



Dada Ramchand Bakhru Sindhu Mahavidyalaya, Nagpur

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RASHTRASANT TUKDOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

Direction No. 40 of 2016

**DIRECTION GOVERNING THE EXAMINATION LEADING TO THE DEGREE OF
MASTER OF COMMERCE (CREDIT BASE SEMESTER PATTERN) FACULTY OF
COMMERCE**

(Issued under section 14(8) of the Maharashtra University Act 1994)

WHEREAS, Maharashtra University act No. xxxv of 1994 has come into force with effect from 22nd July 1994 and has been amended from time to time,

AND

WHEREAS, the University Grants Commission, New Delhi vide letter no. D.O. No. F-2/2008/(XI Plan), Dated 31st January 2008 regarding new initiatives under the XI Plan-Academic reforms in the University has suggested for improving quality of higher education and to initiate the Academic reform at the earliest.

AND

WHEREAS, faculty of commerce act its meeting held on 14.2.2012 has decided to update the existing syllabus for award of the degree of Master of Commerce commensurate with the curricula existing in the various universities in India and with a view to include the latest trends in the commerce stream as well as to design it to suit to the needs of the industries and corporate houses,

AND

WHEREAS, University Grants Commission, New Delhi has prescribed the Model Curriculum for award of the Postgraduate degree in the Faculty of commerce and directed to implement the same from the academic session 2012-2013,

AND

WHEREAS, Chairman of all the Board of Studies in the Faculty of Commerce in their meeting held on 24.2.2016 prepared the Scheme of Credit Based Semester pattern for conduct of the M.Com. Examination,

AND

WHEREAS, Board of Studies viz. (1) Business Administration and Business Management, (2) Commerce, (3) Accounts and Statistics, (4) Business Economics and (5) Ad-hoc Board in Computer Application in its meetings held on 24.2.2016 respectively updated the existing syllabi and recommended some modifications in the scheme of examination for post graduate courses,




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RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY,
NAGPUR

NOTIFICATION

No.

Date : 12th June, 2014

Acad/171.

To,

The
Principal
of all the affiliated Commerce
Colleges of Rashtrasant
Tukadoji Maharaj Nagpur
University, Nagpur

Subject:- Direction No. 15 of 2014.

Sir/Madam,

I am forwarding herewith a copy of the Direction No. 15 of 2014 issued by the Hon'ble Vice- Chancellor under Section 14(8) of Maharashtra Universities Act, 1994 "Direction Governing The Examinations Leading To The Degree of Bachelor of Business Administration (BBA) (Credit Based Semester Pattern) In The Faculty Of Commerce" along with the scheme to be implemented from Academic Session 2014-2015.

You are requested to kindly bring it to the notice of all teachers and students of your college.

Thanking you,

Yours faithfully,

Encl: As above.

Sd/-
**(Dr. A.V.
Gomashe)**
Registrar,
Rashtrasant Tukadoji
Maharaj Nagpur
University, Nagpur.

No. Acad/171.

Nagpur dated the 12th June, 2014

Copy for information and necessary action along with the Direction and Scheme as mentioned above to :-

- 1) The Dean, Faculty of Commerce, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
- 2) The Chairman, All Board of Studies in Commerce Faculty, R.T.M. Nagpur University.
- 3) The Controller of Examinations, Rashtrasant Tukadoji Maharaj Nagpur University.




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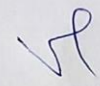
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Semester-V

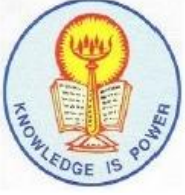
Course Code	Subjects	Internal /Uni. Examination	Total Hours	Marks			Credits
				Semester End Exam.	Internal Assessment	Total Marks	
ST1	Core Group 1. Financial Accounting-IV	Uni.	60	80	20	100	4
ST2	2. Cost Accounting	Uni.	60	80	20	100	4
ST3	3. Management Process	Uni.	60	80	20	100	4
ST4	4. Indian Economics- I	Uni.	60	80	20	100	4
ST5	Elective Group -I ST5.1 Marketing Management OR ST5.2 Computerized Accounting	Uni.	60	80	20	100	4
ST6	Foundation Group- I ST6.1 Business Finance -I OR ST6.2 Auditing	Uni.	60	80	20	100	4
Total			360	480	120	600	24

