

Kurukshetra University, Kurukshetra

(Established by the State Legislature Act-XII of 1956)

("A++" Grade, NAAC Accredited)



Revised Scheme of Examination for Post Graduate Programme M.Sc. Chemistry

as per NEP 2020

Curriculum and Credit Framework for Postgraduate Programme

With Multiple Entry-Exit, Internship and CBCS-LOCF

With effect from the session 2025-26 (in phased manner)

**DEPARTMENT OF CHEMISTRY
FACULTY OF SCIENCES**

**KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119
HARYANA, INDIA**

Programme Learning Outcomes(PLOs) for PG Programmes as per NEP-2020

PLOs for a M.Sc. Chemistry

PLOs	<u>M.Sc. Chemistry</u>
	After the completion of <u>M.Sc. Chemistry</u> the student will be able to:
PLO-1: Knowledge and Understanding	Demonstrate the fundamental and advanced knowledge of the subject and understanding of recent developments and issues, including methods and techniques, related to the Chemistry.
PLO-2: General Skills	Acquire the general skills required for performing and accomplishing the tasks as expected to be done by a skilled professional in the fields of Chemistry.
PLO-3: Technical/ Professional Skills	Demonstrate the learning of advanced cognitive technical/professional skills required for completing the specialized tasks related to the profession and for conducting and analyzing the relevant research tasks in different domains of the Chemistry.
PLO-4: Communication Skills	Effectively communicate the attained skills of the Chemistry in well-structured and productive manner to the society at large.
PLO-5: Application of Knowledge and Skills	Apply the acquired knowledge and skills to the problems in the subject area, and to identify and analyze the issues where the attained knowledge and skills can be applied by carrying out research investigations to formulate evidence-based solutions to complex and unpredictable problems associated with the field of Chemistry or otherwise.
PLO-6: Critical thinking and Research Aptitude	Attain the capability of critical thinking in intra/inter-disciplinary areas of the Chemistry enabling to formulate, synthesize, and articulate issues for designing of research proposals, testing hypotheses, and drawing inferences based on the analysis.
PLO-7: Constitutional, Humanistic, Moral Values and Ethics	Know constitutional, humanistic, moral and ethical values, and intellectual property rights to become a scholar/professional with ingrained values in expanding knowledge for the society, and to avoid unethical practices such as fabrication, falsification or misrepresentation of data or committing plagiarism.
PLO-8: Capabilities/qualities and mindset	To exercise personal responsibility for the outputs of own work as well as of group/team and for managing complex and challenging work(s) that requires new/strategic approaches.
PLO-9: Employability and job-ready skills	Attain the knowledge and skills required for increasing employment potential, adapting to the future work and responding to the rapidly changing demands of the employers/industry/society with time.

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Framework-2 Scheme-P

S e m e s t e r	Course Type	Course Code	Nomenclature of course	Theory (Th)/ Practical (P)	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examinati on hours
						Total	L	T	P	Total				
1	CC-1	M24-CHE-101	Inorganic Chemistry-I	Th	4	26	4	0	0	4	30	70	100	3
	CC-2	M24-CHE-102	Physical Chemistry-I	Th	4		4	0	0	4	30	70	100	3
	CC-3	M24-CHE-103	Organic Chemistry-I	Th	4		4	0	0	4	30	70	100	3
	CC-4	M24-CHE-104	Environmental and Bioinorganic Chemistry	Th	3		3	0	0	3	25	50	75	3
	PC-1	M24-CHE-105	Inorganic Chemistry Practical-I	P	3		0	0	6	6	25	50	75	6
	PC-2	M24-CHE-106	Physical Chemistry Practical-I	P	3		0	0	6	6	25	50	75	6
	PC-3	M24-CHE-107	Organic Chemistry Practical-I	P	3		0	0	6	6	25	50	75	6
	SEM	M24-CHE-108	Seminar	S	2		0	0	0	2	0	50	50	1

2	CC-5	M24-CHE-201	Inorganic Chemistry-II	Th	4	26	4	0	0	4	30	70	100	3
	CC-6	M24-CHE-202	Physical Chemistry-II	Th	4		4	0	0	4	30	70	100	3
	CC-7	M24-CHE-203	Organic Chemistry-II	Th	4		4	0	0	4	30	70	100	3
	CC-8	M24-CHE-204	Spectroscopy and XRD	Th	3		3	0	0	3	25	50	75	3
	PC-4	M24-CHE-205	Inorganic Chemistry Practical-II	P	3		0	0	6	6	25	50	75	6
	PC-5	M24-CHE-206	Physical Chemistry Practical-II	P	3		0	0	6	6	25	50	75	6
	PC-6	M24-CHE-207	Organic Chemistry Practical-II	P	3		0	0	6	6	25	50	75	6
	CHM	M24-CHM-201	Constitutional, Human and Moral Values and IPR	Th	2		2	0	0	2	15	35	50	3
	Internship	M24-INT-200	An internship course of 4 Credits of 4-6 weeks duration during summer vacation after IInd semester is to be completed by every student. Internship can be either for enhancing the employability or for developing the research aptitude.									50	50	100
3	CC-9	M24-CHE-301	Advanced Organic Spectroscopy	Th	4	26	4	0	0	4	30	70	100	3
	CC-10	M24-CHE-302	Physical Chemistry-III	Th	4		4	0	0	4	30	70	100	3
	DEC-1	M24-CHE-303	Inorganic Chemistry Special-I	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-304	Physical Chemistry Special-I	Th	4		4	0	0	4	30	70	100	3

