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. Statistics

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 STATISTICS AND OPERATIONAL RESEARCH

FACULTY OF SCIENCES

KURUKSHETRA UNIVERSITY, KURUKSHETRA -136119

HARYANA, INDIA

Chairperson
Department of Statistics &
Operational Research,
Kurukshetra University,
Kurukshetra-136119.

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Kurukshetra University, Kurukshetra

Scheme of Examination for Postgraduate Programme M.Sc. (Statistics)
as per NEP 2020 Curriculum and Credit Framework for Postgraduate Programmes
(CBCS LOCF) with effect from the session 2024-25 (in phased manner)
Framework-1
Scheme-Q

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				
					Semester-I								
CC-1	M24-STA-101	Measure and Probability Theory	T	4		4	0	0	4	30	70	100	3
CC-2	M24- STA-102	Statistical Methods and Distribution Theory	T	4		4	0	0	4	30	70	100	3
CC-3	M24- STA-103	Theory of Estimation	T	4	22	4	0	0	4	30	70	100	3
CC-4	M24- STA-104	Industrial Statistics	T	4		4	0	0	4	30	70	100	3
PC-1	M24- STA-105	Practical-1 (Calculator and SPSS based)	P	4		0	0	8	8	30	70	100	4
SEM	M24- STA-106	Seminar	S	2		0	0	0	2	0	50	50	1
					Semester-II								
CC-5	M24- STA -201	Stochastic Processes	T	4		4	0	0	4	30	70	100	3
CC-6	M24-STA-202	Industrial Operations Research	T	4		4	0	0	4	30	70	100	3
CC-7	M24-STA-203	Testing of Hypothesis	T	4	22	4	0	0	4	30	70	100	3
CC-8	M24-STA-204	Programming with C and R	T	4		4	0	0	4	30	70	100	3
PC-2	M24-STA-205	Practical-2 (based on C & R)	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	

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Semester-III

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				
CC-9	M24-STA-301		Sampling Theory	T	4		4	0	0	4	30	70	100	3
CC-10	M24-STA-302		Linear Estimation and Design of Experiments	T	4		4	0	0	4	30	70	100	3
DEC-1	Opt any one	M24-STA-303	Applied Statistical Techniques	T	4		4	0	0	4	30	70	100	3
		M24-STA-304	Econometrics	T	4		4	0	0	4	30	70	100	3
		M24-STA-305	Bio-Statistics	T	4		4	0	0	4	30	70	100	3
		M24-STA-306	Linear Algebra and Numerical Analysis	T	4	22	4	0	0	4	30	70	100	3
DEC-2	Opt any one	M24-STA-307	Categorical Data Analysis	T	4		4	0	0	4	30	70	100	3
		M24-STA-308	Programming with Python	T	4		4	0	0	4	30	70	100	3
		M24-STA-309	Bayesian Inference	T	4		4	0	0	4	30	70	100	3
		M24-STA-310	Actuarial Statistics	T	4		4	0	0	4	30	70	100	3
PC-3	M24-STA-311		Practical-3 (based on Calculator and R)	P	4		0	0	8	8	30	70	100	4
OEC	M24-OEC-347		Introductory Statistical Methods	T	2		2	0	0	2	15	35	50	3

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							Semester-IV						
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				
CC-11	M24-STA-401		Multivariate Analysis	T	4		4	0	0	4	30	70	100	3
CC-12	M24-STA-402		Optimization Techniques	T	4		4	0	0	4	30	70	100	3
DEC-3	Opt any one	M24-STA-403	Reliability and Renewal Theory	T	4		4	0	0	4	30	70	100	3
		M24-STA-404	Fuzzy Set Theory and its Applications	T	4		4	0	0	4	30	70	100	3
		M24-STA-405	Real and Complex Analysis	T	4	22	4	0	0	4	30	70	100	3
		M24-STA-406	Theory of Queues	T	4		4	0	0	4	30	70	100	3
DEC-4	Opt any one	M24-STA-407	Machine Learning	T	4		4	0	0	4	30	70	100	3
		M24-STA-408	Official Statistics	T	4		4	0	0	4	30	70	100	3
		M24-STA-409	Information Theory	T	4		4	0	0	4	30	70	100	3
		M24-STA-410	Survival Analysis	T	4		4	0	0	4	30	70	100	3
PC-4	M24-STA-411		Practical-4 (Calculator and SPSS/SYSTAT based)	P	4		0	0	8	8	30	70	100	4
EEC	M24-STA-412		Data Analysis using Statistical Softwares	T	2		1	0	2	3	10	20	30	3
				P							05	15	20	3

	Scheme of Semester IV when a student opts for Dissertation work or Project Work												
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				
CC-11	M24-STA-401		Multivariate Analysis	T	4		4	0	0	4	30	70	100	3
DEC-3	Opt any one	M24-STA-403	Reliability and Renewal Theory	T	4		4	0	0	4	30	70	100	3
		M24-STA-404	Fuzzy set Theory and its Applications	T	4		4	0	0	4	30	70	100	3
		M24-STA-405	Real and Complex Analysis	T	4	22	4	0	0	4	30	70	100	3
		M24-STA-406	Theory of Queues	T	4		4	0	0	4	30	70	100	3
Dissertation /Project work	M24-STA-413		Dissertation /Project work	D	12		0	0	0	12	0	300	300	
EEC	M24-STA-412		Data Analysis Using Statistical Softwares	T	2		1	0	2	3	10	20	30	3
				P							05	15	20	3

Note:

*Total Credits for Two Academic Years: 92 (44+44+4(Internship)).

** The DEC papers will be offered subject to availability of teaching faculty.

*** Internal Assessment (30%) shall be broadly based on the components mentioned in the following tables:

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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**	
1+1	10	20	5	15	50
2+0	15	35	-	-	50
4+0	30	70	-	-	100
0+4	NA	NA	30	70	100

Table- 3

Total Internal Assessment Marks (Theory)	Class Participation	Seminar/Presentation/Assignment/Quiz/class test, etc.	Mid-Term Exam
10	4	0	6
15	4	4	7
30	5	10	15

Table-4

Total Internal Assessment Marks (Practicum)	Class Participation	Seminar/Demonstration/Viva-Voce/Lab record, etc.	Mid-Term Exam
5	0	5	0
30	5	10	15

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

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