

ORDINANCE NO: V (72A)

**CBCS BASED ORDINANCE RELATING TO MASTER OF
SCIENCE (M.SC.) COURSES**

WITH EFFECTIVE FROM 2023-24



KERAL VERMA SUBHARTI COLLEGE OF SCIENCE

**SWAMI VIVEKANAND SUBHARTI UNIVERSITY,
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Ordinance No.- V (72A)

CBCS Based Ordinance relating to Master of Science (M.Sc.) courses

Chapter-1

General

1. This ordinance may be called 'Ordinance Relating to Master of Science (M.Sc.) courses.
2. Choice Based Credit System applicable to all Post Graduate Two Year Programmes.
3. It shall come into force from with effect from 2023-24.
4. This ordinance shall apply to all programmes leading to M.Sc. courses.

Chapter-2

Eligibility for Admission

5. An applicant who has passed Graduation Examination from any recognized University/Institute with relevant subject will be eligible for admission in the first year of the M.Sc. courses.
6. The admission shall be based on the merit of Entrance examination and marks of Qualifying examination (Graduation or equivalent). An applicant must hold the degree from a recognized University with minimum 45 % marks (40% for SC/ST).

Chapter-3

Teaching course

7. The M.Sc. courses shall be of two years duration, divided into four semesters.
8. The M.Sc. course is available in following streams:
 - a. M.Sc. (Physics)
 - b. M.Sc. (Chemistry)
 - c. M.Sc. (Mathematics)
 - d. M.Sc. (Botany)
 - e. M.Sc. (Zoology)
 - f. M.Sc. (Biotech)
 - g. M.Sc. (Microbiology)
 - h. M.Sc. (Environmental Science)
 - i. M.Sc. (Biochemistry)
9. The study and evaluation schemes of the M.Sc. Physics, Chemistry, Mathematics, Botany, Zoology and Biotechnology courses are enclosed as an Annexure-I, II, III, IV, V and VI respectively.
10. The Academic calendar shall be as follows

Ist and IIIrd semester

: 1st August to 30th November,

Exam. : 1st to 15th Dec.

IInd and IVth semesters

: 1st January to 30th April,

Exam. : 1st to 15th May



Chapter-4

Attendance

11. The students are expected to attend all the classes and should not have less than 75% attendance in theory as well as in practical classes where held, to become eligible to appear for the university examination. Shortfall in attendance can, however be condoned in deserving cases to the extent of 10% by the Principal. If the short fall is more than 10% but not more than 15% the Principal may recommend deserving cases to the vice chancellor for condonation the order of the Hon'ble Vice-Chancellor in this regard shall be final.

Chapter-5

Examination

12. The distribution of marks for sessional, End semester theory papers, practical and seminar, projects, industrial training shall be as indicated in Study and Evaluation Scheme.

13. The examination in each semester shall be conducted in two parts:-

A:- Internal assessment (IA) carrying 30 % of total marks. Internal marks of theory subjects, practicals and projects shall be awarded as per the breakup of sessional marks given below.

(a) Theory Subject

- | | |
|---|------------------|
| (i) Midterm written test including in-between snap tests if any | 70 % of IA marks |
| (ii) Teachers Assessment based on attendance, assignments etc. | 30 % of IA marks |

(b) Practical

- | | |
|---|-------------------|
| (i) Midterm Viva-voce test including in-between snap tests if any | 70 % of IA marks. |
| (ii) Teachers Assessment based on attendance, lab records etc. | 30 % of IA marks |
- (c) Make up test may be held for those students who fail to appear in any of the midterm tests for genuine unavoidable reasons, provided prior permission was taken from the Principal/Dean.
- (d) A maximum of 10 marks shall be awarded [Clause 15 A {a(ii)} & 15 A {b(ii)}] for attending classes (theory / practical) as per the following norms:

85% or more attendance	-	10 Marks
80% or more but less than 85% attendance	-	9 Marks
75% or more but less than 80% attendance	-	8 Marks
70% or more but less than 75% attendance	-	7 Marks
65% or more but less than 70% attendance	-	5 Marks
60% or more but less than 65% attendance	-	3 Marks
51% or more but less than 60% attendance	-	2 Marks
50% attendance	-	1 Mark
Less than 50% attendance	-	0 Mark

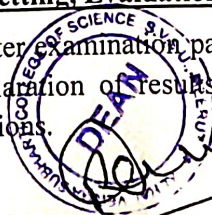
B:- University Examination carrying 70% of total marks.

14. The entire course has to be completed within a maximum of four (04) yrs. from the date of original admission in the course.

