



RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR
FACULTY OF SCIENCE AND TECHNOLOGY
DIRECTION NO. 5 OF 2018

**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)**

(Issued under Section 12(8) of the Maharashtra Universities Act, 2016)

Whereas, Maharashtra Universities Act, 2016 (hereinafter referred to as Act) has come into force from 2016-17 and was amended from time to time,

AND

Whereas, the Board of Studies (Co-Ordinators of the Task Force) in all the Science subjects in their meeting held during 6th Nov 2017 prepared the syllabi, scheme of examination and absorption scheme for the M. Sc. and M. Sc. (Tech) Applied Geology course,

AND

Whereas, the Dean of faculty of Science and Technology, Dr. H. D. Juneja has considered, accepted and recommended to the Vice-Chancellor M. Sc. Semester-I to IV (Semester I to VI for M. Sc. (Tech) Applied Geology) with draft direction and other details.

AND

Whereas, ordinance making is a time consuming process, therefore, I, Dr. S. P. Kane, Vice Chancellor Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur in exercise of powers vested under Section 12(8) of the Act do hereby issue the following Direction.

1. This Direction may be called "**Direction relating to examinations 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)**"
2. The direction shall come into force from the date of its issue by Hon'ble Vice Chancellor and shall remain in force till the relevant ordinance comes into being in accordance with the provisions of the Act.
3. The duration of the M. Sc. course shall be of two academic years consisting of four semesters with the University examinations at the end of each semester namely:
 - a) M. Sc. Semester I Exam
 - b) M. Sc. Semester II Exam
 - c) M. Sc. Semester III Exam
 - d) M. Sc. Semester IV Exam
4. The duration of the M. Sc. (Tech) Applied Geology course shall be of three academic years consisting of six semesters with the University examinations at the end of each semester namely:
 - a) M. Sc. Semester I Exam
 - b) M. Sc. Semester II Exam
 - c) M. Sc. Semester III Exam
 - d) M. Sc. Semester IV Exam
 - e) M. Sc. Semester V Exam
 - f) M. Sc. Semester VI Exam
5. The theory examination of Semester-I, II, III, IV, V and VI shall be conducted by the University and shall be held separately at the end of each semester at such places and dates as may be decided and notified by the University and shall be held as per the schedule given in Table below.

Sr. No.	Name of the examination	Main Examination	Supplementary Examination
1	Semester I, III & V	Winter	Summer
2	Semester II, IV&VI	Summer	Winter

ELIGIBILITY TO THE COURSE:

6. Subject to their compliance with the provisions of this direction and of other ordinances in force from time to time, the following applicant candidates shall be eligible for the admission to Master of Science and examinations thereof

A	For M. Sc. (Physics) Semester-I	For admission to the M. Sc. Semester I in Physics, a candidate shall have offered Physics as one of the subjects at the qualifying B.Sc. Examination.
B	For M. Sc. (Chemistry) Semester-I	For admission to the M. Sc. Semester I in Chemistry, a candidate shall have offered Chemistry / Industrial Chemistry as one of the subjects at the qualifying B.Sc. Examination.
C	For M. Sc. (Mathematics) Semester-I	For admission to the M. Sc. Semester I in Mathematics, a candidate shall have offered Mathematics as one of the subjects at the qualifying B.Sc. Examination.
D	For M. Sc. (Statistics) Semester-I	For admission to the M. Sc./M.A. Semester I in Statistics, a candidate shall have offered Statistics/Maths as one of the subjects at the qualifying B.Sc./B.A. Examination.
E	For M. Sc. (Computer Science) Semester-I	For admission to the M. Sc. Semester I in Computer Science, a candidate shall have offered Computer Science as one of the optional subjects of study and examination at B.Sc. degree or B.Sc./ B.E. examination with Post B.Sc. diploma course in Computer Science and Application of RTM Nagpur University or any other statutory university or B.Sc. with optional subjects Computer Maintenance / B.Sc. (Information Technology) / B.C.A.
F	For M. Sc. (Information Technology) Semester-I	For admission to the M. Sc. Semester I in Information Technology, a candidate must have Mathematics at 10+2 level and shall have passed B.Sc. (Computer Science) / B.Sc. (Information Technology) / B.Sc. (with Information Technology as the optional subject) / Bachelor of Computer Application (BCA)/ B.Sc. with optional subjects Mathematics, Computer Maintenance, Computer Science / B.Sc. with Electronics / Computer Maintenance as one of the subject .
G	For M. Sc. (Electronics) Semester-I	For admission to the M. Sc. Semester I in Electronics, a candidate shall have offered Electronics / Computer Maintenance as one of the subjects at the qualifying B.Sc. Examination.
H	For M. Sc. (Botany) Semester-I	For admission to the M. Sc. Semester I in Botany, a candidate shall have offered Botany as one of the subjects at the qualifying B.Sc. Examination / B.Sc. (Agriculture) with Botany is one of the subject.
I	For M. Sc. (Zoology) Semester-I	For admission to the M. Sc. Semester I in Zoology, a candidate shall have offered Zoology as one of the subjects at the qualifying B.Sc. Examination.
J	For M. Sc. (Microbiology) Semester-I	For admission to the M. Sc. Semester I in Microbiology, a candidate shall have offered Microbiology / Biotechnology as a subject of study and examination at B.Sc. degree.
K	For M. Sc. (Biochemistry) Semester-I	For admission to the M. Sc. Semester I in Biochemistry, a candidate shall have offered Chemistry and Biochemistry as subjects of study and examination at B.Sc. degree.
L	For M. Sc. (Biotechnology) Semester-I	For admission to the M. Sc. Semester I in Biotechnology, a candidate shall be all Life Science graduates / Veterinary / Fishery Sciences / Pharmacy / Engineering Technology / Medicine (MBBS) / B.D.S. graduates / B.Sc. Agriculture.
M	For M. Sc. (Environmental Science) Semester-I	For admission to the M. Sc. Semester I in Environmental Science, a candidate shall have offered Environmental Science as one of the subjects at the qualifying B.Sc. Examination and B.Sc. Agriculture Science but having Environmental Science is one of the subject.
N	For M. Sc. (Molecular	For admission to the M. Sc. Semester I in Molecular Biology and Genetic Engineering, the candidates who have passed the B.Sc.

	Biology and Genetic Engineering)	Examination in at least second division with any one or more subjects of life sciences / biological sciences / candidates who have passed B.Sc. with Biotechnology as one of the subjects in second division / candidates who have passed the B. Pharm. Examination in at least second division / candidates who have passed the graduation degree in agriculture / fisheries / veterinary sciences Examination in at least second division.
O	For M. Sc. (Geology) Semester-I	For admission to the M. Sc. Semester I in Geology, a candidate shall have offered Geology as one of the subjects at the qualifying B.Sc. Examination.
P	For M. Sc. (Tech) Applied Geology Semester-I	For admission to the M. Sc. (Tech) Semester I in Applied Geology, a candidate shall have offered Geology as one of the subjects at the qualifying B.Sc. Examination.
Q	For M. Sc. (Medicinal Plants) Semester-I	For admission to the M. Sc. Semester I in Medicinal Plants, a candidate shall have offered Botany as one of the subjects as one of the subjects at the qualifying B.Sc. Examination and any one of the following: Zoology, Chemistry, Biochemistry, Horticulture, Biotechnology, Microbiology and Agricultural Microbiology OR B. Sc. Agriculture, B.A.M.S., B.H.M.S., and B. Pharm.

Candidates shall have passed any one of the above examinations from Rashtrasant Tukadoji Maharaj Nagpur University or any other statutory University of India or abroad, recognized by the UGC or any other concerned apex regulatory authority / body of India.

7) Semester Examinations

A	M. Sc. Semester I Examination	Students who have fulfilled the eligibility criteria as mentioned in Section 6 and have been admitted to this course in Semester I.
B	M. Sc. Semester II Examination	Students who have been admitted to this course in semester II.
C	M. Sc. Semester III Examination	Students who have been admitted to this course in semester III.
D	M. Sc. Semester IV Examination	<p>i) Students who have been admitted to this course in semester IV.</p> <p>Every student shall submit two copies of the project report (typed and properly bound) for the Fourth Semester to the Concerned Department at least one month prior to the commencement of the final practical examination through the Head of the Department / Centre / the Principal of the college concerned along with the certificate signed by the supervisor and declaration by the candidate towards original work which is not submitted to any university or organization for award of the degree. The scheme/ guidelines for the students and supervisors regarding Project Work Report are given in Appendix 04.</p>

(Note: Subject to the Rules of ATKT as mentioned in para 9 of this direction)

8) [M. Sc. (Tech) Applied Geology]

A	M. Sc. (Tech) Applied Geology] Semester I Examination	Students who have fulfilled the eligibility criteria as mentioned in Section 6 and have been admitted to this course in Semester I.
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B	M. Sc. (Tech) Applied Geology] Semester II Examination	Students who have been admitted to this course in semester II.
C	M. Sc. (Tech) Applied Geology] Semester III Examination	Students who have been admitted to this course in semester III.
D	M. Sc. (Tech) Applied Geology] Semester IV Examination	Students who have been admitted to this course in semester IV.
E	M. Sc. (Tech) Applied Geology] Semester V Examination	Students who have been admitted to this course in semester V.
F	M. Sc. (Tech) Applied Geology] Semester VI Examination	Students who have been admitted to this course in semester VI.