14


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Semester-VI

Course Code	Subjects	University Examination	Total Internal /Hours	Marks			Credits
				Semester End Exam.	Internal Assessment	Total Marks	
6T1	Core Group 1. Financial Accounting -V	Uni.	60	80	20	100	4
6T2	2. Management Accounting	Uni.	60	80	20	100	4
6T3	3. Advanced Statistics	Uni.	60	80	20	100	4
6T4	4. Indian Economics - II	Uni.	60	80	20	100	4
6T5	Elective Group-II 6T5.1 Human Resource Management OR 6T5.2- Indirect Tax	Uni.	60	80	20	100	4
6T6	Foundation Group- II 6T6.1 Business Finance - II OR 6T6.2 Industrial Law	Uni.	60	80	20	100	4
Total			360	480	120	600	24


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SYLLABUS for M. Sc. CHEMISTRY Choice Based Credit System (Semester Pattern)

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Effective from 2018-2019

Candidates opting for this course are advised to go through the direction relating to the course “DIRECTION RELATING TO THE EXAMINATION LEADING TO THE DEGREE OF MASTER OF SCIENCE, SEMESTER PATTERN (CHOICE BASED CREDIT SYSTEM) AND DEGREE OF MASTER OF SCIENCE AND TECHNOLOGY (APPLIED GEOLOGY). SEMESTER PATTERN, (CHOICE BASED CREDIT SYSTEM) (FACULTY OF SCIENCE & TECHNOLOGY)” which is available on R. T. M. Nagpur University website.

The direction will provide details on admission criteria, rules for ATKT, scheme of examination, absorption scheme for CBS students into CBCS pattern, elective papers, foundation course papers, subject centric papers, coding pattern, pattern of question papers, practicals, distribution of marks, seminars, project work, internal assessment, calculation of SGPA and CGPA, etc.




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Scheme of teaching and examination under semester pattern Choice Based Credit System (CBCS) for M.Sc. Program in Chemistry

M. Sc. Chemistry Semester I											
Code	Theory / Practical	Teaching scheme (Hours / Week)			Credits	Examination Scheme					
		Th	Pract	Total		Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
							External Marks	Internal Ass		Th	Pract
(1T1)	Paper 1: Inorganic Chemistry	4	-	4	4	3	80	20	100	40	
(1T2)	Paper 2: Organic Chemistry	4	-	4	4	3	80	20	100	40	
(1T3)	Paper 3: Physical Chemistry	4	-	4	4	3	80	20	100	40	
(1T4)	Paper 4: Analytical Chemistry	4	-	4	4	3	80	20	100	40	
Pract. (1P1)	Practical 1: Inorganic Chemistry	-	8	8	4	3-8*	100**	-	100		40
Pract. (1P3)	Practical 2: Physical Chemistry	-	8	8	4	3-8*	100**	-	100		40
Seminar 1 (1S1)	Seminar 1	2	-	2	1			25	25	10	
TOTAL		18	16	34	25		520	105	625	170	80




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M. Sc. Chemistry Semester II											
Code	Theory / Practical	Teaching scheme (Hours / Week)			Credits	Examination Scheme					
		Th	Pract	Total		Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
							External Marks	Internal Ass		Th	Pract
(2T1)	Paper 5: Inorganic Chemistry	4	-	4	4	3	80	20	100	40	
(2T2)	Paper 6: Organic Chemistry	4	-	4	4	3	80	20	100	40	
(2T3)	Paper 7: Physical Chemistry	4	-	4	4	3	80	20	100	40	
(2T4)	Paper 8: Analytical Chemistry	4	-	4	4	3	80	20	100	40	
Pract. (2P2)	Practical 3: Organic Chemistry	-	8	8	4	3-8*	100**	-	100		40
Pract. (2P4)	Practical 4: Analytical Chemistry	-	8	8	4	3-8*	100**	-	100		40
Seminar 2 (2S1)	Seminar 2	2	-	2	1			25	25	10	
TOTAL		18	16	34	25		520	105	625	170	80