Chapter-6

Paper setting, Evaluation & Results

14. The work of setting the End semester examination papers, conduct of the End semester and Annual examinations, Evaluation and declaration of Results shall be as per the laid down Examination policies / latest University Notifications.



Chapter – 7
Power to Modify

15. In the event of any emergent situation, if any deviation is considered necessary, the Vice Chancellor is authorised to modify the Ordinance. Subject to subsequent ratification by the Executive Council.



Master of Science in Biotechnology

Semester I	Course Code	Course Name	Course Type	Teaching Load/Week				Total Credits	Evaluation Scheme				Total
				L	P	T	Total		Sessional			ESE	
									CT	TA	Total		
	M.Sc. BT 101	Principles of Genetics	Core Course	4	0	0	4	4	20	10	30	70	100
	M.Sc. BT 102	Cell and Molecular Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	M.Sc. BT 103	Biostatistics and Bioinformatics	Core Course	4	0	0	4	4	20	10	30	70	100
	M.Sc. BT 104	Tools and Techniques of Biotechnology	Core Course	4	0	0	4	4	20	10	30	70	100
	M.Sc. BT 151	Practical I based on M.Sc. (BT 101, M.Sc. BT 102, M.Sc. BT 103 M.Sc. BT 104)	Practical	0	4	0	4	4	20	10	30	70	100
Total				16	4	0	20	20	100	50	150	350	500
Semester II	Course Code	Course Name	Course Type	Teaching Load/Week				Total Credits	Evaluation Scheme			Total	
				L	P	T	Total		Sessional		ESE		
	M.Sc. BT 201	Fundamentals of Biochemistry & Biophysics	Core Course	4	0	0	4	4	20		10	30	
	M.Sc. BT 202	Genetic Resources and IPR	Core Course	4	0	0	4	4	20		10	30	
	M.Sc. BT 203	Plant Biotechnology	Core Course	4	0	0	4	4	20		10	30	
	M.Sc. BT 204	Genetic Engineering	Core Course	4	0	0	4	4	20		10	30	

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	M.Sc. BT 251	Practical II based on M.Sc. (BT 201, M.Sc. BT 202, M.Sc. BT 203 M.Sc. BT 204)	Practical	0	4	0	4	4	20	10	30
Total				16	4	0	20	20	100	50	150
Semester III	Course Code	Course Name	Course Type	Teaching Load/Week				Total Credits	Evaluation Scheme		Total
				L	P	T	Total		Sessional	ES E	
	M.Sc. BT 301	Microbial, Industrial and Environmental Biotechnology	Core Course	4	0	0	4	4	20	10	30
	M.Sc. BT 302	Animal Biotechnology	Core Course	4	0	0	4	4	20	10	30
	M.Sc. BT 303	Immunology	Core Course	4	0	0	4	4	20	10	30
	M.Sc. BT 304	Genomics & Proteomics	Core Course	4	0	0	4	4	20	10	30
	M.Sc. BT 351	Practical III (based on M.Sc. BT 301, M.Sc. BT 302, M.Sc. BT 303 M.Sc. BT 304)	Practical	0	4	0	4	4	20	10	30
Total				16	4	0	20	20	100	50	150
Semester IV	Course Code	Course Name	Course Type	Research Load/Week				Total Credits	Evaluation Scheme		Total
				L	P	T	Total	Dissertation	Viva-Voice and Presentation		
	M.Sc. BT 451	Project	Core Course	0	4	0	20	20	400	100	500
Total				0	4	0	20	20	400	100	500

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List of all courses under different categories for M.Sc. Biotech

Course Type	Course Code	Course Name
Core Course	M.Sc. BT 101	Principles of Genetics
Core Course	M.Sc. BT 102	Cell and Molecular Biology
Core Course	M.Sc. BT 103	Biostatistics and Bioinformatics
Core Course	M.Sc. BT 104	Tools and Techniques of Biotechnology
Core Course	M.Sc. BT 201	Fundamentals of Biochemistry & Biophysics
Core Course	M.Sc. BT 202	Genetic Resources and IPR
Core Course	M.Sc. BT 203	Plant Biotechnology
Core Course	M.Sc. BT 204	Genetic Engineering
Core Course	M.Sc. BT 301	Microbial, Industrial and Environmental Biotechnology
Core Course	M.Sc. BT 302	Animal Biotechnology
Core Course	M.Sc. BT 303	Immunology
Core Course	M.Sc. BT 304	Genomics & Proteomics