(Note: Subject to the Rules of ATKT as mentioned in para 9 of this direction)

- 9) A) The ATKT rules for admission for the M. Sc. Course (Theory, Practical and Seminar as separate passing head and on calculation fraction, if any, shall be ignored. Ex. If two third of the passing heads value is 3.01 or 3.75 or 3.89 then it shall be considered as 3) shall be as given in the following table

Admission to Semester	Candidate should have passed in all the subjects of the following examination of R.T.M. Nagpur University	Candidate should have passed at least two third of the passing heads of the following examinations
Semester I	As provided in the para 6 of the direction	-----
Semester II	-----	-----
Semester III	-----	Semester I and II taken together
Semester IV	-----	-----

- B) The ATKT rules for admission for the M. Sc. (Tech) Applied Geology Course (Theory, Practical and Seminar as separate passing head and on calculation fraction, if any, shall be ignored. Ex. If two third of the passing heads value is 3.01 or 3.75 or 3.89 then it shall be considered as 3) shall be as given in the following table-

Admission to Semester	Candidate should have passed in all the subjects of the following examination of R.T.M. Nagpur University	Candidate should have passed at least two third of the passing heads of the following examinations
Semester I	As provided in the para 6 of the direction	-----
Semester II	-----	-----
Semester III	-----	Semester I and II taken together
Semester IV	-----	-----
Semester V	Semester I and II	a) Passed Semester I and II examination And b) Two third of the passing heads of Semester III and IV taken together
Semester VI	-----	-----

- 10) Without prejudice to other provisions of Ordinance no. 6 relating to the examination in general, provisions of Para 5, 8, 9, 10, 26, 31 and 32 of the said ordinance shall apply to every student admitted to this course.
- 11) The fees for the tuition, examination, laboratory and other fees shall be as prescribed by the university from time to time.
- 12) (a) The scope of the subjects shall be as prescribed in the syllabus.
(b) The medium of instruction and examination shall be English.
- 13) The number of papers and maximum marks assigned to each paper and minimum marks / grade, an examinee must obtain in order to pass the examination shall be as prescribed in appendices appended with this direction.
- 14) The examinee at each of the examination shall have option of not being declared successful at the examination in case he / she does not secure a minimum of grade equivalent to 55% marks at the examination. This option will have to be exercised every time the application is submitted to any of the examinations. Once this option is exercised, the option shall be binding on the examinee and it shall not be evoked in under any circumstances.
- 15) The classification of the examinee successful at the semester and examinations and at the end of final semester examination shall be as per the rules and regulations of Choice Based Credit System as prescribed in appendices, appended with this direction.
- 16) The provisions of direction no. 3 of 2007 for the award of grace marks for passing an examination, securing higher grade in subject(s) as updated from time to time shall apply to the examination under this direction.
- 17) The names of the successful examinee passing the examination as a whole in the minimum prescribed period and securing the grades equivalent to first and second division shall be arranged in order of merit as provided in ordinance 6 relating to examination in general.
- 18) Successful examinees at the end of M. Sc. Sem-IV Examination (Sem VI for M. Sc. (Tech) Applied Geology) who obtained CGPA above 7.51 shall be placed in First Division with distinction, those obtaining CGPA from 6.00 to 7.50 shall be placed in First Division, those obtaining CGPA from 4.50 to 5.99 shall be placed in Second Division and those obtaining CGPA from 4.00 to 4.49 shall be placed in Third Division.
- 19) No candidate shall be admitted to an examination under this direction, if he / she has already passed the same examination of this university or of any other university.
- 20) Successful examinees at the M. Sc. Sem I, II, III, & IV ((Sem I, II, III, IV, V & VI for M. Sc. (Tech) Applied Geology) Examinations shall be entitled to receive a Certificate signed by the Controller of Examination of University (COE) and successful examinees at the end of M. Sc. Sem IV (Sem VI for M. Sc. (Tech) Applied Geology) examination shall, on payment of prescribed fees, receive a Degree in the prescribed format, signed by the Vice-Chancellor.
- 21) This course is based on Choice Based Credit System and therefore, it will be also regulated by guidelines and regulation given in appendices / annexure which are part of this direction.
- 22) Absorption scheme for failure students of the credit based semester pattern:
 - a) While switching over to Choice Based Credit System, the failure students of credit based semester pattern will be given **Five** chances to clear the examination.
 - b) The candidates who have cleared first and second semester of Part I of the Credit Based Semester Pattern examination in the concerned subject shall get admission to Third Semester of Part II of the Choice Based Credit System directly. However, candidates who are allowed to keep term will not be eligible for admission to Third Semester of Part II of the Choice Based Credit System unless they clear all the papers and practical of first and second semester of Part I of the Credit Based Semester Pattern examination.
 - i. When the given five chances are exhausted, the candidates who are allowed to keep term shall be governed by "Equivalence of Syllabus showed between CBS & CBCS syllabus for desirous students". Such candidates can switch over to CBCS pattern. However, for such switching over, they have to clear equivalent papers as shown in the annexure 13 of concerned subject to get admission to Third Semester of Part II of the Choice Based Credit System.
 - c) The candidates who have cleared Third and Fourth semester of Part II of the Credit Based Semester Pattern examination in the concerned subject shall get admission to Fifth Semester of Part III of the Choice Based Credit System directly. However, candidates who are allowed to keep term will not be eligible for admission to Fifth Semester of Part III of

the Choice Based Credit System unless they clear all the papers and practical of Third and Fourth semester of Part II of the Credit Based Semester Pattern examination.

- i. When the given five chances are exhausted, the candidates who are allowed to keep term shall be governed by “Equivalence of Syllabus showed between CBS & CBCS syllabus for desirous students”. Such candidates can switch over to CBCS pattern. However, for such switching over, they have to clear equivalent papers as shown in the annexure 13 of concerned subject to get admission to Fifth Semester of Part III of the Choice Based Credit System.
 - d) The candidates who have not cleared third or fourth semester of Part II of the Credit Based Semester Pattern examination in the concerned subject shall be governed by “Equivalence of Syllabus showed between CBS & CBCS syllabus for desirous students”. Such candidates can switch over to CBCS pattern. However, for such switching over, they have to clear equivalent papers as shown in the annexure 13 of concerned subject to get Degree of M. Sc. under the Choice Based Credit System.
 - e) The candidates who have not cleared fifth or sixth semester of Part III of the Credit Based Semester Pattern examination in the concerned subject shall be governed by “Equivalence of Syllabus showed between CBS & CBCS syllabus for desirous students”. Such candidates can switch over to CBCS pattern. However, for such switching over, they have to clear equivalent papers as shown in the annexure 13 of concerned subject to get Degree of M. Sc. under the Choice Based Credit System.
- 23) The absorption scheme mentioned in this direction shall be implemented from Summer 2018 examination. The Foundation Course / Core Subject Centric papers and Project shall be implemented from academic session 2018-19. The remaining part of syllabi shall be implemented in phasewise manner. i.e. Semester I and II syllabi from academic session 2018- 19 and Semester III & IV syllabi from academic session 2019-20 and so on.
- 24) With the issuance of this Direction, The Direction No 54 of 2016 (Choice Based Credit System) shall stand repealed.

Date 1/3/2018

**Sd/-
Dr. S.P. Kane
Vice -Chancellor**

Appendix-1

Scheme of teaching and examination under semester pattern Choice Based Credit System (CBCS) for M.Sc. Program in all subjects except Mathematics and M.Sc. (Tech) Applied Geology

Semester I for M.Sc. Program in all subjects except Mathematics and M.Sc. (Tech) Applied Geology												
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	
Core 1	Paper 1	4	-	4	4	3	80	20	100	40		
Core 2	Paper 2	4	-	4	4	3	80	20	100	40		
Core 3	Paper 3	4	-	4	4	3	80	20	100	40		
Core 4	Paper 4	4	-	4	4	3	80	20	100	40		
Pract. Core 1 & 2	Practical 1	-	8	8	4	3-8*	100**	-	100		40	
Pract. Core 3 & 4	Practical 2	-	8	8	4	3-8*	100**	-	100		40	
Seminar 1	Seminar 1	2	-	2	1			25	25	10		
	TOTAL	18	16	34	25		520	105	625	170	80	

Semester II for M.Sc. Program in all subjects except Mathematics and M.Sc. (Tech) Applied Geology												
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	
Core 5	Paper 5	4	-	4	4	3	80	20	100	40		
Core 6	Paper 6	4	-	4	4	3	80	20	100	40		
Core 7	Paper 7	4	-	4	4	3	80	20	100	40		
Core 8	Paper 8	4	-	4	4	3	80	20	100	40		
Pract. Core 5 & 6	Practical 3	-	8	8	4	3-8*	100**	-	100		40	
Pract. Core 7 & 8	Practical 4	-	8	8	4	3-8*	100**	-	100		40	
Seminar 2	Seminar 2	2	-	2	1			25	25	10		
	TOTAL	18	16	34	25		520	105	625	170	80	

Semester III for M.Sc. Program in all subjects except Mathematics and M.Sc. (Tech) Applied Geology												
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	
Core 9	Paper 9	4	-	4	4	3	80	20	100	40		
Core 10	Paper 10	4	-	4	4	3	80	20	100	40		
Core Elective 1	Paper 11	4	-	4	4	3	80	20	100	40		
Foundation Course 1 / Core (Subject Centric) 1	Paper 12	4	-	4	4	3	80	20	100	40		
Pract. Core 9 & 10	Practical 5	-	8	8	4	3-8*	100**	-	100		40	
Pract. Core Elective 1	Practical 6	-	8	8	4	3-8*	100**	-	100		40	
Seminar 3	Seminar 3	2	-	2	1			25	25	10		
	TOTAL	18	16	34	25		520	105	625	170	80	

Semester IV for M.Sc. Program in all subjects except Mathematics and M.Sc. (Tech) Applied Geology												
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	
Core 11	Paper 13	4	-	4	4	3	80	20	100	40		
Core 12	Paper 14	4	-	4	4	3	80	20	100	40		
Core Elective 2	Paper 15	4	-	4	4	3	80	20	100	40		
Foundation Course 2 / Core (Subject Centric) 2	Paper 16	4	-	4	4	3	80	20	100	40		
Pract. Core 11, 12 & Elective 2	Practical 7	-	8	8	4	3-8*	100**	-	100		40	
Project	Project		8	8	4		100**	-	100		40	
Seminar 4	Seminar 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 as per guidelines appended with this direction.

1. In each semester, the student will have to deliver a seminar on any topic relevant to the syllabus / subject encompassing the recent trends and development in that field / subject. The topic of the seminar will be decided at the beginning of each semester in consultation with the supervising teachers. The student has to deliver the seminar which will be followed by discussion. The seminar will be open to all the teachers of the department, invitees, and students.
2. The student will have to carry out the project work (based on guidelines appended to this direction) in lieu of practical in the fourth semester in the department or depending on the availability of placement; he / she will be attached to any of the national / regional / private research institute / organization.
3. Internal Assessment Marks will be as per appendix attached in this direction.
- 4. Foundation Course / Core (Subject Centric): for Details, refer Appendix 9.**
5. One credit of 25 marks for theory / tutorial will be of one clock hour per week, running for 15 weeks.
6. One credit of 25 marks for practical / project / seminar will be of two clock hour per week, running for 15 weeks.