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M. Sc. Chemistry Semester III												
Code	Theory / Practical	Teaching scheme (Hours / Week)			Credits	Examination Scheme						
		Th	Pract	Total		Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks		
							External Marks	Internal Ass		Th	Pract	
(3T1)	Paper 9: Special – I (Inorganic/ Organic / Physical / Analytical) Chemistry	4	-	4	4	3	80	20	100	40		
(3T2)	Paper 10: Special – II (Inorganic/ Organic / Physical / Analytical) Chemistry	4	-	4	4	3	80	20	100	40		
Elective 1 (3T3)	Paper 11: A) Nuclear Chemistry I (3T3A) ORB) Environmental Chemistry I (3T3B) ORC) Polymer Chemistry I(3T3C) ORD) Medicinal Chemisrty I(3T3D)	4	-	4	4	3	80	20	100	40		
Foundatio n Course 1 / Core Subject Centric 1 (3T4)	Paper 12: Applied Analytical Chemistry-I / Spectroscopy I	4	-	4	4	3	80	20	100	40		
Pract. Core 9 & 10 (3P1)	Practical 5: Special (Inorganic/ Organic / Physical / Analytical) Chemistry	-	8	8	4	3-8*	100**	-	100		40	




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Pract. Core Elective 1 (3P3)	Practical 6: A) Nuclear Chemistry I ORB) Environmental Chemistry I ORC) Polymer Chemistry I ORD) Medicinal Chemistry I	-	8	8	4	3-8*	100**	-	100		40
Seminar 3 (3S1)	Seminar 3	2	-	2	1			25	25	10	
	TOTAL	18	16	34	25		520	105	625	170	80

M. Sc. Chemistry Semester IV

Code	Year / Part	Teaching scheme	Medium	Examination Scheme
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		(Hours / Week)				Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
		Th	Pract	Total			External Marks	Internal Ass		Th	Pract




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(4T2)	Paper 14: Special – II (Inorganic/ Organic / Physical / Analytical) Chemistry	4	-	4	4	3	80	20	100	40	
Elective 2 (4T3)	Paper 15: A) Nuclear Chemistry II ORB) Environmental Chemistry II ORC) Polymer Chemistry II ORD) Medicinal Chemistry II	4	-	4	4	3	80	20	100	40	
Foundati on Course 2 / Subject Centric 2 (4T4)	Paper 16: Applied Analytical Chemistry II / Spectroscopy II	4	-	4	4	3	80	20	100	40	
Pract. (4P1)	Practical 7: Special (Inorganic/ Organic / Physical / Analytical) Chemistry	-	8	8	4	3-8*	100**	-	100		40
Project (4PROJ1)	Project	-	8	8	4	3-8*	100**	-	100		40
Seminar 4 (4S1)	Seminar 4	2	-	2	1			25	25	10	
	TOTAL	18	16	34	25		520	105	625	170	80




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SYLLABUS for M. Sc. Zoology

Choice Based Credit System (Semester Pattern)

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
With effect from 2018-19

Candidates opting for this course are advised to go through the direction relating to the course "DIRECTION RELATING TO THE EXAMINATION LEADING TO THE DEGREE OF MASTER OF SCIENCE, SEMESTER PATTERN (CHOICE BASED CREDIT SYSTEM) AND DEGREE OF MASTER OF SCIENCE AND TECHNOLOGY (APPLIED GEOLOGY). SEMESTER PATTERN, (CHOICE BASED CREDIT SYSTEM) (FACULTY OF SCIENCE & TECHNOLOGY)" which is

available on R. T. M. Nagpur University website.

The direction will provide details on admission criteria, rules for ATKT, scheme of examination, absorption scheme for CBS students into CBCS pattern, elective papers, foundation course papers, subject centric papers, coding pattern, pattern of question papers, practicals, distribution of marks, seminars, project work, internal assessment, calculation of SGPA and CGPA, etc.