M.Sc. (Botany) Study & Evaluation Scheme

	Course Code	Course Name	Course Type	Teaching load/week				Credits	Evaluation Scheme					
				L	T	P	Total		Sessional Exams			ESE	Total	
									CT	AT	Total			
Semester - I	MSC-BOT-101	Diversity of Algae, Lichens and Bryophytes	Core Course	4	0	0	4	4	20	10	30	70	100	
	MSC-BOT-102	Microbiology and Plant Pathology	Core Course	4	0	0	4	4	20	10	30	70	100	
	MSC-BOT-103	Cell and Molecular Biology	Core Course	4	0	0	4	4	20	10	30	70	100	
	MSC-BOT-104	Biodiversity of Pteridophytes, Gymnosperms and Palaeobotany	Core Course	4	0	0	4	4	20	10	30	70	100	
	MSC-BOT-151	Practical	Core Course	0	0	4	4	4	20	10	30	70	100	
		Total			16	0	4	20	20	100	50	150	350	500
Semester - II	MSC-BOT-201	Taxonomy of Angiosperms and Economic Botany	Core Course	4	0	0	4	4	20	10	30	70	100	
	MSC-BOT-202	Anatomy and Reproduction in Angiosperms	Core Course	4	0	0	4	4	20	10	30	70	100	
	MSC-BOT-203	Genetics and Plant Breeding	Core Course	4	0	0	4	4	20	10	30	70	100	
	MSC-BOT-204	Plant Ecology and Phytogeography	Core Course	4	0	0	4	4	20	10	30	70	100	

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	MSC-BOT-251	Practical	Core Course	0	0	4	4	4	20	10	30	70	100
		Total		16	0	4	20	20	100	50	150	350	500
Semester- III	MSC-BOT-301	Plant Physiology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-BOT-302	Biochemistry	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-BOT-303	Industrial Microbiology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-BOT-304	Genetic Engineering and Genetic Resources	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-BOT-351	Practical	Core Course	0	0	4	4	4	20	10	30	70	100
		Total		16	0	4	20	20	100	50	150	350	500
Semester- IV	MSC-BOT-401	Instrumentation and Bio-analytical Techniques	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-BOT-402	Bioinformatics, Biostatistics and Computer	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-BOT-403A/B/C	Select Any One : (A) Advance Microbiology (B) Advance Plant Pathology (C) Plant Biotechnology	Elective Paper	4	0	0	4	4	20	10	30	70	100
	MSC-BOT-451	Dissertation	Project					8				200	200
	Total		12	0	0	12	20	60	30	90	410	500	

Note: The dissertation shall carry 200 marks including 50 marks of viva-voce.

List of all courses under different categories for M.Sc. Botany

Course Type	Course Code	Course Name
Core Course	MSC-BOT-101	Diversity of Algae, Lichens and Bryophytes
	MSC-BOT-102	Microbiology and Plant Pathology
	MSC-BOT-103	Cell and Molecular Biology
	MSC-BOT-104	Biodiversity of Pteridophytes, Gymnosperms and Palaeobotany
	MSC-BOT-151	Practical
	MSC-BOT-201	Taxonomy of Angiosperms and Economic Botany
	MSC-BOT-202	Anatomy and Reproduction in Angiosperms
	MSC-BOT-203	Genetics and Plant Breeding
	MSC-BOT-204	Plant Ecology and Phytogeography
	MSC-BOT-251	Practical
	MSC-BOT-301	Plant Physiology
	MSC-BOT-302	Biochemistry
	MSC-BOT-303	Industrial Microbiology
	MSC-BOT-304	Genetic Engineering and Genetic Resources
	MSC-BOT-351	Practical
	Elective Paper	MSC-BOT-401
MSC-BOT-402		Bioinformatics, Biostatistics and Computer
	MSC-BOT-403A/B/C	Select Any One : (A) Advance Microbiology (B) Advance Plant Pathology (C) Plant Biotechnology
Dissertation	MSC-BOT-451	Dissertation

M.Sc. PHYSICS

Study & Evaluation Scheme

Year – I

SEMESTER I	Course Code	Course Name	Course Type	Teaching Load per week				Credit	Evaluation Scheme				
				L	T	P	Total		Sessional			End-Semester Examination (ESE)	Total
									CT	TA	Total		
M.Sc-PHY-101	MATHEMATICAL PHYSICS	Core Course	4	-	-	4	4	20	10	30	70	100	
M.Sc-PHY-102	CLASSICAL MECHANICS	Core Course	4	-	-	4	4	20	10	30	70	100	
M.Sc-PHY-103	QUANTUM MECHANICS I	Core Course	4	-	-	4	4	20	10	30	70	100	
M.Sc-PHY-104	ELECTRONIC DEVICES	Core Course	4	-	-	4	4	20	10	30	70	100	
M.Sc-PHY-151	PHYSICS PRACTICAL	Practical	-	-	6	6	6	40	20	60	140	200	
Total						22	22			180	420	600	