Appendix-2

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

Semester I for M.Sc. Program in Mathematics												
Code	Theory / Practical	Teaching scheme (Hours / Week)		Credits			Examination Scheme					
		Th	Total	Theory	Int. Assessment	Total	Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
								External Marks	Internal Ass		Th. External	Internal Ass.
Core 1	Paper 1	5	5	4	1	5	3	100	25	125	50	
Core 2	Paper 2	5	5	4	1	5	3	100	25	125	50	
Core 3	Paper 3	5	5	4	1	5	3	100	25	125	50	
Core 4	Paper 4	5	5	4	1	5	3	100	25	125	50	
Core 5	Paper 5	5	5	4	1	5	3	100	25	125	50	
	TOTAL	25	25	20	5	25		500	125	625	250	

Semester II for M.Sc. Program in Mathematics												
Code	Theory / Practical	Teaching scheme (Hours / Week)		Credits			Examination Scheme					
		Th	Total	Theory	Int. Assessment	Total	Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
								External Marks	Internal Ass		Th. External	Internal Ass.
Core 6	Paper 6	5	5	4	1	5	3	100	25	125	50	
Core 7	Paper 7	5	5	4	1	5	3	100	25	125	50	
Core 8	Paper 8	5	5	4	1	5	3	100	25	125	50	
Core 9	Paper 9	5	5	4	1	5	3	100	25	125	50	
Core 10	Paper 10	5	5	4	1	5	3	100	25	125	50	
	TOTAL	25	25	20	5	25		500	125	625	250	

Semester III for M.Sc. Program in Mathematics												
Code	Theory / Practical	Teaching scheme (Hours / Week)		Credits			Examination Scheme					
		Th	Total	Theory	Int. Assessment	Total	Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
								External Marks	Internal Ass		Th. External	Internal Ass.
Core 11	Paper 11	5	5	4	1	5	3	100	25	125	50	
Core 12	Paper 12	5	5	4	1	5	3	100	25	125	50	
Core 13	Paper 13	5	5	4	1	5	3	100	25	125	50	
Core Elective 1	Paper 14	5	5	4	1	5	3	100	25	125	50	
Foundation Course 1 / Core (Subject Centric) 1	Paper 15	5	5	4	1	5	3	100	25	125	50	
TOTAL		25	25	20	5	25		500	125	625	250	

Semester IV for M.Sc. Program in Mathematics												
Code	Theory / Practical	Teaching scheme (Hours / Week)		Credits			Examination Scheme					
		Th	Total	Theory	Int. Assessment	Total	Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
								External Marks	Internal Ass		Th. External	Internal Ass.
Core 14	Paper 16	5	5	4	1	5	3	100	25	125	50	
Core 15	Paper 17	5	5	4	1	5	3	100	25	125	50	
Core 16	Paper 18	5	5	4	1	5	3	100	25	125	50	
Core Elective 2	Paper 19	5	5	4	1	5	3	100	25	125	50	
Foundation Course 2 / Core (Subject Centric) 2	Paper 20	5	5	4	1	5	3	100	25	125	50	
TOTAL		25	25	20	5	25		500	125	625	250	

*Internal Assessment: For the purpose of internal assessment the department will conduct three tests (with equal weight of marks). Best two scores of a student in these tests will be considered to obtain the internal assessment score of that student.

Foundation Course / Core (Subject Centric): for Details, refer Appendix 9.

Appendix-3

Scheme of teaching and examination under semester pattern Choice Based Credit System (CBCS) for M.Sc. (Tech) Applied Geology

Semester I for M.Sc. Program in M.Sc. (Tech) Applied Geology												
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	
Core 1	Paper 1	4	-	4	4	3	80	20	100	40		
Core 2	Paper 2	4	-	4	4	3	80	20	100	40		
Core 3	Paper 3	4	-	4	4	3	80	20	100	40		
Core 4	Paper 4	4	-	4	4	3	80	20	100	40		
Pract. Core 1 & 2	Practical 1	-	8	8	4	3-8*	100**	-	100		40	
Pract. Core 3 & 4	Practical 2	-	8	8	4	3-8*	100**	-	100		40	
Seminar 1	Seminar 1	2	-	2	1			25	25	10		
TOTAL		18	16	34	25		520	105	625	170	80	

Semester II for M.Sc. Program in M.Sc. (Tech) Applied Geology												
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	
Core 5	Paper 5	4	-	4	4	3	80	20	100	40		
Core 6	Paper 6	4	-	4	4	3	80	20	100	40		
Core 7	Paper 7	4	-	4	4	3	80	20	100	40		
Core 8	Paper 8	4	-	4	4	3	80	20	100	40		
Pract. Core 5 & 6	Practical 3	-	8	8	4	3-8*	100**	-	100		40	
Pract. Core 7 & 8	Practical 4	-	8	8	4	3-8*	100**	-	100		40	
Seminar 2	Seminar 2	2	-	2	1			25	25	10		
TOTAL		18	16	34	25		520	105	625	170	80	

Semester III for M.Sc. Program in M.Sc. (Tech) Applied Geology											
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
Core 9	Paper 9	4	-	4	4	3	80	20	100	40	
Core 10	Paper 10	4	-	4	4	3	80	20	100	40	
Core 11	Paper 11	4	-	4	4	3	80	20	100	40	
Core 12	Paper 12	4	-	4	4	3	80	20	100	40	
Pract. Core 9 & 10	Practical 5	-	8	8	4	3-8*	100**	-	100		40
Pract. Core 11 & 12	Practical 6	-	8	8	4	3-8*	100**	-	100		40
Seminar 3	Seminar 3	2	-	2	1			25	25	10	
	TOTAL	18	16	34	25		520	105	625	170	80

Semester IV for M.Sc. Program in M.Sc. (Tech) Applied Geology											
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
Core 13	Paper 13	4	-	4	4	3	80	20	100	40	
Core 14	Paper 14	4	-	4	4	3	80	20	100	40	
Core 15	Paper 15	4	-	4	4	3	80	20	100	40	
Core 16	Paper 16	4	-	4	4	3	80	20	100	40	
Pract. Core 13 & 14	Practical 7	-	8	8	4	3-8*	100**	-	100		40
Pract. Core 15 & 16	Practical 8	-	8	8	4	3-8*	100**	-	100		40
Seminar 4	Seminar 4	2	-	2	1			25	25	10	
	TOTAL	18	16	34	25		520	105	625	170	80

Semester V for M.Sc. Program in M.Sc. (Tech) Applied Geology												
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	
Core 17	Paper 17	4	-	4	4	3	80	20	100	40		
Core 18	Paper 18	4	-	4	4	3	80	20	100	40		
Core Elective 1	Paper 19	4	-	4	4	3	80	20	100	40		
Foundation Course 1 / Core (Subject Centric) 1	Paper 20	4	-	4	4	3	80	20	100	40		
Pract. Core 17 & 18	Practical 9	-	8	8	4	3-8*	100**	-	100		40	
Pract. Core Elective 1	Practical 10	-	8	8	4	3-8*	100**	-	100		40	
Seminar 5	Seminar 5	2	-	2	1			25	25	10		
	TOTAL	18	16	34	25		520	105	625	170	80	

Semester VI for M.Sc. Program in M.Sc. (Tech) Applied Geology												
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	
Core 19	Paper 21	4	-	4	4	3	80	20	100	40		
Core 20	Paper 22	4	-	4	4	3	80	20	100	40		
Core Elective 2	Paper 23	4	-	4	4	3	80	20	100	40		
Foundation Course 2 / Core (Subject Centric) 2	Paper 24	4	-	4	4	3	80	20	100	40		
Pract. Core 19, 20	Practical 11	-	8	8	4	3-8*	100**	-	100		40	
Pract. Core Elective 2	Practical 12	-	8	8	4	3-8*	100**	-	100		40	
Seminar 6	Seminar 6	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 shall be evaluated by both the External and Internal Examiner in the respective Department / Center / Affiliated College as per guidelines appended with this direction.

1. In each semester, the student will have to deliver a seminar on any topic relevant to the syllabus / subject encompassing the recent trends and development in that field / subject. The topic of the seminar will be decided at the beginning of each semester in consultation with the supervising teachers. The student has to deliver the seminar which will be followed by discussion. The seminar will be open to all the teachers of the department, invitees, and students.
2. Internal Assessment Marks will be as per appendix attached in this direction.
3. **Foundation Course / Core (Subject Centric): for Details, refer Appendix 9.**
4. One credit of 25 marks for theory / tutorial will be of one clock hour per week, running for 15 weeks.
5. One credit of 25 marks for practical / project / seminar will be of two clock hour per week, running for 15 weeks.

Appendix-4

Project Work Scheme / Guidelines for the Students, Supervisors and Examiners

Every student is required to carry out a project work in semester IV. The project can be of following types. A) Experimental Project Work; OR B) Field Based Project Work; OR C) Review writing based Project Work.

Experimental Project Work OR Field Based Project Work:

Student can carry out Experimental / Field based Project Work on a related research topic of the subject /course. It must be an original work and must indicate some degree of experimental work / Field work. On the basis of this work, student must submit the Project Report (typed and properly bound) in two copies at least one month prior to commencement of the final Practical / lab Examination of Semester IV or VI as applicable. The project report shall comprise of Introduction, Material and Methods, Results, Discussion, Summary, Conclusion and References along with the declaration by the candidate that the work is original and not submitted to any University or Organization for award of the degree and certificate by the supervisor and forwarded through Head / Course-coordinator / Director of the Department / Centre or the Principal of the College.

Review writing based Project Work.

Student can carry out review writing based Project Work on a related topic of the subject / course. It must be a review of topic based on research publications. Student shall refer peer reviewed original research publications and based on findings, write a summary of the same. The pattern of review writing shall be based on reputed reviews published in a standard, peer reviewed journals. On the basis of this work, student must submit the Project Report (typed and properly bound) in two copies at least one month prior to commencement of the final Practical / lab Examination of Semester IV or VI as applicable. The project report shall comprise of Abstract, Introduction, detailed review, Discussion, Summary, Conclusion and References along with the declaration by the candidate that the work is original and not submitted to any University or Organization for award of the degree and certificate by the supervisor and forwarded through Head / Course-coordinator / Director of the Department / Centre or the Principal of the College.

The supervisor shall be able to guide not more than 11 (Eleven) students in the given examination. The supervisor shall declare in the project of every student which he / she guiding stating that he / she has not guided more than 11 students in the given examination.

The supervisors for the Project Work shall be from the following.

