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. Computer Science (Software)

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 COMPUTER SCIENCE & APPLICATIONS
FACULTY OF SCIENCES

KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119

HARYANA, INDIA

Chairman
Deptt. of Computer Science
and Applications
K.U. Kurukshetra

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Abbreviations used

Sr. No.	Full form	Abbreviation	Description
1	Core Course	CC	Compulsory core courses for the programme. CC will be a theory course of 4 credits.
2	Discipline Elective Course	DEC	Elective Courses offered by the DCI. A student can opt one course out of 4 given options for that DEC course. One course can be opted in a semester through MOOCs from SWAYAM or other portals. DEC will be a theory course of 4 credits.
3	Practicum	PC	Practical course of 4 credits which will be compulsory in all semesters for all students except in the 4th Semester when a student opts Dissertation work.
4	Seminar	S	The seminar is a Skill Enhancement Course (SEC) aiming to impart skills of self-learning, comprehension, communication and presentation.
5	Constitutional, Human, Moral Values and IPR	CHM	CHM is a compulsory Value Added theory Course of 2 credits.
6	Open Elective Course	OEC	OEC is a Multidisciplinary course of 2 credits. Every student will opt for a course from the pool of OEC courses other than Computer Science.
7	Employability and Entrepreneurship Skills Course	EEC	EEC is a Vocational or SEC course aiming to increase the employment and entrepreneurship potential of students of programme.
8	Theory	Th	
9	Practical	P	
9	Lecture	L	
10	Tutorial	T	
11	Dissertation	D	A research course of 12 credits, where a student will undertake research work and submit a dissertation as per rules prescribed by the university.
12	Programme Learning Outcomes	PLOs	
13	Course Learning Outcomes	CLOs	

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

PLOs	After the completion of M.Sc. Comp. Sc. (S/W) degree, a student will be able to:
PLO-1: Knowledge and Understanding	Demonstrate the deep understanding and advanced knowledge in the core areas of Computer Science subject and understanding of recent developments and issues, including concepts, theories, principles, methods, and techniques in different areas of Computer 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 Computer Science.
PLO-3: Technical/ Professional Skills	Demonstrate the learning of advanced cognitive computing, programming, formulating models, using various softwares, and other teaching and 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 Computer Science.
PLO-4: Communication Skills	Effectively communicate the attained skills in different areas of Computer Sciencein a precise, well-structured, and unambiguous mathematical language through effective oral and/or written expressions 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 identify and analyze the issues where the attained knowledge and skills can be applied by carrying out various industry-oriented projects and/or research investigations to formulate appropriate solutions to various problems ranging from basic to complex and unpredictable problems associated with the field of Computer Scienceor allied fields.
PLO-6: Critical Thinking and Research Aptitude	Attain the capabilities of critical thinking, logical reasoning, investigating problems, analysis, problem-solving, and application of computer science methods/techniques, in intra/inter-disciplinary areas of **Computer Science,** enabling to develop skills to solve problems having applications in other disciplines and/or in the real world and to formulate, synthesize, and articulate issues for analyzing, designing, and implementing of project/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, and to have strong foundation in basic and applied aspects of Computer Science so as to venture into research in different areas of computer science, jobs in scientific and various industrial sectors and/or teaching career in Computer Science.

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Scheme of Examination for Postgraduate Programme M.Sc. Computer Science (Software)
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 (Th)/ Practical (P)/ Seminar/ CHM/OEC/ EEC/ Dissertation/ Project Work	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
					Course	Sem. Total	L	T	P	Total				
1	CC-1	M24-CSE-101	Mathematical Foundations of Computer Science	Th	4	26	4	0	0	4	30	70	100	3
	CC-2	M24-CSE-102	Advanced Computer Architecture	Th	4		4	0	0	4	30	70	100	3
	CC-3	M24-CSE-103	Advanced Data Structures and Algorithms	Th	4		4	0	0	4	30	70	100	3
	CC-4	M24-CSE-104	Object-Oriented Programming with Java	Th	4		4	0	0	4	30	70	100	3
	PC-1	M24-CSE-105	Practical -1	P	4		0	0	8	8	30	70	100	3
	PC-2	M24-CSE-106	Practical -2	P	4		0	0	8	8	30	70	100	4
	Seminar	M24-CSE-107	Seminar	S	2		0	0	0	2	0	50	50	1
2	CC-5	M24-CSE-201	Advanced Web Technologies	Th	4	26	4	0	0	4	30	70	100	3