Syllabus for M. Sc. Zoology (Semester with credit based Pattern) w e f 2018-19 Academic session

Scheme of teaching and examination under semester pattern Choice Based Credit System (CBCS) for M.Sc. Program in Zoology

M. Sc. Zoology Semester I												
Code	Theory / Practical	Teaching scheme (Hours / Week)				Credits	Examination Scheme					
		Th	Pract	Total	Duration in		Max. Marks		Total Marks	Minimu mPassing Marks		
							Exte rnal	Inte rnal		Th	Prac	
Core 1	Paper 1T1: Structure and Function of Invertebrates	4	-	4	4	3	80	20	100	40		

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Core 2	Paper 1T₂ : General Physiology	4	-	4	4	3	80	20	100	40	
Core 3	Paper 1T₃ : Cell Biology and Genetics	4	-	4	4	3	80	20	100	40	
Core 4	Paper 1T₄ : Advanced Reproductive Biology	4	-	4	4	3	80	20	100	40	
Pract. Core 1 & 2	Practical 1P₁ : Based on theory Paper 1T₁& 1T₂	-	8	8	4	3- 8*	100* *	-	100		40
Pract. Core 3 &	Practical 1P₂ : Based on	-	8	8	4	3- 8*	100* *	-	100		40


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4	theory Paper 1T ₃ & 1T ₄										
Seminar 1	Seminar -1S ₁	2	-	2	1			25	25	10	
	TOTAL	18	16	34	25		520	105	625	170	80

M. Sc. Zoology Semester II											
Code	Theory / Practical	Teaching scheme (Hours / Week)				Credits	Examination Scheme				
		Th	Pract	Total	Duration in		Max. Marks		Total Marks	Minimum Passing Marks	
							External	Internal		Th	Pract
Core 5	Paper 2T ₁ : Structure and Function of Vertebrates	4	-	4	4	3	80	20	100	40	
Core 6	Paper 2T ₂ : Comparative Endocrinology	4	-	4	4	3	80	20	100	40	
Core 7	Paper 2T ₃ : Molecular Biology and Biotechnology	4	-	4	4	3	80	20	100	40	
Core 8	Paper 2T ₄ : Advanced Developmental Biology	4	-	4	4	3	80	20	100	40	
Pract. Core 5 & 6	Practical 2P ₁ : Based on theory Paper 2T ₁ & 2T ₂	-	8	8	4	3-8*	100*	-	100		40
Pract. Core 7 & 8	Practical 2P ₂ : Based on theory	-	8	8	4	3-8*	100*	-	100		40



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	Pape										
Seminar 2	Seminar -2S ₂	2	-	2	1			25	25	10	
	TOTAL	18	16	34	25		520	105	625	170	80

M. Sc. Zoology Semester III

Code	Theo ry / Pract	Teaching scheme (Hours / Week)				Credit	Examination Scheme			
		T	P	I	O		D	Max. Marks	T	O


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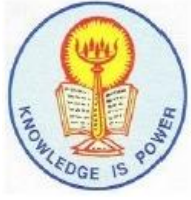
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										Passing Marks	
							External	Internal		Th	Pract
Core 9	Paper 3T ₁ : Parasitology and Immunology	4	-	4	4	3	80	20	100	40	
Core 10	Paper 3T ₂ : Special Group- Paper I • Entomology • Fish and Fisheries • Mammalian Reproductive Physiology (MRP) • Animal Physiology • Environmental Biology	4	-	4	4	3	80	20	100	40	
Core 11	Special Group- Paper 3T₃ • Entomology • Fish and Fisheries • Mammalian Reproductive Physiology (MRP) • Animal Physiology • Environmental Biology	4	-	4	4	3	80	20	100	40	


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Foundati on Course 1 (NOTE: Only for students of other M. Sc. Subjects	Paper 3T4: Foundation - I <ul style="list-style-type: none">• Basic Entomology / • Core (Subject Centric)- IWild Life and Avian	4	-	4	4	3	80	20	100	40	
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D											
Biology											
Pract. Core 9	Practical Based 3P ₁ : 0 ntheory of 3T ₁	-	8	8	4	3-8*	100*	-	100		40
Pract. Core Elective 1 and 2	Practical Based 3P ₂ : 0 ntheory of 3T ₂ and 3T ₃	-	8	8	4	3-8*	100*	-	100		40
Seminar 3	Seminar -3S ₃	2	-	2	1			25	25	10	
TOTAL		18	16	34	25		520	105	625	170	80