A person shall be full time university PG recognized faculty member in the relevant subject.

OR

A person shall be full time university UG recognized faculty member in the relevant subject having Ph. D. and teaching the relevant subject for 5 years OR not having Ph. D. and teaching the relevant subject for 10 years.

OR

A person shall be full time university approved faculty member in related subject having Ph. D. with 5 years teaching experience or OR not having Ph. D. but having 10 years teaching experience and teaching the relevant subject.

OR

Scientists of National Laboratories / Regional Research Laboratories who are approved by virtue of their appointments in such facilities by the Union Government / the State Government / Nagpur University / Other Universities recognized by UGC.

OR

A person appointed in PG on contractual / contributory basis, having NET / SET and approved by the University in the relevant subject and having 3 years teaching experience as contractual / contributory at PG level.

OR

University approved Ex-Faculty members in the relevant subject

The Project Work will carry total 100 marks and will be evaluated by both external and internal examiner in the respective Department / Center / Affiliated College.

The examiners will evaluate the Experimental Project Work taking into account the Coverage of subject matter, Arrangement and presentation, References, etc.

For written Project work : 40 Marks – Evaluated jointly by External & Internal

Presentation : 20 Marks – Evaluated jointly by External & Internal

For Viva-Voce : 20 Marks – Evaluated by External examiner

Internal Assessment : 20 Marks – Evaluated by Internal examiner

Total : 100 Marks

Appendix-5

Seminar

Guidelines for Students, Supervisors and Examiners

In each semester (Except M. Sc. Mathematics), the student will have to deliver a seminar on any topic relevant to the syllabus / subject encompassing the recent trends and development in that field / subject. The topic of the seminar will be decided at the beginning of each semester in consultation with the supervising teachers. The student has to deliver the seminar which will be followed by discussion. The seminar will be open to all the teachers of the department, invitees, and students.

The students should submit the seminar report typed and properly bound in two copies to the Head of the Department. The said shall be evaluated by the concerned Supervisor / Head of the Department. The marks of the seminar shall be forwarded to the university within due period through Head of the Department. The record of the seminar should be preserved till the declaration of the final result.

Appendix 6

Internal Assessment:

1. The internal assessment marks shall be awarded by the concerned teacher.
2. The internal assessment shall be completed by the College / University at least 15 days prior to the final examination of each semester. The Marks shall be sent to the University immediately after the Assessment in the prescribed format.
3. For the purpose of internal assessment the University Department / College shall conduct one to three assignments described below. Best two scores of a student in these assignments shall be considered to obtain the internal assessment score of that student.
4. General guidelines for Internal Assessment are:
 - a) The internal assessment marks assigned to each theory paper as mentioned in Appendix 1 shall be awarded on the basis of attendance and assignments like class test, home assignments, study tour, industrial visits, visit to educational institutions and research organizations, field work, group discussions or any other innovative practice / activity.
 - b) There shall be one to three assignments (as described above) per Theory paper.
 - c) There shall be no separate / extra allotment of work load to the teacher concerned. He/ She shall conduct the Internal assessment activity during the regular teaching days / periods as a part of regular teaching activity.
 - d) The concerned teacher / Department / College shall have to keep the record of all the above activities until six months after the declaration of the results of that semester.
 - e) At the beginning of each semester, every teacher / Department / College shall inform his / her students unambiguously the method he / she propose to adopt and the scheme of marking for internal assessment.
 - f) Teacher shall announce the schedule of activity for internal assessment in advance in consultation with HOD / Principal.
 - g) Final submission of internal marks to the University shall be before the commencement of the University Theory / Practical examinations.

Appendix 7

Practical Examination

- Each practical carries 100 marks. For the examination, the distribution of the marks shall be as follows:
 - Record / Journal / Internal assessment : 20 marks – Evaluated by Internal
 - Practical Performance : 60 marks – Evaluated jointly by External & Internal
 - Viva-voce : 20 marks - Evaluated by External

NOTE: Practical performance shall be jointly evaluated by the External and Internal Examiner. In case of discrepancy, the External Examiner's decision shall be final.
- Practical exam shall be of 3 to 8 hours duration for one or two days, depending on subject and number of students.
- The Practical Record of every student shall carry a certificate as shown below, duly signed by the teacher-in-charge and the Head of the Department.
- If the student fails to submit his / her certified Practical Record duly signed by the Teacher-In-Charge and the Head of the Department, he / she shall not be allowed to appear for the Practical Examination and no Marks shall be allotted to the student.
- The certificate template shall be as follows:

CERTIFICATE

Name of the college / institution _____

Name of the Department: _____

This is to certify that this Practical Record contains the bonafide record of the Practical work of Shri / Shrimati / Kumari _____ of M. Sc. _____
____ Semester _____ during the academic year _____. The candidate has satisfactorily completed the experiments prescribed by Rashtrasant Tukdoji Maharaj Nagpur University for the subject _____

Dated ___ / ___ / _____

Signature of the teacher who taught the examinee

1. _____

2. _____

Head of the Department

Appendix 8

Subject wise Core Elective Papers:

M. Sc. Subject	Core elective paper to be opted in sem III (Sem V in case of M. Sc. (Tech) Applied Geology)	Core elective paper to be opted in sem IV (Sem VI in case of M. Sc. (Tech) Applied Geology)
M. Sc. (Physics)	Materials Science I	Materials Science II
	X-ray I	X-ray II
	Nanoscience & Nanotechnology I	Nanoscience & Nanotechnology II
	Atomic and Molecular Physics I	Atomic and Molecular Physics II
	Applied Electronics I	Applied Electronics II
M. Sc. (Chemistry)	Nuclear Chemistry I	Nuclear Chemistry II
	Environmental Chemistry I	Environmental Chemistry II
	Polymer Chemistry I	Polymer Chemistry II
	Medicinal Chemistry I	Medicinal Chemistry II
M. Sc. (Mathematics)	Fluid Dynamics-I	Fluid Dynamics-II
	General Relativity	Cosmology
	Algebraic Topology- I	Algebraic Topology- II
	Non-Linear Programming-I	Non-Linear Programming-II
	Operator Theory	Advance Algebra
M. Sc. (Statistics)	Mathematical Programming	Operations Research
	Survival Analysis	Reliability Theory
	Bioassay	Statistical Genetics
	Demography	Statistical Ecology
	Time Series Analysis	Stochastic Models In Finance
M. Sc. (Computer Science)	Neural Network	Design and Analysis of Algorithm
	Multimedia Technologies	Embedded System
	ASP.NET	Pattern Recognition
M. Sc. (Information Technology)	Soft Computing	Design and Analysis of Algorithm
	Distributed Databases	Cloud Computing
	Object Oriented Analysis and Design using UML	Mobile Computing
M. Sc. (Electronics)	Digital signal Processing	Microwave and Optical Communication
	Digital Image Processing	Computer Communication
M. Sc. (Botany)	Molecular Biology and Plant Biotechnology I	Molecular Biology and Plant Biotechnology II
	Mycology and Plant Pathology I	Mycology and Plant Pathology II
	Reproductive Biology of Angiosperms- I	Reproductive Biology of Angiosperms- II
	Plant Physiology I	Plant Physiology II
	Palynology - I	Palynology - II
M. Sc. (Zoology)	Entomology II	Entomology IV
	Fish & Fisheries II	Fish & Fisheries IV
	Mammalian Reproductive Physiology (MRP) II	Mammalian Reproductive Physiology (MRP) IV
	Animal Physiology II	Animal Physiology IV
	Environmental Biology II	Environmental Biology IV
M. Sc. (Microbiology)	Microbial Diversity, Evolution and Ecology (MDEE) I	Microbial Diversity, Evolution and Ecology (MDEE) II
	Bioinformatics (BIF) I	Bioinformatics (BIF) II

M. Sc. (Biochemistry)	Biochemical & Environmental Toxicology	Clinical Research
	Nutritional Biochemistry	Applied Nutritional Biochemistry
M. Sc. (Biotechnology)	Industrial Biotechnology I	Industrial Biotechnology II
	Environmental Biotechnology I	Environmental Biotechnology II
M. Sc. (Environmental Science)	Water & Water Treatment	Environmental Impact assessment and Legislation
	Water supply and resources	Environmental Management
M. Sc. (Molecular Biology and Genetic Engineering)	Molecular Diagnostics Methods	Molecular Diagnostics
	Plant Genetic Engineering I	Plant Genetic Engineering II
	Bioinformatics I	Bioinformatics II
M. Sc. (Geology)	Mining Geology & Mineral Exploration	Exploration Geochemistry
	Applied & Industrial Micropaleontology	Quaternary Geology & Limnogeology
	Petroleum Exploration	Basin Analysis & Sequence Stratigraphy
		Marine Geology & Oceanography
M. Sc. (Tech) Applied Geology	Exploration Geochemistry	Petroleum Exploration
	Quaternary Geology & Limnogeology	Basin Analysis & Sequence Stratigraphy
		Marine Geology & Oceanography
M. Sc. (Medicinal Plants)	Natural Plant Products and Phytochemistry - I	Natural Plant Products and Phytochemistry – I
	Forensic & Industrial Botany I	Forensic & Industrial Botany – II

Appendix 9

Foundation Course / Core (Subject Centric): Student can choose either Foundation course paper or Core (Subject Centric) paper. Once the choice between Foundation Course / Core (Subject Centric) is made by the candidate, it can not be changed in Semester IV.