SEMESTER R II	Course Code	Course Name	Course Type	Teaching Load per week				Credit	Evaluation Scheme				
				L	T	P	Total		Sessional			End-Semester Examination (ESE)	Total
									CT	TA	Total		
M.Sc-PHY-201	QUANTUM MECHANICS II	Core Course	4	-	-	4	4	20	10	30	70	100	
M.Sc-PHY-202	STATISTICAL MECHANICS	Core Course	4	-	-	4	4	20	10	30	70	100	
M.Sc-PHY-203	ATOMIC & MOLECULAR PHYSICS	Core Course	4	-	-	4	4	20	10	30	70	100	

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M.Sc-PHY-204	ELECTRODYNAMICS & PLASMA PHYSICS	Core Course	4	-	-	4	4	20	10	30	70	100
M.Sc-PHY-251	PHYSICS PRACTICAL	Practical	-	-	6	6	6	40	20	60	140	200
Total						22	22			180	420	600

Year – II

SEMESTER III	Course Code	Course Name	Course Type	Teaching Load per week				Credit	Evaluation Scheme					Total
				L	T	P	Total		Sessional			End-Semester Examination (ESE)		
									CT	TA	Total			
M.Sc-PHY-301	CONDENSED MATTER PHYSICS	Core Course	4	-	-	4	4	20	10	30	70	100		
M.Sc-PHY-302	SPECIAL PAPER I ELECTRONICS	Core Course	4	-	-	4	4	20	10	30	70	100		
M.Sc-PHY-303	SPECIAL PAPER II ELECTRONICS	Core Course	4	-	-	4	4	20	10	30	70	100		
M.Sc-PHY-304	NUCLEAR AND PARTICLE PHYSICS	Core Course	4	-	-	4	4	20	10	30	70	100		
M.Sc-PHY-351	PHYSICS PRACTICAL	Practical	-	-	6	6	6	40	20	60	140	200		
Total						22	22			180	420	600		

SEMESTER IV	Course Code	Course Name	Course Type	Teaching Load per week				Credit	Evaluation Scheme					Total
				L	T	P	Total		Sessional			End-Semester Examination (ESE)		
									CT	TA	Total			

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M.Sc-PHY-401	PHYSICS OF NANOMATERIALS	Core Course	4	-	-	4	4	20	10	30	70	100
M.Sc-PHY-402	SPECIAL PAPER III ELECTRONICS	Core Course	4	-	-	4	4	20	10	30	70	100
M.Sc-PHY-403	SPECIAL PAPER IV ELECTRONICS	Core Course	4	-	-	4	4	20	10	30	70	100
M.Sc-PHY-404	COMPUTATIONAL METHODS & PROGRAMMING	Core Course	4	-	-	4	4	20	10	30	70	100
M.Sc-PHY-451	PHYSICS PRACTICAL	Practical	-	-	6	6	6	40	20	60	140	200
	Total					22	22			180	420	600

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List of course for M.Sc. Physics

Course Type	Course Code	Course Name
Core Course	M.Sc-PHY-101	MATHEMATICAL PHYSICS
	M.Sc-PHY-102	CLASSICAL MECHANICS
	M.Sc-PHY-103	QUANTUM MECHANICS I
	M.Sc-PHY-104	ELECTRONIC DEVICES
	M.Sc-PHY-151	PHYSICS PRACTICAL
	M.Sc-PHY-201	QUANTUM MECHANICS II
	M.Sc-PHY-202	STATISTICAL MECHANICS
	M.Sc-PHY-203	ATOMIC & MOLECULAR PHYSICS
	M.Sc-PHY-204	ELECTRODYNAMICS& PLASMA PHYSICS
	M.Sc-PHY-251	PHYSICS PRACTICAL
	M.Sc-PHY-301	CONDENSED MATTER PHYSICS
	M.Sc-PHY-302	SPECIAL PAPER I ELECTRONICS
	M.Sc-PHY-303	SPECIAL PAPER II ELECTRONICS
	M.Sc-PHY-304	NUCLEAR AND PARTICLE PHYSICS
	M.Sc-PHY-351	PHYSICS PRACTICAL
	M.Sc-PHY-401	PHYSICS OF NANOMATERIALS
	M.Sc-PHY-402	SPECIAL PAPER III ELECTRONICS
	M.Sc-PHY-403	SPECIAL PAPER IV ELECTRONICS
	M.Sc-PHY-404	COMPUTATIONAL METHODS & PROGRAMMING
	M.Sc-PHY-451	PHYSICS PRACTICAL

