Kurukshetra University, Kurukshetra

(Established by the State Legislature Act-XII of 1956)
("A++" Grade, NAAC Accredited)

Scheme of Examination
For
Post Graduate Programme

M.Sc. PHYSICS

as per NEP 2020
Curriculum and Credit Framework for Postgraduate Programme

With Multiple Entry-Exit, Internship and CBCS-LOCF
With effect from the session 2024-25 (in phased manner)

DEPARTMENT OF PHYSICS
FACULTY OF SCIENCE

KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119

HARYANA, INDIA

49(233)

Chairperson
Department of Physics,
Kurukshetra University,
Kurukshetra-136 119.
(INDIA)

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

PLOs	Master Degree in Physics
	After the completion of Master degree in Physics 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 Physics.
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 Physics.
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 Physics.
PLO-4: Communication Skills	Effectively communicate the attained skills of the Physics 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 Physics or otherwise.
PLO-6: Critical thinking and Research Aptitude	Attain the capability of critical thinking in intra/inter-disciplinary areas of the Physics 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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Scheme of Examination for Postgraduate Programme (MSc. PHYSICS)
as per NEP 2020 Curriculum and Credit Framework for Postgraduate Programmes
(CBCS LOCF) with effect from the session 2024-25 (in phased manner)
Framework-2
Scheme-P

Semester	Course Type	Course Code	Nomenclature of course	Theory (T)/ Practical (P)	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
						Total	L	T	P	Total				
1	CC-1	M24-PHY-101	Mathematical Physics	T	4	26	4	0	0	4	30	70	100	3
	CC-2	M24-PHY-102	Classical Mechanics	T	4		4	0	0	4	30	70	100	3
	CC-3	M24-PHY-103	Quantum Mechanics -I	T	4		4	0	0	4	30	70	100	3
	CC-4	M24-PHY-104	Electronic Devices and Circuits- I	T	4		4	0	0	4	30	70	100	3
	PC-1	M24-PHY-105	Physics Lab-I	P	4		0	0	8	8	30	70	100	4
	PC-2	M24-PHY-106	Physics Lab- II	P	4		0	0	8	8	30	70	100	4
	SEMINAR	M24-PHY-107	Seminar	S	2		0	0	0	2	0	50	50	1

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2	CC-5	M24-PHY-201	Nuclear and Particle Physics	T	4	26	4	0	0	4	30	70	100	3
	CC-6	M24-PHY-202	Solid State Physics	T	4		4	0	0	4	30	70	100	3
	CC-7	M24-PHY-203	Quantum Mechanics -II	T	4		4	0	0	4	30	70	100	3
	CC-8	M24-PHY-204	Electronic Devices and Circuits-II	T	4		4	0	0	4	30	70	100	3
	PC-3	M24-PHY-205	Physics Lab-III	P	4		0	0	8	8	30	70	100	4
	PC-4	M24-PHY-206	Physics Lab-IV	P	4		0	0	8	8	30	70	100	4
	CHM	M24-CHM-201	Constitutional, Human and Moral Values, and IPR	T	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 II[nd] 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-PHY-301	Electrodynamics and Plasma Physics	T	4	26	4	0	0	4	30	70	100	3
	CC-10	M24-PHY-302	Statistical Mechanics	T	4		4	0	0	4	30	70	100	3
	DEC-1[$] *(One*	M24-PHY-303	Condensed Matter Physics-I	T	4		4	0	0	4	30	70	100	3

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	Course is to be opted out of M24-PHY-303 to M24-PHY-305)	M24-PHY-304	Nuclear physics-I	T	4		4	0	0	4	30	70	100	3
		M24-PHY-305	Particle Physics-I	T	4		4	0	0	4	30	70	100	3
	DEC-2[$] *(One Course is to be opted out of M24-PHY-306 to M24-PHY-308)*	M24-PHY-306	Computational Physics-I	T	4		4	0	0	4	30	70	100	3
		M24-PHY-307	Electronics-I	T	4		4	0	0	4	30	70	100	3
		M24-PHY-308	Material Science-I	T	4		4	0	0	4	30	70	100	3
	PC-5	M24-PHY-309	Physics Lab-V	P	4		0	0	8	8	30	70	100	4
	PC-6	M24-PHY-310	Physics Lab-VI	P	4		0	0	8	8	30	70	100	4
	OEC	M24-OEC-339	Elements of Nano Science and Nanotechnology	T	2		2	0	0	2	15	35	50	3
4	CC-11	M24-PHY-401	Atomic and Molecular Physics	T	4	26	4	0	0	4	30	70	100	3
	CC-12	M24-PHY-402	Advanced Quantum Mechanics	T	4		4	0	0	4	30	70	100	3
	DEC-3 *(One*	M24-PHY-403	Condensed Matter Physics-II	T	4		4	0	0	4	30	70	100	3

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Course is to be opted out of M24-PHY-403 to M24-PHY-405)	M24-PHY-404	Nuclear physics-II	T	4		4	0	0	4	30	70	100	3
	M24-PHY-405	Particle Physics-II	T	4		4	0	0	4	30	70	100	3
DEC-4 *(One Course is to be opted out of M24-PHY-406 to M24-PHY-408)*	M24-PHY-406	Computational Physics-II	T	4		4	0	0	4	30	70	100	3
	M24-PHY-407	Electronics-II	T	4		4	0	0	4	30	70	100	3
	M24-PHY-408	Material Science-II	T	4		4	0	0	4	30	70	100	3
PC-7	M24-PHY-409	Physics Lab-VII	P	4		0	0	8	8	30	70	100	4
PC-8	M24-PHY-410	Physics Lab-VIII	P	4		0	0	8	8	30	70	100	4
EEC	M24-PHY-411	Space Science and Sensors	T	2		2	0	0	2	15	35	50	3
OR													
CC-11	M24-PHY-401	Atomic and Molecular Physics	T	4	26	4	0	0	4	30	70	100	3
DEC-3 *(One*	M24-PHY-403	Condensed Matter Physics-II	T	4		4	0	0	4	30	70	100	3

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Course is to be opted out of M24-PHY-403 to M24-PHY-405)	M24-PHY-404	Nuclear physics-II	T	4		4	0	0	4	30	70	100	3
	M24-PHY-405	Particle Physics-II	T	4		4	0	0	4	30	70	100	3
DEC-4[$] *(One Course is to be opted out of M24-PHY-406 to M24-PHY-408)*	M24-PHY-406	Computational Physics-II	T	4		4	0	0	4	30	70	100	3
	M24-PHY-407	Electronics-II	T	4		4	0	0	4	30	70	100	3
	M24-PHY-408	Material Science-II	T	4		4	0	0	4	30	70	100	3
EEC	M24-PHY-411	Space Science and Sensors	T	2		1	0	2	3	15	35	50	3
Dissertation/Project work	M24-PHY-412	Dissertation*	D		12	0	0	0	12	0	300	300	

*Total number of students' dissertation/project work offered will be one per faculty member per year, and allotment will be made on the basis of merit cum preference of the students.

[$]Twodiscipline elective courses (DECs) will be allotted to students, one each from the courses of DEC1 and DEC2, in third semester. The allotment will be on the basis of their preference cum percentage of marks in the First Semester examination of M. Sc. Physics. In semester four, students have to study advanced courses of the same DECs which were allotted in third semester.

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