Part A:

Foundation Course:

1. Candidate can opt for any one foundation course paper as shown below in the semester III and IV (Semester V & VI in case of M. Sc. (Tech) Applied Geology). However, Student shall opt for this paper from any subject other than his / her main subject for postgraduation (Eg. A candidate pursuing M. Sc. Mathematics can opt for foundation course papers mentioned in other M. Sc. Subjects except papers mentioned under M. Sc. Mathematics). The exception to the above condition in some subjects is mentioned in the table below. If the candidate decides to opt for foundation course papers then he/she shall not be eligible to opt for Core (Subject Centric) papers in their respective subjects.
2. Once the candidate chooses foundation course paper of any one subject, then he / she can not change the subject in semester IV. (Eg. If a M. Sc. Biochemistry candidate has chosen foundation course paper from M. Sc. Mathematics, then he has to pursue the foundation course paper of M. Sc. Mathematics in Semester IV also).
3. Intake capacity for the foundation courses is listed in the table. However, in no case, the intake capacity shall be above the sanctioned capacity for the said course. This is applicable to affiliated colleges also. The intake capacity at the affiliated colleges shall be displayed by the respective college.
4. The affiliated colleges where there is only one postgraduate subject can allow the candidates to choose foundation courses in other subjects for which the affiliated college have undergraduate department / subjects. However, they have to fulfill the condition of eligible teachers as mentioned below.
5. Every year, the University shall add or delete (as the case may be) and prepare fresh list of foundation course available in all faculties for the candidates admitted in semester I of the respective year. The list along with syllabi shall be displayed on the University website for the benefit of candidates.
6. The admission process shall begin and be completed within 30 days from the declaration of result of Semester I. The admission to foundation course shall be based on merit list prepared (if required) on the basis of marks obtained by the candidate at the graduation level.
7. Once the candidate opts for foundation course in any subject, there shall be no change allowed.
8. The following faculty will be considered eligible to teach, set papers, internal assessment, valuation, etc of the foundation courses in the subject.
 - a. A person shall be full time university PG recognized faculty member in the relevant subject.
OR
 - b. A person shall be full time university UG recognized faculty member in the relevant subject.
OR
 - c. A person shall be full time university approved faculty member in related subject and teaching the relevant subject at UG / PG level on contract / contributory / guest faculty for 5 years.
OR
 - d. A person appointed in PG on contractual / contributory basis, having NET / SET and approved by the University in the relevant subject and having 5 years teaching experience as contractual / contributory at PG level.
OR
 - e. University approved Ex-Faculty members in the relevant subject
9. The teaching process of the foundation courses shall be arranged in a manner that it shall not affect the teaching – learning process of the parent course.

List of Foundation Subjects for Post Graduate Courses:

S. No.	Subject	Board	4 th Papers of Semester-III.i.e. 3T4 (Name of the Paper)	4 th Papers of Semester-IV.i.e.4T4 (Name of the Paper)	Intake capacity at the University departments
1	Mathematics	Mathematics	Mathematics-I (Elementary Mathematics)	Mathematics-II (Elementary Discrete Mathematics)	60
2	Physics	Physics	Physics-I (Classical Physics)	Physics-II (Modern Physics)	45
3	Chemistry	Chemistry	Chemistry-I (Applied Analytical Chemistry I)	Chemistry-II (Applied Analytical Chemistry II)	45
4	Bio-Technology (Ad-hoc)	Bio-Technology	Bio-Technology-I (Introductory Biotechnology)	Bio-Technology-II (Molecular Biotechnology)	10
5	Computer Science	Computer Science and Engineering	Computer Science-I (Operating System Concepts)	Computer Science-II (Advances in Information Technology)	20
6	Environmental Science	Environmental Science	Environmental Science-I (Fundamentals of Environmental Science I)	Environmental Science-II (Fundamentals of Environmental Science II)	20
7	Botany	Botany	Botany-I (General Botany)	Botany-II (Applied Botany)	37
8	Zoology	Zoology	Zoology-I (Basic Entomology)	Zoology-II (Applied & Industrial Entomology)	37
9	Statistics	Statistics	Statistics-I (Mathematical Statistics)	Statistics-II (Applied Statistics)	25
10	Business Management	Business Management	Business Management -I (_____)	Business Management -II (_____)	
11	Accountancy	Account & Statistics	Account & Statistics-I (_____)	Account & Statistics-II (_____)	
12	Managerial Skill	Commerce	Managerial Skills-I (_____)	Managerial Skills-II (_____)	
13	Education Technology & Management Skills	Education and Commerce	Education Technology & Management Skills-I	Education Technology & Management Skills-II	

S. No.	Subject	Board	4 th Papers of Semester-III i.e. 3T4 (Name of the Paper)	4 th Papers of Semester-IV i.e. 4T4 (Name of the Paper)	Intake capacity at the University departments
			(_____)	(_____)	
14	Communication Skill	English	Communication Skills-I (_____)	Communication Skills-II (_____)	
15	Sanskrit	Sanskrit	Sanskrit-I (_____)	Sanskrit-II (_____)	
16	German	Other Foreign Languages	German-I (_____)	German-II (_____)	
17	French	Other Foreign Languages	French-I (_____)	French-II (_____)	
18	Law	Law	Law-I (_____)	Law-II (_____)	
19	Pharmaceutical Sciences	Pharmaceutical Sciences	Pharmaceutical Sciences-I (_____)	Pharmaceutical Sciences-II (_____)	
20	Life skills	Education	Life Skills-I (_____)	Life Skills-II (_____)	
21	Economics	Economics	Economics-I (_____)	Economics-II (_____)	
22	Political Science	Political Science	Political Science-I (_____)	Political Science-II (_____)	
23	Sociology	Sociology	Sociology-1 (_____)	Sociology-II (_____)	
24	Psychology	Psychology	Psychology-I (_____)	Psychology-II (_____)	
25	Philosophy	Philosophy	Philosophy-I (_____)	Philosophy-II (_____)	
26	History	History	History-I (_____)	History-II (_____)	
27	Public Administration	Public Administration	Public Admn -I (_____)	Public Admn -II (_____)	
28	Buddhist Studies	Buddhist Studies	Buddhist Studies-I (_____)	Buddhist Studies-II (_____)	
29	Gandhian Thoughts	Gandhian Thoughts	Gandhian Thoughts-I (_____)	Gandhian Thoughts-II (_____)	
30	Dr. Ambedkar Thoughts	Dr. Ambedkar Thoughts	Dr. Ambedkar Thoughts - I	Dr. Ambedkar Thoughts - II	
31	Rashtrasant Tukdoji Maharaj Thoughts	Rashtrasant Tukadoji Maharaj Thoughts	Rashtrasant Tukdoji Maharaj Thoughts-I (_____)	Rashtrasant Tukdoji Maharaj Thoughts-II (_____)	

S. No.	Subject	Board	4th Papers of Semester-III i.e. 3T4 (Name of the Paper)	4th Papers of Semester-IV i.e. 4T4 (Name of the Paper)	Intake capacity at the University departments
32	Travel & Tourism	Travel & Tourism	Travel & Tourism-I (_____)	Travel & Tourism-II (_____)	
33	Personality Development	Human Development	Personality Development-I (_____)	Personality Development-II (_____)	
34	Cosmetic Technology	Cosmetic Technology	Cosmetic Technology-I (_____)	Cosmetic Technology-II (_____)	
35	Hospitality Management	Hotel Management & Catering Technology	Hospitality Management -I (_____)	Hospitality Management-II (_____)	
36	Chemical Engineering	Chemical Engineering	Chemical Engineering-I (_____)	Chemical Engineering-II (_____)	
37	Chemical Technology	Chemical Technology	Chemical Technology-I (_____)	Chemical Technology-II (_____)	
38	Civil Engineering	Civil Engineering	Civil Engineering-I (_____)	Civil Engineering-II (_____)	
39	Electrical Engineering	Electrical Engineering	Electrical Engineering-I (_____)	Electrical Engineering-II (_____)	
40	Mechanical Engineering	Mechanical Engineering	Mechanical Engineering-I (_____)	Mechanical Engineering-II (_____)	
41	Electronics Engineering	Electronics Engineering	Electronics Engineering-I (_____)	Electronics Engineering-II (_____)	
42	Pali Prakrit	Pali Prakrit	Pali Prakrit-I (_____)	Pali Prakrit-II (_____)	

Part B:

Core (Subject Centric): Candidate can opt for this paper as shown below in the semester III and IV (Semester V & VI in case of M. Sc. (Tech) Applied Geology) in their main subject of postgraduation only (Ex. A candidate pursuing M. Sc. Mathematics can opt for Core (Subject Centric) papers from M. Sc. Mathematics ONLY). If the candidate decides to opt for Core (Subject Centric) papers in their main subject of postgraduation then he/she shall not be eligible to opt for foundation course papers neither in their own subject nor in any other subject).

List of Core (Subject Centric) course available in the respective subject:

M. Sc. Subject	Core (Subject Centric) I in semester III (Sem V in case of M. Sc. (Tech) Applied Geology)	Core (Subject Centric) II in Semester IV (Sem VI in case of M. Sc. (Tech) Applied Geology)
M. Sc. (Physics)	Nanoscience & Nanotechnology	Experimental Techniques in Physics
	Quantum Computing	Communication Electronics
	Digital Electronics & Microprocessor	Electroacoustics
M. Sc. (Chemistry)	Spectroscopy I	Spectroscopy II
M. Sc. (Mathematics)	Operation Research I	Operation Research II
M. Sc. (Statistics)	Industrial Process and Quality Control	Industrial Statistics
	Data Mining	Actuarial Statistics
M. Sc. (Computer Science)	Mobile Computing	Parallel Computing
M. Sc. (Information Technology)	CORBA	Enterprise Computing
M. Sc. (Electronics)	Mechatronics	Mobile and Satellite Communication
M. Sc. (Botany)	Aesthetic Botany	Plant Resources
M. Sc. (Zoology)	Wild Life & Avian Biology	Radiation & Chronobiology
M. Sc. (Microbiology)	Drugs & Disease Management (DDM)	Vaccines & Delivery Systems
M. Sc. (Biochemistry)	Bioresearch Techniques I	Bioresearch Techniques I
M. Sc. (Biotechnology)	Diagnostic Medical Biotechnology	Therapeutic Medical Biotechnology
M. Sc. (Environmental Science)	Advanced Water & Waste Water Treatment	Disaster Management
M. Sc. (Molecular Biology and Genetic Engineering)	Cytology & Genetics	Applied Genetics
M. Sc. (Geology)	Environmental Geology & Engineering Geology	Fuel Geology (Coal, Petroleum & Nuclear)
M. Sc. (Tech) Applied Geology	Environmental Geology & Geohazards	Geodesy & Mapping
M. Sc. (Medicinal Plants)	Cultivation & Utilization of Medicinal Plants	Cultivation & Utilization of Aromatic Plants

Appendix – 10

Coding pattern

In each case the following coding pattern shall be used to describe the theory/practical/seminar components of a subject/Paper:-

- i) In the first Semester, the theory papers shall be coded as 1T1, 1T2, 1T3 and so on. Similarly, the practical, prescribed in the first Semester, shall be coded as 1P1, 1P2, 1P3 and so on, if practical is a component of the subject. Where, however, a subject has no practical as a component and consists of theory part only the practicals shall be commensurately codified, for e.g. the first subject/paper has got theory component only and no practical but the second subject/paper has got both theory as well as practical component then the second subject paper will have the following coding:
The theory component of the subject / paper will be coded as 1T2 and so on and practical component will be coded as 1P2 and so on. Therefore, in this case, there will not be coding of 1P1. So also where a subject/paper consists only of practical component and there is no theory component in such a case there will not be commensurate theory code. For example, if the third subject/paper of a course in a semester has no theory component and there is only practical component, in this case the practical will be coded as 1P3 but there will not be 1T3. Therefore, the 4th subject/paper having the theory component only will be coded as 1T4, directly.
- ii) Where there is a project, it shall be coded as PROJ. For ex. If fourth semester has project, it will be coded as 4PROJ1
- iii) In the second and subsequent semesters the coding of subject shall be on the same principle on which coding is done for the first semester.
- iv) Where seminars are prescribed in any course the same shall be coded on the principle on which theory and practical components are coded. For e.g. the seminars may be coded as 1S1, 2S1, if seminars are prescribed in 1st and 2nd semesters respectively.