for attached

M.Sc. Chemistry Study & Evaluation Scheme



	Course code	Course Name	Course Type	Teaching load/ Week				Credits	Evaluation scheme				
				L	T	P	Total		Sessional			ESE	Total
									CT	AT	Total		
Semester I	M.Sc-Chem 101	Inorganic chemistry I	Core Course 1	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 102	Organic chemistry I	Core Course 2	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 103	Physical chemistry I	Core Course 2	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 104	Biology for chemist	Qualifying course	2	0	0	-	2	10	05	15	35	50
	M.Sc-Chem 105	Computer for chemist	Core Course 2	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 151	Lab I	Practical	0	0	6	6	6	40	20	60	140	200
Total							24	22	140	100	240	460	600
Semester II	M.Sc-Chem 201	Inorganic chemistry II	Core Course 1	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 202	Organic chemistry II	Core Course 2	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 203	Physical chemistry II	Core Course 3	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 204	Group theory Spectroscopy, Diffraction methods and Solid state	Core Course 4	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 251	Lab II	Practical	0	0	0	6	6	40	20	60	140	200
	Total							22	22	140	100	240	460
Semester III	M.Sc-Chem 301	Photochemistry	Core Course 1	4	0	0	4	4	20	10	30	70	100

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	M.Sc-Chem 302	Spectroscopy	Core Course 2	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 303	Analytical chemistry	Core Course 3	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 304/ M.Sc- Chem 305/ M.Sc-Chem 306/	Elective: Any one from the following: 1.Bioinorganic chemistry 2.Bioorganic chemistry 3.Biophysical chemistry	Elective 1	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 351	Lab III	Practical	0	0	0	6	6	40	20	60	140	200
Total							22	22	140	100	240	460	600
Semester IV													
	M.Sc-Chem 401	Environmental chemistry	Core Course 1	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 402	Organic Synthesis	Core Course 2	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 403	Polymers	Core Course 3	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 404/ M.Sc- Chem 405/	Elective: Any one from the following: 1.Chemistry of Natural Products 2.Medicinal chemistry	Elective 2	4	0	0	4	4	20	10	30	70	100
	M.Sc-Chem 451	Lab IV	Practical	0	0	0	6	6	40	20	60	140	200
Total							22	22	140	100	240	460	600

List of all Courses under different categories for M.Sc. Chemistry

Course Type	Course Code	Course Name
Core Course	M.Sc-Chem 101	Inorganic chemistry I
	M.Sc-Chem 102	Organic chemistry I
	M.Sc-Chem 103	Physical chemistry I
	M.Sc-Chem 105	Computer for chemist
	M.Sc-Chem 151	Lab I
	M.Sc-Chem 201	Inorganic chemistry II
	M.Sc-Chem 202	Organic chemistry II
	M.Sc-Chem 203	Physical chemistry II
	M.Sc-Chem 204	Group theory Spectroscopy, Diffraction methods and Solid state
	M.Sc-Chem 251	Lab II
	M.Sc-Chem 301	Photochemistry
	M.Sc-Chem 302	Spectroscopy
	M.Sc-Chem 303	Analytical chemistry
	M.Sc-Chem 351	Lab III
	M.Sc-Chem 401	Environmental chemistry
	M.Sc-Chem 402	Organic Synthesis
	M.Sc-Chem 403	Polymers
	M.Sc-Chem 451	Lab IV
Qualifying course	M.Sc-Chem 104	Biology for chemist
Elective courses	M.Sc-Chem 304	Bioinorganic chemistry
	M.Sc-Chem 305	Bioorganic chemistry
	M.Sc-Chem 306	Biophysical chemistry
	M.Sc-Chem 404	Chemistry of Natural Products
	M.Sc-Chem 405	Medicinal chemistry

M.Sc. (Mathematics) Study and Evaluation Scheme

	Course Code	Course Name	Course Type	Teaching Load per week				Credit	Evaluation Scheme				Total
				L	T	P	Total		Sessional			ESE	
									CT	TA	Total		
Semester -I	MSc-Math-101	Algebra	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-102	Real Analysis	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-103	Differential Equations	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-104	Mathematical Methods	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-151	Viva Voice/Lab I			4	0	0	4	6	60			140
Total				20	4	0	24	22	180			420	600
Semester -II	MSc-Math-201	Metric Spaces	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-202	Complex Analysis	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-203	Mathematical Statistics	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-204	Operations Research	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-251	Viva Voice/Lab II			4	0	0	4	6	60			140
Total				20	4	0	24	22	180			24	600
Semester -III	MSc-Math-301	Topology	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-302	Measure and Integration	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-303	Numerical Analysis	Core Course	4	1	0	5	4	20	10	30	70	100
	MSc-Math-304	Programming in C And Data Structure	Elective Course (Any ONE)	4	1	0	5	4	20	10	30	70	100
	MSc-Math-305	Advanced Discrete Mathematics											
	MSc-Math-306	Differential Geometry											
	MSc-Math-351	Viva Voice/Project I			4	0	0	4	6	60			140

