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 Electronic Science

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 ELECTRONIC SCIENCE
FACULTY OF SCIENCE

KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119
HARYANA, INDIA

Programme Learning Outcomes(PLOs) for M.Sc. (Electronic Science) as per NEP-2020

PLOs	Master Degree (Electronic Science) After the completion of Master degree in Electronic Science 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 **Electronic Science**
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 **Electronic Science**.
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 indifferent domains of the **Electronic Science**
PLO-4: Communication Skills	Effectively communicate the attained skills of the **Electronic Science** 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 **Electronic Science** or otherwise.
PLO-6: Critical thinking and Research Aptitude	Attain the capability of critical thinking in intra /inter-disciplinary areas of the **Electronic Science** 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.

Kurukshetra University, Kurukshetra

Scheme of Examination for Postgraduate Programme M.Sc Electronic Science
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-ELE-101	Semiconductor Devices for Integrated Circuits	T	4	26	4	0	0	4	30	70	100	3
	CC-2	M24-ELE-102	IC Fabrication Technology	T	4		4	0	0	4	30	70	100	3
	CC-3	M24-ELE-103	EM Theory and Electronic Communication	T	4		4	0	0	4	30	70	100	3
	CC-4	M24-ELE-104	Electronic Instrumentation and Control System	T	4		4	0	0	4	30	70	100	3
	PC-1	M24-ELE-105	Analog Circuit Design Lab	P	4		0	0	8	8	30	70	100	4
	PC-2	M24-ELE-106	Digital Circuit Design and Programming Lab	P	4		0	0	8	8	30	70	100	4
	SEMINAR	M24-ELE-107	Seminar	S	2		0	0	0	2	0	50	50	1
2	CC-5	M24-ELE-201	Digital Circuits and System Design	T	4	26	4	0	0	4	30	70	100	3
	CC-6	M24-ELE-202	Analog CMOS Integrated Circuits	T	4		4	0	0	4	30	70	100	3
	CC-7	M24-ELE-203	Verilog Hardware Description Language	T	4		4	0	0	4	30	70	100	3
	CC-8	M24-ELE-204	Introduction to Embedded Systems	T	4		4	0	0	4	30	70	100	3
	PC-3	M24-ELE-205	Electronic Circuit Simulation and Embedded Systems Lab	P	4		0	0	8	8	30	70	100	4
	PC-4	M24-ELE-206	IC Processing and Characterization lab	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 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-ELE-301	MOS Solid State Circuits	T	4	26	4	0	0	4	30	70	100	3
	CC-10	M24-ELE-302	Optoelectronics & Microwave Devices	T	4		4	0	0	4	30	70	100	3
	DEC-1	M24-ELE-303	Custom Microelectronics & ASICs	T	4		4	0	0	4	30	70	100	3
		M24-ELE-304	Foundations of MEMS	T	4		4	0	0	4	30	70	100	3
		M24-ELE-305	Advanced Semiconductor Manufacturing	T	4		4	0	0	4	30	70	100	3
		M24-ELE-306	Digital Communication	T	4		4	0	0	4	30	70	100	3
	DEC-2	M24-ELE-307	Advanced Embedded Systems	T	4		4	0	0	4	30	70	100	3
		M24-ELE-308	Chip Implementation with Physical Design	T	4		4	0	0	4	30	70	100	3
		M24-ELE-309	Nanoelectronics: Nano-CMOS & beyond	T	4		4	0	0	4	30	70	100	3
		M24-ELE-310	Emerging Memory Devices	T	4		4	0	0	4	30	70	100	3
	PC-5	M24-ELE-311	Electronic Communication Lab	P	4		0	0	8	8	30	70	100	4
	PC-6	M24-ELE-312	EDA Tools for design and simulation	P	4		0	0	8	8	30	70	100	4
	OEC	M24-OEC-313	Fundamentals of Nanomaterials	T	2		2	0	0	2	15	35	50	3
4	DEC-3	M24-ELE-401	VHDL for Digital Design	T	4	26	4	0	0	4	30	70	100	3
		M24-ELE-402	System Verilog	T	4		4	0	0	4	30	70	100	3
		M24-ELE-403	Design for Testability	T	4		4	0	0	4	30	70	100	3
		M24-ELE-404	Programming for Electronics using Python	T	4		4	0	0	4	30	70	100	3
	DEC-4	M24-ELE-405	Advanced Materials for VLSI	T	4		4	0	0	4	30	70	100	3
		M24-ELE-406	RF Microelectronics	T	4		4	0	0	4	30	70	100	3
		M24-ELE-407	Nanoscience and Nanotechnology	T	4		4	0	0	4	30	70	100	3
		M24-ELE-408	Semiconductor Packaging: Technology & Materials	T	4		4	0	0	4	30	70	100	3
	DEC-5	M24-ELE-409	Introduction to Internet of Things	T	4		4	0	0	4	30	70	100	3
		M24-ELE-410	Optical fibre communication	T	4		4	0	0	4	30	70	100	3
		M24-ELE-411	Mobile and Data Communication	T	4		4	0	0	4	30	70	100	3
		M24-ELE-412	Verification Tools and Technologies	T	4		4	0	0	4	30	70	100	3
	EEC	M24-ELE-413	Research Ethics	T	2		2	0	0	2	15	35	50	3
	Dissertation/ Project work	M24-ELE-414	Dissertation	D	12		0	0	0	12	0	300	300	

Seminar

For Seminar of 2 Credits, evaluation of 50 marks will be done internally at Department level.

Project/Dissertation

The Project is to be carried out for six months during Jan-June in an Industry or Institute of repute or in the Department labs. The students are required to submit a dissertation. Evaluation will be done by examiners appointed by the PG Board of studies and will be based on the dissertation and Viva Voce.

The students, who opt Dissertation work/ Project work outside the Department, can also complete requisite courses i.e. Discipline Elective Courses and EEC, in the 4th Semester, through the following modes:

- Students can opt upto 40% of the Elective Courses as MOOCs through SWAYAM/NPTEL and other such portals approved by UGC and registered on ABC/APAAR.
- Online courses offered by the CDOE, Kurukshetra University, Kurukshetra.
- Online classes offered by the Department for these courses.

Fees for such online courses will be paid by the student.