Semester	Course Type	Course Code	Nomenclature of course	Theory (Th)/ Practical (P)/ Seminar/ CHM/OEC/ EEC/ Dissertation/ Project Work	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
					Course	Sem. Total	L	T	P	Total				
	CC-6	M24-CSE-202	Data Communication	Th	4		4	0	0	4	30	70	100	3
	CC-7	M24-CSE-203	Advanced Database Systems	Th	4		4	0	0	4	30	70	100	3
	CC-8	M24-CSE-204	Distributed Operating System	Th	4		4	0	0	4	30	70	100	3
	PC-3	M24-CSE-205	Practical-3	P	4		0	0	8	8	30	70	100	3
	PC-4	M24-CSE-206	Practical-4	P	4		0	0	8	8	30	70	100	4
	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 2nd semester is to be completed by every student. Internships can be either for enhancing the employability or for developing the research aptitude.								50	50	100	
3	CC-9	M24-CSE-301	Mobile Applications Development	Th	4	26	4	0	0	4	30	70	100	3
	CC-10	M24-CSE-302	Machine Learning using Python	Th	4		4	0	0	4	30	70	100	3
	DEC-1 (One course is to be	M24-CSE-303	Data Mining and Analytics using R	Th	4		4	0	0	4	30	70	100	3

Semester	Course Type	Course Code	Nomenclature of course	Theory (Th)/ Practical (P)/ Seminar/ CHM/OEC/ EEC/ Dissertation/ Project Work	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
					Course	Sem. Total	L	T	P	Total				
	opted out of M24-CSE-303 to M24-CSE-305)	M24-CSE-304	Linux Administration	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-305	May be offered through MOOC/ Swayam Portal	Th	4		4	0	0	4	30	70	100	3
	DEC-2 (One course is to be opted out of M24-CSE-306 to M24-CSE-308)	M24-CSE-306	Theory of Computation	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-307	Principles of programming Languages	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-308	May be offered through MOOC/ Swayam Portal	Th	4		4	0	0	4	30	70	100	3
	PC-5	M24-CSE-309	Practical-5	P	4		0	0	8	8	30	70	100	4
	PC-6	M24-CSE-310	Practical-6	P	4		0	0	8	8	30	70	100	4
	OEC	M24-OEC-307	Python Programming	Th	2		2	0	0	2	15	35	50	3
4	DEC-3 (One course is to be	M24-CSE-401	Object Oriented Analysis and Design using UML	Th	4	26	4	0	0	4	30	70	100	

Semester	Course Type	Course Code	Nomenclature of course	Theory (Th)/ Practical (P)/ Seminar/ CHM/OEC/ EEC/ Dissertation/ Project Work	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
					Course	Sem. Total	L	T	P	Total				
	opted out of M24-CSE-401 to M24-CSE-404)	M24-CSE-402	Computer Graphics and Animation	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-403	Big Data Analytics	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-404	May be offered through MOOC/ Swayam Portal	Th	4		4	0	0	4	30	70	100	3
	DEC-4 (One course is to be opted out of M24-CSE-405 to M24-CSE-408)	M24-CSE-405	Compiler Design	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-406	Biometric Security	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-407	Cloud Computing and IOT	Th	4		4	0	0	4	30	70	100	3
		M24-CSE-408	May be offered through MOOC/ Swayam Portal	Th	4		4	0	0	4	30	70	100	3
	DEC-5 (One course is to be opted out of M24-CSE-409 to M24-CSE-412)	M24-CSE-409	Security in Computing	Th	4		4	0	0	4	30	70	100	3
		M24- CSE -410	Software Testing	Th	4		4	0	0	4	30	70	100	3
		M24- CSE -411	Digital Image Processing	Th	4		4	0	0	4	30	70	100	3

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Semester	Course Type	Course Code	Nomenclature of course	Theory (Th)/ Practical (P)/ Seminar/ CHM/OEC/ EEC/ Dissertation/ Project Work	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination hours
					for Course	Sem. Total	L	T	P	Total				
		M24- CSE -412	May be offered through MOOC/ Swayam Portal	Th	4		4	0	0	4	30	70	100	3
	EEC	M24- CSE -413	Research Ethics	Th	2		2	0	0	2	15	35	50	3
	Dissertation / Project	M24-CSE-414	Dissertation/Project	D	12		0	0	0	12	0	300	300	-
	NOTES: A student can opt one elective course in a semester, i.e. up to 40% of total elective courses mentioned in the scheme, through SWAYAM/NPTEL or other online portals recognized by the UGC and the university.													

Table-1

Course composition- Theory/ Theory +Tutorial			
Course Credit	Internal Assessment marks	End term exam marks	Total marks
2	15	35	50
4	30	70	100

Table-2: Course composition- Theory + Practical

Course Credit	Theory		Practical		Total marks
Theory +Practical	Internal Assessment marks	End term exam marks	Internal Assessment marks	End term exam marks	
2+0	15	35	-	-	50
4+0	30	70	-	-	100
0+4	-	-	30	70	100

Table- 3: Distribution of Internal Assessment Marks (Theory)

Total Internal Assessment Marks (Theory)	Class Participation	Seminar/Presentation/Assignment/Quiz/class test, etc.	Mid-Term Exam
15	4	4	7
30	5	10	15

Table -4 Distribution of Internal Assessment Marks (Practical)

Total Internal Assessment Marks (Practicum)	Class Participation	Seminar/Demonstration/Viva-Voce/Lab record, etc.	Mid-Term Exam
30	5	10	15

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