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Total				20	4	0	24	22	180			420	600	
Semester-IV	MSc-Math-401	Functional Analysis	Core Course	4	1	0	5	4	20	10	30	70	100	
	MSc-Math-402	Number theory	Core Course	4	1	0	5	4	20	10	30	70	100	
	MSc-Math-403	Fuzzy Sets and its Application	Core Course	4	1	0	5	4	20	10	30	70	100	
	MSc-Math-404	Mathematical Cryptography	Elective Course (Any ONE)	4	1	0	5	4	20	10	30	70	100	
	MSc-Math-405	Mathematical Programming												
	MSc-Math-406	Fluid Dynamics												
	MSc-Math-451	Viva Voice/Project II		4	0	0	4	6	60			140	200	
Total				20	4	0	24	22	180			420	600	
							G. Total	92	88	720			1680	2400

List of All courses under different categories for M.Sc. Mathematics

Course Type	Course Code	Course Name	
Core Course	MSc-Math-101	Algebra	
	MSc-Math-102	Real Analysis	
	MSc-Math-103	Differential Equations	
	MSc-Math-104	Mathematical Methods	
	MSc-Math-151	Viva Voice/Lab I	
	MSc-Math-201	Metric Spaces	
	MSc-Math-202	Complex Analysis	
	MSc-Math-203	Mathematical Statistics	
	MSc-Math-204	Operations Research	
	MSc-Math-251	Viva Voice/Lab II	
	MSc-Math-301	Topology	
	MSc-Math-302	Measure and Integration	
	MSc-Math-303	Numerical Analysis	
	MSc-Math-351	Viva Voice/Project I	
	MSc-Math-401	Functional Analysis	
	MSc-Math-402	Number theory	
	MSc-Math-403	Fuzzy Sets and its Application	
	MSc-Math-451	Viva Voice/Project II	
	Elective Course	MSc-Math-304	Programming in C And Data Structure
		MSc-Math-305	Advanced Discrete Mathematics
MSc-Math-306		Differential Geometry	
MSc-Math-404		Mathematical Cryptography	
MSc-Math-405		Mathematical Programming	
MSc-Math-406		Fluid Dynamics	

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Master of Science (Zoology)

	Course Code	Course Name	Course Type	Teaching load/week				Credits	Evaluation Scheme				
				L	T	P	Total		Sessional Exams			ESE	Total
									CT	AT	Total		
Semester-I	MSC-ZOO-101	Animal Taxonomy and Economic Zoology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-102	Evolutionary Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-103	Nonchordata	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-104	Cell and Molecular Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-151	Practical	Core Course	0	0	4	4	4	20	10	30	70	100
		Total			16		4	20	20	100	50	150	350
Semester-II	MSC-ZOO-201	Biostatistics and Bioinformatics	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-202	Genetics	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-203	Mammalian Physiology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-204	Biochemistry	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-251	Practical	Core Course	0	0	4	4	4	20	10	30	70	100
		Total			16		4	20	20	100	50	150	350
Semester-III	MSC-ZOO-301	Chordata	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-302	Development Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-303	Environmental Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-304	Animal Behaviour	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-351	Practical	Core Course	0	0	4	4	4	20	10	30	70	100
		Total			16		4	20	20	100	50	150	350
Semester-IV	MSC-ZOO-401	Biology of Parasite-I	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-402	Biology of Parasite-II	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-403	Physiology, Biochemistry, Immunology of Parasites	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-ZOO-451	Dissertation	Project					8				200	200
		Total			12			12	20	60	30	90	410

Note:

(Dr. M. Faisal)

1. The topic of dissertation will be allotted in the III Semester by the HOD.
2. The dissertation shall carry 200 marks including viva-voce of 50 marks.
3. The dissertation shall be examined by two examiners (one internal from the department and one external). The examiners will be appointed by the Vice-Chancellor on the recommendation of Dean, Faculty of Science.
4. The dissertation shall be submitted with in the month of March or when notify by the HOD.