M. Sc. Zoology Semester IV

Code	Theory / Practical	Teaching scheme (Hours / Week)				Examination Scheme					
		Th	Pract	Total	Credits	Duration in	Max. Marks		Total Marks	Minimum Passing Marks	
							Ext ern	Int er		Th	Pra
Core 11	Paper 4T₁: Biotechnique, Biostatistics, Ethology, Toxicology and Bioinformatics	4	-	4	4	3	80	20	100	40	


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Core 12	Paper 4T₂: Special Group- Paper 4T₂ <ul style="list-style-type: none">• Entomology• Fish and Fisheries• Mammalian Reproductive Physiology (MRP)• Animal Physiology• Environmental Biology	4	-	4	4	3	80	20	100	40	
Core	Paper 4T₃:	4	-	4	4	3	80	20	100	40	


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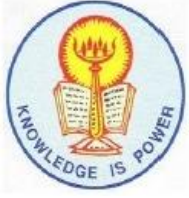


Elective 2	Special Group- Paper 4T₃ <ul style="list-style-type: none"> • Entomology • Fish and Fisheries • Mammalian Reproductive Physiology (MRP) • Animal Physiology • Environmental Biology 										
Foundation Course 2 (NOTE: Only for students of other M. Sc. Subjects)	Paper 4T₄: Foundation- II <ul style="list-style-type: none"> • Applied and Industrial Entomology / • Core (Subject Centric)-II Radiation and Chronobiology 	4	-	4	4	3	80	20	100	40	
Pract. Core 11, 12 & Elective 2	Practical 4P₁: Based on the theory of 4T₂ and 4T₃	-	8	8	4	3-8*	100**	-	100		40
Project	Project -Pro	-	8	8	4	3-8*	100**	-	100		40
Seminar 4	Seminar- 4S ₄	2	-	2	1			25	25	10	
	TOTAL	18	16	34	25		520	105	625	170	80

Note: Th = Theory; Pr = Practical/lab, * = If required, for two days.

** = The Practical and Project shall be evaluated by both the External and Internal Examiner in the respective Department / Center / Affiliated College.


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M. Sc. Botany Syllabus Semester pattern with Choice Base Credits System

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

APPENDIX - 1

Scheme of teaching under choice based credit system for M. Sc. Program in Botany.


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S. No.	Semester	Course Code / Paper	Title of the Paper	Course /Paper	Teaching Scheme		
					Theory (Hours)	Practical (Hours)	Number of Credits
1	One	1T1	Microbiology, Algae and Fungi	I	04	04	04
2	One	1T2	Bryophytes & Pteridophytes	II	04	04	04
3	One	1T3	Paleobotany and Gymnosperms	III	04	04	04
4	One	1T4	Cytology and Genetics	IV	04	04	04
5	One	1P1	Algae, fungi, Bryophytes	Pract. I	-	-	04
6	One	1P2	Pteridophytes, Gymnosperms, Paleobotany, Cytology & Genetics	Pract. II	-	-	04
7	One	1S1 Seminar					01
8	Two	2T1	Plant Physiology and Biochemistry	I	04	04	04
9	Two	2T2	Plant Development and Reproduction	II	04	04	04
10	Two	2T3	Cell and Molecular Biology-I	III	04	04	04
11	Two	2T4	Angiosperms-I and Ethnobotany	IV	04	04	04
12	Two	2P1	Plant Physiology, Plant Biochem., Plant Development & Reproduction	Pract. I	-	-	04


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13	Two	2P2	Cell and Molecular Biology I, Angiosperms I	Pract. II	-	-	04
14	Two	2S1 Seminar					01
15	Three	3T1	Plant Ecology and Conservation Biology	I	04	04	04
16	Three	3T2	Angiosperms-II	II	04	04	04
17	Three	3T3	Elective -I	III	04	08	04
18	Two	3T4	Foundation I	IV	04	-	04


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CELEBRATING GOLDEN JUBILEE YEAR