Appendix-11

General Rules and Regulations regarding pattern of question paper, absorption scheme and choice based credit system:

A) Pattern of Question Paper

1. There will be four units in each paper.
2. Maximum marks of each theory paper will be 80 (In M. Sc. Mathematics, each paper will be of 100 marks)
3. Question paper will consist of five questions, each of 16 marks (In M. Sc. Mathematics, each question will be of 20).
4. Four questions will be on four units with internal choice (One question on each unit).
5. Fifth question will be compulsory with questions from each of the four units having equal weightage and there will be no internal choice.

B) Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)

M. Sc. Program shall consist of four semesters, wherein the student has to complete 100 credits. Each subject (or course) has fixed number of credits. The types of subject subheads are: Core, Core Pract, Core (Subject Centric), Core Elective, Core Elective Pract, Foundation Course, Seminar and Project / Review writing.

Explanatory terms:

1. **Core:** Major theory papers in the concerned subject.
2. **Core Elective:** These papers will be specialization in the concerned subject. Ex. Zoology – MRP, AP, Fisheries, Entomology etc.
3. **Foundation Course / Core (Subject Centric):** For details, refer Appendix 9.
4. **Project / Review writing:** Project / Review writing is in semester IV (Semester VI in M.Sc. (Tech) Applied Geology, if applicable).
5. **Seminar:** The seminar in each semester shall be presented by the candidate in his / her parent department only.

Credits:

It is a unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work / field work per week.

For example a subject with 6-2-6 (L-T-P) means it has 6 Lectures, 2 Tutorial and 6 Practical in a week. This subject will have ten credits ($6 \times 1 + 2 \times \frac{1}{2} + 6 \times \frac{1}{2} = 10$). If a student is declared pass in a subject, then he/she gets the credits associated with that subject. Depending on the marks scored in a subject, student is given a Grade. Each grade has got certain grade points as follows:

Letter Grade	O	A+	A	B+	B	C	P	F	Ab
Grade Point	10	09	08	07	06	05	04	0	0

A student obtaining Grade F shall be considered failed and will be required to reappear for the examination.

Valuation pattern:

Every credit is for 25 marks and valuation and grade points will be given as per following pattern.

Marks obtained in Theory / Practical of 100 marks	Marks obtained in Theory / Practical of 50 marks	Marks obtained in Theory / Practical of 25 marks	Letter Grade	Grade point
91-100	46-50	23-25	O	10
81-90	41-45	20-22	A+	09
71-80	36-40	18-19	A	08
61-70	31-35	15-17	B+	07
51-60	26-30	13-14	B	06
41-50	21-25	11-12	C	05
= 40	=20	=10	P	04
<40	<20	<10	F	0
Ab	Ab	Ab	Ab	0

Computation of SGPA and CGPA

Following is the procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$SGPA (S_i) = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

where C_i is the number of credits of the i th course and G_i is the grade point scored by the student in the i th course.

Illustration for SGPA

Code	Theory / Practical	Credits	Marks Obtained	Out of	Grade Point	Grade Letter	Credit Point (Credit x Grade Point)
Core 1	Paper 1	4	91	100	10	O	4x10=40
Core 2	Paper 2	4	89	100	9	A+	4x9=36
Core 3	Paper 3	4	50	100	5	C	4x5=20
Core 4	Paper 4	4	78	100	8	A	4x8=32
Pract. Core 1 & 1	Practical 1	4	89	100	9	A+	4x9=36
Pract. Core 3 & 4	Practical 2	4	85	100	9	A+	4x9=36
Seminar 1	Seminar 1	1	23	25	10	O	1x10=10
	Total	25					210
Thus, $SGPA = 210/25 = 8.4$							

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a program, i.e.

$$\text{CGPA} = \frac{\sum (C_i \times S_i)}{\sum C_i}$$

where S_i is the SGPA of the i th semester and C_i is the total number of credits in that semester.

Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 25 SGPA: 8.46	Credit : 25 SGPA: 7.83	Credit : 25 SGPA: 5.69	Credit : 25 SGPA: 6.31

Thus,

$$\text{CGPA} = \frac{25 \times 8.46 + 25 \times 7.83 + 25 \times 5.69 + 25 \times 6.31}{100}$$

$$= \frac{211.5 + 195.75 + 142.45 + 157.75}{100} = \frac{707.25}{100} = 7.0725 \quad \text{i.e. } 7.07$$

The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts. Ex. 7.0765 = 7.08 or 7.0755 = 7.07 or 6.5168 = 6.52 etc.

Transcript (Format): Based on the above recommendations on Letter grades, grade points and SGPA and CCPA, the HEIs may issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

Appendix 12
Workload Chart for M. Sc. Subjects in Faculty of Science & Technology

Note:

1. The M. Sc. Course is semester pattern comprising of total Four Semester Except M. Sc. Tech (Applied Geology) where it is of Six semesters
2. Sem I, III and V from June to Nov/Dec and Sem II, IV and VI from Dec/Jan to April
3. Each Theory or Practical or Tutorials or Seminar period is of One hour duration.
4. Ref. Column No 8 & 9 – the workload depends on Theory, Core Elective, Foundation Papers and Practical Batches, hence total workload can not be given.

S. No.	Name of the subject according to University Syllabi	Post Graduate Degree semester	Total no. of papers	Total Periods in a week				Total workload / Periods	Remarks
				Theory Periods	Practical Periods	Seminar (Equivalent to Theory periods)	Total workload in Hours		
1	2	3	4	5	6	7	8	9	10
1	Physics	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
2	Chemistry	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
3	Mathematics	Sem I	5	25	--	--	--	--	-No Practical-
		Sem III	5	25	--	--	--	--	
		Sem II	5	25	--	--	--	--	
		Sem IV	5	25	--	--	--	--	
4	Statistics	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
5	Computer Science	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
6	Information Technology	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
7	Electronics	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
8	Botany	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	

9	Zoology	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	

		Sem IV	4	16	16	2	--	--	for Practical
10	Microbiology	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
11	Biochemistry	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
12	Biotechnology	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
13	Environmental Science	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
14	Molecular Biology & Genetic Engineering	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
15	Geology	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
16	Medicinal Plants	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
17	Applied Tech Geology	Sem I	4	16	16	2	--	--	A batch will not exceed by more than 11 students for Practical
		Sem III	4	16	16	2	--	--	
		Sem V	4	16	16	2	--	--	
		Sem II	4	16	16	2	--	--	
		Sem IV	4	16	16	2	--	--	
		Sem VI	4	16	16	2	--	--	

Appendix – 13

Equivalence of Syllabus showing between CBS & CBCS syllabus for desirous students

Such candidates of the CBS system have to clear equivalent papers as shown in the annexure of concerned subject (attached to this Appendix-13) to get admission in the Choice Based Credit System.

ANNEXURE M. Sc. (Tech) Applied Geology

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc (Tech) Semester I and II and in the year 2016-17, at M.Sc. (Tech) Semester –III and Semester IV and in the year 2017-18 at M. Sc. (Tech) Semester V and VI

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. (Tech) Applied Geology CBS Pattern : Semester -I						M.Sc. (Tech) Applied Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Mineralogy and Crystallography (3+1)	100	4		I	1T1		Mineralogy and Crystallography (3+1)	80+ 20	4
02		Paper II	Igneous Petrology (4)	100	4		I	1T2		Igneous Petrology (4)	80+20	4
03		Paper III	Sedimentology (4)	100	4		I	1T3		Sedimentology (4)	80+20	4
04		Paper IV	Paleontology and Applied Paleobiology (3+1)	100	4		I	1T4		Paleontology and Applied Paleobiology (3+1)	80+20	4
05		Practical I	Mineralogy, Crystallography, and Igneous Petrology	80+ 20	4		I	1P1		Mineralogy, Crystallography, and Igneous Petrology	100	4
06	:	Practical II	Sedimentology, Paleontology and Applied Paleobiology	80+20	4		I	1P2		Sedimentology, Paleontology and Applied Paleobiology	100	4
07		Seminar-I		25	1		I	1S1		Seminar-I	25	1
M.Sc. (Tech) Applied Geology CBS Pattern : Semester -II						M.Sc. (Tech) Applied Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Metamorphic Petrology (4)	100	4		II	2T1		Metamorphic Petrology (4)	80+20	4

02		Paper II	Structural Geology, Geodynamics and Tectonics (3+1)	100	4			II	2T2		Structural Geology, Geodynamics and Tectonics (3+1)	80+20	4
03		Paper III	Stratigraphy and Indian Geology (2+2)	100	4			II	2T3		Stratigraphy and Indian Geology (2+2)	80+20	4
04		Paper IV	Precambrian Geology, Geodesy and Mapping (1+2+1)	100	4			VI	6T4		Geodesy and Mapping (Semester VI)	80+20	4
05		Practical I	Metamorphic Petrology and Structural Geology	80+20	4			II	2P1		Metamorphic Petrology and Structural Geology	100	4
06		Practical II	Stratigraphy, Indian Geology, Geodesy, Geological Field Work and Mapping	80+20	4			II	2P2		Stratigraphy, Geochemistry, Geological Field Work and Mapping	100	4
07		Seminar-II	-----	25	1			II	2S1		Seminar-II	25	1
M.Sc. (Tech) Applied Geology CBS Pattern : Semester -III						M.Sc. (Tech) Applied Geology Choice Based Credit System (CBCS)							
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits	
01		Paper I	Geochemistry (4)	100	4		II	2T4		Geochemistry (Semester II)	80+20	4	
02		Paper II	Instrumentation Techniques, Geostatistics and Computer Application in Geology (1+2+1)	100	4		III	3T1		Instrumentation Techniques, Geostatistics and Computer Application in Geology	80+20	4	
03		Paper III	Ore Geology (4)	100	4		III	3T3		Ore Geology (4)	80+20	4	
04		Paper IV	Mining Geology & Valuation of Mineral Property (2+2)	100	4		III	3T4		Mining Geology & Valuation of Mineral Property (2+2)	80+20	4	
05		Practical I	Geochemistry, Instrumentation Techniques, Geostatistics, Computer Application in Geology	80+20	4		III	3P1		Instrumentation Techniques, Geostatistics, Computer Application in Geology	100	4	
06		Practical II	Ore Geology, Mining Geology and Valuation of Mineral Property	80+20	4		III	3P2		Ore Geology, Mining Geology and Valuation of Mineral Property	100	4	