List of all courses under different categories for M.Sc. Zoology

Course Type	Course Code	Course Name
Core Course	MSC-ZOO-101	Animal Taxonomy and Economic Zoology
	MSC-ZOO-102	Evolutionary Biology
	MSC-ZOO-103	Nonchordata
	MSC-ZOO-104	Cell and Molecular Biology
	MSC-ZOO-151	Practical
	MSC-ZOO-201	Biostatistics and Bioinformatics
	MSC-ZOO-202	Genetics
	MSC-ZOO-203	Mammalian Physiology
	MSC-ZOO-204	Biochemistry
	MSC-ZOO-251	Practical
	MSC-ZOO-301	Chordata
	MSC-ZOO-302	Development Biology
	MSC-ZOO-303	Environmental Biology
	MSC-ZOO-304	Animal Behaviour
	MSC-ZOO-351	Practical
	MSC-ZOO-401	Biology of Parasite-I
MSC-ZOO-402	Biology of Parasite-II	
MSC-ZOO-403	Physiology, Biochemistry, Immunology of Parasites	
Project	MSC-ZOO-451	Dissertation

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Master of Science

Microbiology

	Course Code	Course Name	Course Type	Teaching load/week				Credits	Evaluation Scheme				
				L	T	P	Total		Sessional Exams			ESE	Total
									CT	AT	Total		
Semester- I	MSc-MB-101	Microbial Diversity and Microbial Cell Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB-102	Microbial Growth, Physiology and Metabolism	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB-103	Microbial Techniques	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB-104	Biostatistics, Computer Applications and Bioinformatics	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB-151	PRACTICAL I: (Based on MSc-MB-101 and 102)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSc-MB-152	PRACTICAL II: (Based on MSc-MB-103 and 104)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSc-MB-153	SEMINAR-I	Qualifying Course	0	0	1	1	0	0	0	50	0	50
		TOTAL			16	0	9	25	24	120	60	180	420
Semester- II	MSc-MB -201	Bacteriology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB -202	Virology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB -203	Microbial Immunology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB -204	Microbial Genetics and Molecular Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB -251	Practical III: (Based on MSc-MB-201 and 202)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSc-MB -252	Practical IV: (Based on MSc-MB-203 and 204)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSc-MB -253	Seminar-II	Qualifying Course	0	0	1	1	0	0	0	50	0	50
		TOTAL			16	0	9	25	24	120	60	180	420
Semester- III	MSc-MB -301	Introduction to Nano-materials	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB -302	Entrepreneurial Microbiology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSc-MB -303A	Industrial Microbiology	Elective Course (Select Any One)	4	0	0	4	4	20	10	30	70	100
	MSc-MB -303B	Environmental Microbiology											

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MSc-MB -303C	Medical Microbiology											
MSc-MB -304A	Microbial Toxicology	Elective Course (Select Any One)	4	0	0	4	4	20	10	30	70	100
MSc-MB -304B	Agriculture Microbiology											
MSc-MB -304C	Plant Pathology											
MSc-MB -351	Practical V: (Based on MSc-MB-301 and 302)	Core Course	0	0	4	4	4	20	10	30	70	100
MSc-MB -352	Practical VI: (Based on MSc-MB-303A/303B/303C and MSc-MB-304A/304B/304C)	Elective Course	0	0	4	4	4	20	10	30	70	100
MSc-MB -353	Seminar-III	Qualifying Course	1	0	0	1	0	0	0	50	0	50
	Total		16	0	9	25	24	120	60	180	420	600
MSc-MB-451	Dissertation/ Project	Core Course	0	20	0	20	20	0	0	100	300	400
MSc-MB-452	Viva-Voce	Qualifying Course	0	0	0	20	20	0	0	25	75	100
	TOTAL		0	20	0	20	20	0	0	125	370	500

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Master of Science

Environmental Science

	Course Code	Course Name	Course Type	Teaching load/week				Credits	Evaluation Scheme				
				L	T	P	Total		Sessional Exams			ESE	Total
									CT	AT	Total		
Semester-I	MSC- EVS -101	Ecology and Biodiversity	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -102	Environmental Geosciences	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -103	Instrumental Techniques For Environmental Analysis	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -104	Biostatistics, Computer Applications and Bioinformatics	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-EVS-151	Practical of Ecology	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC-EVS-152	Monitoring and analysis of Air and Noise	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC- EVS -153	SEMINAR	Qualifying Course	0	0	1	1	0	0	0	50	0	50
		TOTAL			16	0	9	25	24	120	60	180	420
Semester- II	MSC- EVS -201	Sustainable Environmental Development and Disaster Management	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -202	Environmental Pollution and Control technologies	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -203	Industrial Water and Wastewater Treatment	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -204	Solid Waste Handling and Management	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -251	Soil and Solid Waste Analysis	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC- EVS -252	Water Analysis	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC- EVS -253	Seminar	Qualifying Course	0	0	1	1	0	0	0	50	0	50
		TOTAL			16	0	9	25	24	120	60	180	420
Semester- III	MSC- EVS -301	Environmental modelling and Biostatistics	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -302	Entrepreneurial Microbiology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -303	Environment, Health and Safety	Elective Course (Select Any One)	4	0	0	4	4	20	10	30	70	100
	MSC- EVS -303	Environmental Management Systems, Environmental Impact											