19	Three	3P1	Plant Ecology and Conservation Biology and Angiosperms II	Pract. I	-	-	04
20	Three	3P2	Elective	Pract. II	-	-	04
21	Three	3S1 Seminar					01
22	Four	4T1	Cell and Molecular Biology-II	I	04	04	04
23	Four	4T2	Plant Biotechnology and Plant Breeding	II	04	04	04
24	Four	4T3	Elective II	III	04	-	04
25	Four	4T4	Foundation II	IV	04	-	04
26	Four	4P1	Cell and Molecular Biology-II, Plant Biotechnology and Plant Breeding	Pract. I	-	-	04
27	Four	4P2	Project	Pract. II	-	08	04
28	Four	4S1 Seminar					01


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Revised SYLLABUS
Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
M. Sc. MATHEMATICS
Choice Based Credit System(Semester Pattern)

Course Study and Scheme of Examination with paper code

Semester I									
Sr. No.	Paper Core/Elective	Paper	Code	Title of the paper	Hrs. in week	Credit	Maximum Marks		
							Int. Ass	Ext. Mar	Total
1	Core -1	Paper -I	1T1	Algebra I	5	5	25	100	125
2	Core -2	Paper -II	1T2	Real Analysis I	5	5	25	100	125
3	Core -3	Paper -III	1T3	Topology I	5	5	25	100	125
4	Core-4	Paper -IV	1T4	Ordinary Differential Equations	5	5	25	100	125
5	Core-5	Paper -V	1T5	Integral Equations	5	5	25	100	125
Semester II									
Sr. No.	Paper Core/Elective	Paper	Code	Title of the paper	Hrs. in week	Credit	Maximum Marks		
							Int. Ass	Ext. Mar	Total
1	Core -1	Paper -VI	2T1	Algebra II	5	5	25	100	125



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2	Core -2	Paper -VII	2T2	Real Analysis II	5	5	25	100	125
3	Core -3	Paper -VIII	2T3	Topology II	5	5	25	100	125
4	Core-4	Paper -IX	2T4	Differential geometry	5	5	25	100	125
5	Core-5	Paper -X	2T5	Classical Mechanics	5	5	25	100	125


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Semester III									
Sr. No.	Paper Core/Elective	Paper	Code	Title of the paper	Hrs. in week	Credit	Maximum Marks		
							Int. Ass	Ext. Mar	Total
1	Core -1 (Compulsory paper)	Paper -XI	3T1	Complex Analysis	5	5	25	100	125
2	Core -2 (Compulsory paper)	Paper -XII	3T2	Functional Analysis	5	5	25	100	125
3	Core -3 (Compulsory paper)	Paper -XIII	3T3	Mathematical Method	5	5	25	100	125
4	Core Elective (Opt anyone)	Paper -XIV (Opt anyone)	3T4	(i) Fluid Dynamics-I (ii) General Relativity (iii) Measure and Integration Theory(New) (iv) Number Theory (v) Algebraic Topology- I	5	5	25	100	125
5	Foundation Paper	Paper -XV	3T5	Elementary Mathematics -I	5	5	25	100	125
OR	Subject Centric	Paper -XV	3T5	Operation Research -I	5	5	25	100	125


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M.Sc. (Mathematics) Under CBCS

Semester IV									
Sr. No.	Paper Core/Elective	Paper	Code	Title of the paper	Hrs. in week	Credit	Maximum Marks		
							Int. Ass	Ext. Mar	Total
1	Core -1 (Compulsory paper)	Paper -XVI	4T1	Dynamical Systems	5	5	25	100	125
2	Core -2 (Compulsory paper)	Paper -XVII	4T2	Partial Differential Equations	5	5	25	100	125
3	Core -3 (Compulsory paper)	Paper -XVIII	4T3	Advance Numerical Methods	5	5	25	100	125
4	Core Elective (Opt anyone)	Paper -XIX (Opt anyone)	4T4	(i) Fluid Dynamics II (ii) Cosmology (iii) Cryptography (iv) Operator theory (v) Algebraic Topology-II	5	5	25	100	125
5	Foundation Paper	Paper -XX	4T5	Elementary Discrete Mathematics -I	5	5	25	100	125
OR	Subject Centric	Paper -XX	4T5	Operation Research - II	5	5	25	100	125


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