07		Seminar-III		25	1		III	3S1		Seminar-III	25	1
M.Sc. (Tech) Applied Geology CBS Pattern : Semester -IV						M.Sc. (Tech) Applied Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Indian Mineral Deposits and Mineral Economics (3+1)	100	4		III	3T2		Indian Mineral Deposits and Mineral Economics (3+1) (Semester III)	80+20	4
02		Paper II	Mineral Exploration (4)	100	4		IV	4T1		Mineral Exploration (4)	80+20	4
03		Paper III	Elements of Mining and Drilling Techniques (3+1)	100	4		IV	4T2		Elements of Mining and Drilling Techniques (3+1)	80+20	4
04		Paper IV	Geomorphology, Remote Sensing and GIS (1+2+1)	100	4		IV	4T3		Geomorphology, Remote Sensing and GIS (1+2+1)	80+20	4
05		Practical I	Mineral Exploration and Mine/ Industrial Training	80+20	4		IV	4P1		Mineral Exploration and Mine/ Industrial Training	100	4
06		Practical II	Geomorphology, Remote Sensing and GIS	80+20	4		IV	4P2		Geomorphology, Remote Sensing and GIS & Fuel Geology	100	4
07			Seminar IV	25	1		IV	4S1		Seminar-IV	25	1
M.Sc. (Tech) Applied Geology CBS Pattern : Semester -V						M.Sc. (Tech) Applied Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Fuel Geology (Coal, Petroleum and Nuclear) (2+1+1)	100	4		IV	4T4		Fuel Geology (Coal, Petroleum and Nuclear) (2+1+1) (Semester IV)	80+20	4
02		Paper II	Ore Microscopy and Ore Dressing (1+3)	100	4		V	5T1		Ore Microscopy and Ore Dressing (1+3)	80+20	4
03		Paper III	Hydrogeology and Watershed Management (3+1)	100	4		V	5T2		Hydrogeology and Watershed Management (3+1)	80+20	4

04		Paper IV	<u>Optional (Any one)</u> Exploration Geochemistry (4)	100	4		V	5T3(1)		Exploration Geochemistry (4)	80+20	4	
05		Paper IV	Quaternary Geology & Limnogeology (3+1)	100	4		V	5T3(2)		Quaternary Geology & Limnogeology (3+1)	80+20	4	
06		Paper IV	Marine Geology and Oceanography (3+1)	100	4		VI	6T3(3)		Marine Geology and Oceanography (3+1) (Semester VI)	80+20	4	
07		Paper IV	Basin Analysis and Sequence Stratigraphy (2+2)	100	4		VI	6T3(2)		Basin Analysis and Sequence Stratigraphy (2+2) (Semester VI)	80+20	4	
08		Practical I	Fuel Geology, Ore Microscopy and Ore Dressing	80+20	4		V	5P1		Ore Microscopy, Ore Dressing, Hydrogeology & Watershed Management	100	4	
09		Practical II	Hydrogeology, Watershed Management and Optional	80+20	4		V	5P2		Based on paper 5T3 (Core Elective 1 Optional Exploration Geochemistry or Quaternary Geology & Limnogeology) and Environmental Geology	100	4	
10			Seminar V	25	1			5S1		Seminar-V	25	1	
M.Sc. (Tech) Applied Geology CBS Pattern : Semester -VI							M.Sc. (Tech) Applied Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits		Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Engineering Geology and Geotechniques (3+1)	100	4			VI	6T1		Engineering Geology and Geotechniques (3+1)	80+20	4
02		Paper II	Environmental Geology and Geohazards (3+1)	100	4	V		5T4(1)		Environmental Geology and Geohazards (3+1) (Semester V)	80+20	4	
03		Paper III	Applied and Industrial Micropaleontology (4)	100	4	VI		6T2		Applied and Industrial Micropaleontology (4)	80+20	4	

04		Paper IV	Petroleum Exploration (4)	100	4
05		Practical I	Engineering Geology and Environmental Geology	80+20	4
06		Practical II	Micropaleontology, Petroleum Exploration and Geological Field Work	80+20	4
07			Seminar VI	25	1

VI	6T3(1)		Petroleum Exploration (4)	80+20	4
VI	6P1		Engineering Geology and Applied & Industrial Micropaleontology	100	4
VI	6P2		Based on Paper 6T3 (Core Elective 2 Optional: Petroleum Exploration / Basin Analysis and Sequence Stratigraphy / Marine Geology and Oceanography) Geodesy and Geological Field Work	100	4
VI	6S1		Seminar-VI	25	1

ANNEXURE M. Sc. Geology

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Geology CBS Pattern : Semester -I						M.Sc. Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Mineralogy and Crystallography (3+1)	100	4		I	1T1		Mineralogy and Crystallography (3+1)	80+ 20	4
02		Paper II	Igneous Petrology (4)	100	4		I	1T2		Igneous Petrology (4)	80+20	4
03		Paper III	Metamorphic Petrology and Precambrian Geology (3+1)	100	4		I	1T3		Metamorphic Petrology and Geological Mapping (3+1)	80+20	4
04		Paper IV	Stratigraphy and Indian Geology (2+2)	100	4		I	1T4		Stratigraphy and Indian Geology (2+2)	80+20	4
05		Practical I	Mineralogy, Crystallography, Igneous Petrology	80+ 20	4		I	1P1		Mineralogy, Crystallography, Igneous Petrology	100	4
06	:	Practical II	Metamorphic Petrology and Stratigraphy	80+20	4		I	1P2		Metamorphic Petrology, Geological Mapping and Stratigraphy	100	4
07		Seminar-I		25	1		I	1S1		Seminar-I	25	1
M.Sc. Geology CBS Pattern : Semester -II						M.Sc. Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Sedimentology, Geostatistics and Computer Application in Geology	100	4		II	2T1		Sedimentology, Geostatistics and Computer Application in	80+20	4

			(3+1)		
02		Paper II	Paleontology and Applied Paleobiology (3+1)	100	4
03		Paper III	Geochemistry & Instrumentation Techniques (3+1)	100	4
04		Paper IV	Structural Geology, Geodynamics & Tectonics (3+1)	100	4
05		Practical I	Sedimentology, Geostatistics, Computer Application in Geology, Paleontology and Applied Paleobiology	80+20	4
06		Practical II	Geochemistry, Structural Geology and Geological Field Work and Mapping	80+20	4
07		Seminar-II	-----	25	1

			Geology (3+1)		
II	2T2		Paleontology and Applied Paleobiology (3+1)	80+20	4
II	2T3		Geochemistry & Instrumentation Techniques (3+1)	80+20	4
II	2T4		Structural Geology, Geodynamics & Tectonics (3+1)	80+20	4
II	2P1		Sedimentology, Geostatistics, Computer Application in Geology, Paleontology and Applied Paleobiology	100	4
II	2P2		Geochemistry, Structural Geology, Geological Field Work and Mapping	100	4
II	2S1		Seminar-II	25	1

M.Sc. Geology CBS Pattern : Semester -III

M.Sc. Geology Choice Based Credit System (CBCS)

S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Fuel Geology (Coal, Petroleum and Nuclear) (2+1+1)	100	4
02		Paper II	Environmental Geology and Engineering Geology (2 + 2)	100	4
03		Paper III	Geomorphology, Remote Sensing and GIS (1+2+1)	100	4
04		Paper IV	Hydrogeology & Watershed Management (3+1)	100	4

Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
	IV	4T4(1)		Fuel Geology (Coal, Petroleum and Nuclear) (2+1+1) (Semester IV)	80+20	4
	III	3T4(1)		Environmental Geology and Engineering Geology (2 + 2)	80+20	4
	III	3T2		Geomorphology, Remote Sensing and GIS (1+2+1)	80+20	4
	III	3T1		Hydrogeology & Watershed Management (3+1)	80+20	4

05		Practical I	Fuel Geology, Environmental Geology & Engineering Geology	80+20	4		3P2		Based on Paper 3T3 (Core Elective 1 Mining Geology and Mineral Exploration / Applied & Industrial Micropaleontology / Petroleum Exploration) and Environmental Geology & Engineering Geology	100	4	
06		Practical II	Geomorphology, Remote Sensing, GIS, Hydrogeology & Watershed Management	80+20	4		3P1		Hydrogeology & Watershed Management, Geomorphology, Remote Sensing & GIS	100	4	
07		Seminar-III		25	1		3S1		Seminar-III	25	1	
M.Sc. Geology CBS Pattern : Semester -IV						M.Sc. Geology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Ore Geology and Ore Microscopy (3+1)	100	4		IV	4T1		Ore Geology and Ore Microscopy (3+1)	80+20	4
02		Paper II	Indian Mineral Deposits and Mineral Economics (3+1)	100	4		IV	4T2		Indian Mineral Deposits and Mineral Economics (3+1)	80+20	4
03		Paper III	Mining Geology & Mineral Exploration (1+3)	100	4		III	3T3(1)		Mining Geology & Mineral Exploration (1+3) (Semester III)	80+20	4
04		Paper IV	Optional (Any one) 1) Exploration Geochemistry (4)	100	4		IV	4T3(1)		Optional (Any one) 1) Exploration Geochemistry (4)	80+20	4
05		Paper IV	2) Applied and Industrial Micropaleontology (4)	100	4		III	3T3(2)		2) Applied and Industrial Micropaleontology (4) (Semester III)	80+20	4
06		Paper IV	3) Petroleum Exploration (4)	100	4		III	3T3(3)		3) Petroleum Exploration (4) (Semester	80+20	4