		M24-CHE-305	Organic Chemistry Special-I	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-306	Pharmaceutical Chemistry Special-I	Th	4		4	0	0	4	30	70	100	3
	DEC-2	M24-CHE-307	Inorganic Chemistry Special-II	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-308	Physical Chemistry Special-II	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-309	Organic Chemistry Special-II	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-310	Pharmaceutical Chemistry Special-II	Th	4		4	0	0	4	30	70	100	3
	PC-7 *	M24-CHE-311A	Inorganic Chemistry Special Practical-I	P	4		0	0	8	8	30	70	100	6
		M24-CHE-311B	Physical Chemistry Special Practical-I	P	4		0	0	8	8	30	70	100	6
		M24-CHE-311C	Organic Chemistry Special Practical-I	P	4		0	0	8	8	30	70	100	6
		M24-CHE-311D	Pharmaceutical Chemistry Special Practical-I	P	4		0	0	8	8	30	70	100	6
	PC-8 *	M24-CHE-312A	Inorganic Chemistry Special Practical-II	P	4		0	0	8	8	30	70	100	6
		M24-CHE-312B	Physical Chemistry Special Practical-II	P	4		0	0	8	8	30	70	100	6
		M24-CHE-312C	Organic Chemistry Special Practical-II	P	4		0	0	8	8	30	70	100	6
		M24-CHE-312D	Pharmaceutical Chemistry Special Practical-II	P	4		0	0	8	8	30	70	100	6

	OEC	M24-OEC-305	Applied Chemistry	Th	2		2	0	0	2	15	35	50	3
4	CC-11	M24-CHE-401	Inorganic Chemistry-III	Th	4	26	4	0	0	4	30	70	100	3
	CC-12	M24-CHE-402	Organic Chemistry-III	Th	4		4	0	0	4	30	70	100	3
	DEC-3	M24-CHE-403	Inorganic Chemistry Special-III	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-404	Physical Chemistry Special-III	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-405	Organic Chemistry Special-III	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-406	Pharmaceutical Chemistry Special-III	Th	4		4	0	0	4	30	70	100	3
	DEC-4	M24-CHE-407	Inorganic Chemistry Special-IV	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-408	Physical Chemistry Special-IV	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-409	Organic Chemistry Special-IV	Th	4		4	0	0	4	30	70	100	3
		M24-CHE-410	Pharmaceutical Chemistry Special-IV	Th	4		4	0	0	4	30	70	100	3
	PC-9 *	M24-CHE-411A	Inorganic Chemistry Special Practical-III	P	4		0	0	8	8	30	70	100	6
		M24-CHE-411B	Physical Chemistry Special Practical-III	P	4		0	0	8	8	30	70	100	6

		M24-CHE-411C	Organic Chemistry Special Practical-III	P	4		0	0	8	8	30	70	100	6
		M24-CHE-411D	Pharmaceutical Chemistry Special Practical-III	P	4		0	0	8	8	30	70	100	6
	PC-10 *	M24-CHE-412A	Inorganic Chemistry Special Practical-IV	P	4		0	0	8	8	30	70	100	6
		M24-CHE-412B	Physical Chemistry Special Practical-IV	P	4		0	0	8	8	30	70	100	6
		M24-CHE-412C	Organic Chemistry Special Practical-IV	P	4		0	0	8	8	30	70	100	6
		M24-CHE-412D	Pharmaceutical Chemistry Special Practical-IV	P	4		0	0	8	8	30	70	100	6
		EEC	M24-CHE-413	Skills in Chemistry	Th	1	1	0	0	1	10	20	30	3
					PC	1	0	0	3	3	5	15	20	3

- CC-Course Course, CHM-Constitutional, Human & Moral Values and IPR, DEC-Discipline Elective Course, EEC-Employability and Entrepreneurship Skills Course, OEC-Open Elective Course, PC-Practicum Course

* For PC-7, PC-8, PC-9, PC-10, the total number of Practical Groups should not exceed the total intake divided by the Group Size / $120 + 20 = 140 = \text{number of Practical Groups} \leq 7$