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	Assessment and Environmental Audit												
MSC- EVS -304	Environmental Issues and Legislation												
MSC- EVS -305	Industrial Safety and Risk Management	Elective Course (Select Any One)	4	0	0	4	4	20	10	30	70	100	
MSC- EVS -306	Environmental Awareness, Policies and Laws												
MSC- EVS -307	Environmental Biotechnology												
MSC- EVS -351	Practical on Environmental Management System, Auditing, Safety and Risk Analysis	Core Course	0	0	4	4	4	20	10	30	70	100	
MSC- EVS -352	Case studies of pollution episodes/EIA report preparation	Elective Course	0	0	4	4	4	20	10	30	70	100	
MSC- EVS -353	Seminar	Qualifying Course	0	0	1	1	0	0	0	50	0	50	
	Total		16	0	9	25	24	120	60	180	420	600	
Semester- IV	MSC- EVS -452	Dissertation/ Project	Core Course	0	0	20	20	0	0	100	300	400	
	MSC- EVS -453	Viva voce	Qualifying Course	0	0	0	0	0	0	25	75	100	
		TOTAL		00	0	20	0	20	00	00	125	375	500

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Master of Science in Microbiology

	Course Code	Course Name	Course Type	Teaching load/week				Credits	Evaluation Scheme				
				L	T	P	Total		Sessional Exams			ESE	Total
									CT	AT	Total		
Semester- I	MSC-MB-101	Microbial Diversity and Microbial Cell Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB-102	Microbial Growth, Physiology and Metabolism	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB-103	Microbial Techniques	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB-104	Biostatistics, Computer Applications and Bioinformatics	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB-151	PRACTICAL I: (BASED ON MSC-MB-101 AND 102)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC-MB-152	PRACTICAL II: (BASED ON MSC-MB-103 AND 104)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC-MB-153	SEMINAR	Qualifying Course	1	0	0	1	0	0	0	50	0	50
		TOTAL		16	0	8	24	24	120	60	180	420	600
Semester- II	MSC-MB -201	Bacteriology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB -202	Virology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB -203	Microbial Immunology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB -204	Microbial Genetics and Molecular Biology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB -251	Practical III: (Based on MSC-MB-201 & 202)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC-MB -252	Practical IV: (Based on MSC-MB-203 & 204)	Core Course	0	0	4	4	4	20	10	30	70	100

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	MSC-MB -253	Seminar	Qualifyi ng Course	1	0	0	1	0	0	0	50	0	50
		TOTAL		16	0	8	24	24	120	60	180	420	600
Semester- III	MSC-MB -301	Introduction to Nano- materials	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB -302	Entrepreneurial Microbiology	Core Course	4	0	0	4	4	20	10	30	70	100
	MSC-MB -303	Industrial Microbiology	Elective Course (Select Any One)	4	0	0	4	4	20	10	30	70	100
	MSC-MB -304	Environmental Microbiology											
	MSC-MB -305	Medical Microbiology											
	MSC-MB -306	Microbial Toxicology	Elective Course (Select Any One)	4	0	0	4	4	20	10	30	70	100
	MSC-MB -307	Agriculture Microbiology											
	MSC-MB -308	Plant Pathology											
	MSC-MB -351	Practical V: (Based on MSC-MB- 301&302)	Core Course	0	0	4	4	4	20	10	30	70	100
	MSC-MB -352	Practical VI: (Based on MSC-MB- 303/ 304/305 & MSC-MB- 306/307/308)	Course	0	0	4	4	4	20	10	30	70	100
	MSC-MB -353	Seminar	Qualifyi ng Course	1	0	0	1	0	0	0	50	0	50
	Total			16	0	8	24	24	120	60	180	420	600

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Semester IV	Course Code	Course Name	Course Type	Research Load/Week				Total Credits	Evaluation Scheme		Subject Total
				L	P	T	Total		Dissertation	Viva-Voice and Presentation	
	M.Sc. MB 451	Project	Core Course	0	20	0	20	20	400	100	500
	M.Sc. MB 452	Seminar	Qualifying	0	1	0	1	1	100	0	100
Total				0	20	0	21	20	500	100	600

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