chemical sciences with related disciplines. A student of School of Chemical Sciences after acquiring Master of Science degree will be able to:

- PSO1:** accelerate his/her thinking skills with the sound objective of problem solving at the forefront, on the basis of exposure to the curriculum based knowledge of chemical sciences.
- PSO2:** display greater respect to the cause-effect relationship which eventually creates new avenues and designs innovative pathways.
- PSO3:** integrate creative learning in his/her day-to-day activities with the needed confidence to embrace challenges.
- PSO4:** demonstrate broad mindedness with respect to knowledge penetration vis-a-vis knowledge accumulation in his /her professional activities.
- PSO5:** explore global level research opportunities for doctoral and post-doctoral studies.



- PSO6:** avail the benefit of enormous job avenues in different domains such as – academics, pharmaceutical industries, analytical laboratories, scientific organizations, entrepreneurship, administrative positions etc.
- PSO7:** display their true potential and get appropriate endorsement through qualifying NET/GATE/SET/State Civil Services and other competitive examinations.
- PSO8:** avail the opportunity to explore the knowledge of chemical sciences with related disciplines, in particular knowledge of synthetic methods, knowledge and application of analytical techniques with specific orientation towards industries.

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