07		Paper IV	4) Quaternary Geology and Limnogeology (3+1)	100	4
07		Paper IV	5) Basin analysis and Sequence Stratigraphy (2+2)	100	4
08		Paper IV	6) Marine Geology and Oceanography (3+1)		
09		Practical I	Ore Geology, Ore Microscopy, Mineral Exploration, Optional and Geological Field Work	80+20	4
10		Practical II	Project Work	80+20	4
11			Seminar IV	25	1

			III)		
IV	4T3(2)		4) Quaternary Geology and Limnogeology (3+1)	80+20	4
IV	4T3(3)		5) Basin analysis and Sequence Stratigraphy (2+2)	80+20	4
IV	4T3(4)		6) Marine Geology and Oceanography (3+1)	80+20	4
IV	4P1		Ore Geology, Ore Microscopy, based on Paper 4T3 (Core Elective 2: Exploration Geochemistry/ Quaternary Geology & Limnogeology / Basin analysis and Sequence Stratigraphy /Marine Geology and Oceanography) and Fuel Geology & Geological Field Work	100	4
IV	4PROJ 1		Project	100	4
	4S1		Seminar-IV	25	1

Absorption Scheme for M.Sc. (Mathematics)

Absorption Scheme for M.Sc. MATHEMATICS CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 ‘b’, ‘c’, ‘d’, and ‘e’)							Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. (Mathematics) CBS Pattern : Semester –I							M.Sc. (Mathematics) Choice Based Credit System (CBCS)						
S. No.	Semester	Code No.	Paper	Subject	Total Marks	Credits	Equivalence To	Semester	Code No.	Paper	Subject	Total Marks	Credits
01	Sem I		Paper I	Algebra-I	100+25	5		Sem I	1T1	Paper I	Algebra-1	100+25	5
02	Sem I		Paper II	Real Analysis-I	100 +25	5		Sem I	1T2	Paper II	Real Analysis-I	100 +25	5
03	Sem I		Paper III	Topology -I	100+25	5		Sem I	1T3	Paper III	Topology I	100+25	5
04	Sem I		Paper IV	Linear Algebra and Differential Equations	100+25	5		Sem I	1T4	Paper IV	Linear Algebra and Differential Equations	100+25	5
05	Sem I		Paper V	Optional Papers: (i) Numerical Analysis (ii) Integral Equations (iii)Fuzzy Mathematics-I	100+ 25	5		Sem I	1T5	Paper V	Integral Equations	100+25	5
M.Sc. (Mathematics) CBS Pattern : Semester –II							M.Sc. (Mathematics) Choice Based Credit System (CBCS) :						
S. No.	Semester	Code No.	Paper	Subject	Total Marks	Credits	Equivalence To	Semester	Code No.	Paper	Subject	Total Marks	Credits
01	Sem II		Paper VI	Algebra-II	100+25	5		Sem II	2T1	Paper VI	Algebra-II	100+25	5
02	Sem II		Paper VII	Real Analysis-II	100 +25	5		Sem II	2T2	Paper VII	Real Analysis-II	100 +25	5
03	Sem II		Paper VIII	Topology -II	100+25	5		Sem II	2T3	Paper VIII	Topology -II	100+25	5
04	Sem II		Paper IX	Differential Geometry	100+25	5		Sem II	2T4	Paper IX	Differential Geometry	100+25	5
05	Sem II		Paper X	Optional Papers: (i) Classical Mechanics	100+ 25	5		Sem II	2T5	Paper X	Classical Mechanics	100+25	5

				(ii) Mathematical Methods (iii) Fuzzy Mathematics-II									
M.Sc. (Mathematics) CBS Pattern : Semester –III							M.Sc.(Mathematics) Choice Based Credit System (CBCS)						
S. No.	Semester	Code No.	Paper	Subject	Total Marks	Credits	Equivalence To	Semester	Code No.	Paper	Subject	Total Marks	Credits
01	Sem III		Paper XI	Complex Analysis	100 +25	5		Sem III	3T1	Paper XI	Complex Analysis	100+25	5
02	Sem III		Paper XII	Functional Analysis	100 +25	5		Sem III	3T2	Paper XII	Functional Analysis	100+25	5
03	Sem III		Paper XIII	Fluid Dynamics-I	100+25	5		Sem III	3T3	Paper XIII	Fluid Dynamics-I	100+25	5
04	Sem III		Paper XIV	General Relativity	100+25	5		Sem III	3T4	Paper XIV	General Relativity	100+25	5
05	Sem III		Paper XV	Operation Research -I	100+25	5		Sem III	3T4	Paper XV	(Core Subject Centric- I) Operation Research –I	100+25	5
05	Sem III		Paper XV	Algebraic Topology-I	100+25	5		Sem III	3T5	Paper XV	Algebraic Topology-I	100+25	5
06	Sem III		Paper XVI	Operator Theory	100+25	5		Sem III	3T6	Paper XVI	Operator Theory	100+25	5
07	Sem III		Paper XVII	Non Linear Programming	100+25	5		Sem III	3T7	Paper XVII	Non Linear Programming-I	100+25	5
08	Sem III		Paper XVIII	MATLAB Programming	100+25	5		Sem III	3T8	Paper XVIII	Non Linear Programming-I	100+25	5
M.Sc. (Mathematics) CBS Pattern : Semester –IV							M.Sc.(Mathematics) Choice Based Credit System (CBCS)						
S. No.	Semester	Code No.	Paper	Subject	Total Marks	Credits	Equivalence To	Semester	Code No.	Paper	Subject	Total Marks	Credits
01	Sem IV		Paper XIX	Dynamical System	100+25	5		Sem IV	4T1	Paper - XIX	Dynamical System	100+25	5
02	Sem IV		Paper XX	Partial Differential Equations	100+25	5		Sem IV	4T2	Paper XX	Partial Differential Equations	100+25	5

03	Sem IV	Paper XXI	(i) Fluid Dynamics-II	100+25	5		Sem IV	4T3	Paper XXI	Fluid Dynamics-II	100+25	5
04	Sem IV	Paper XXII	(ii) Cosmology	100+25	5		Sem IV	4T4	Paper XXII	Cosmology	80+20	5
05	Sem IV	Paper XXIII	(iii) Operation Research –II	100+25	5		Sem IV	4T4	Paper XXIII	(Core Subject Centric- I) Operation Research –II	100+25	5
05	Sem IV	Paper XIV	(iv) Algebraic Topology-II	100+25	5		Sem IV	4T4	Paper XIV	Algebraic Topology-II	100+25	5
06	Sem IV	Paper XVI	(v) Advanced Algebra	100+25	5		Sem IV	4T4	Paper XVI	Advanced Algebra	100+25	5
07	Sem IV	Paper XVII	(vi) Banach Algebra	100+25	5		Sem IV	4T4	Paper XVII	Advanced Algebra	100+25	5
08	Sem IV	Paper XVIII	(vii) Computational Fluid Dynamics	100+25	5		Sem IV	4T4	Paper XVIII	Non Linear Programming-II	100+25	5

ANNEXURE M. Sc. MICROBIOLOGY

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Microbiology CBS Pattern : Semester -I						M.Sc. Microbiology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MB1-T001	Paper I	MICROBIAL DIVERSITY AND EVOLUTION (MDE)	100	4		Sem - III	3T3	Paper III	MICROBIAL DIVERSITY, EVOLUTION AND ECOLOGY (MDEE) – 1	80+ 20	4
02	MB1-T002	Paper II	MICROBIAL METABOLISM (MM)	100	4		Sem -I	1T1	Paper I	MICROBIAL METABOLISM (MM)	80+20	4
03	MB1-T003	Paper III	ENZYMOLGY AND TECHNIQUES (ET)	100	4		Sem -I	1T2	Paper II	ENZYMOLGY AND TECHNIQUES (ET)	80+20	4
04	MB1-T004	Paper IV	MICROBIAL ECOLOGY (ME)	100	4		Sem - IV	4T3	Paper III	MICROBIAL DIVERSITY, EVOLUTION AND ECOLOGY (MDEE) – 2	80+20	4
05	MB1-LAB1	Practical-I	LABORATORY EXERSICE 1	80+ 20	4		Sem -I	1P1	Practical - I	LABORATORY EXERSICE - 1	100	4
06	MB1-LAB2	Practical-II	LABORATORY EXERSICE 2	80+20	4		Sem - II	2P2	Practical - III	LABORATORY EXERSICE - 2	100	4
07	MB1-INT1	Seminar-I	SEMINAR	25	1		Sem -I	1S1	SEMINAR	SEMINAR	25	1
M.Sc. Microbiology CBS Pattern : Semester -II						M.Sc. Microbiology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MB2-T005	Paper V	ADVANCE TECHNIQUES IN MICROBIOLOGY (ATM)	100	4		Sem -I	1T3	Paper III	ADVANCE TECHNIQUES IN MICROBIOLOGY (ATM)	80+20	4

02	MB2-T006	Paper VI	MEMBRANE STRUCTURE AND SIGNAL TRANSDUCTION (MSST)	100	4	Sem - I	1T4	Paper IV	MEMBRANE STRUCTURE AND SIGNAL TRANSDUCTION (MSST)	80+20	4	
03	MB2-T007	Paper VII	MICROBIAL METHODS FOR ENVIRONMENT MANAGEMENT (MMEM)	100	4	Sem - II	2T1	Paper I	MICROBIAL METHODS FOR ENVIRONMENT MANAGEMENT (MMEM)	80+20	4	
04	MB2-T008	Paper VIII	MICROBIAL METABOLITES (MMT)	100	4	Sem - II	2T2	Paper II	MICROBIAL METABOLITES (MMT)	80+20	4	
05	MB2-LAB3	Practical-III	LABORATORY EXERSICE 3	80+20	4	Sem - I	1P2	Practical - II	LABORATORY EXERSICE 2	100	4	
06	MB2-LAB4	Practical-IV	LABORATORY EXERSICE 4	80+20	4	Sem - I	1P1	Practical - I	LABORATORY EXERSICE 1	100	4	
07	MB2-INT2	Seminar-II	SEMINAR	25	1	Sem - II	2S1	SEMINAR	SEMINAR	25	1	
M.Sc. Microbiology CBS Pattern : Semester -III						M.Sc. Microbiology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MB3-T009	Paper IX	MEDICAL MICROBIOLOGY AND PARASITOLOGY (MMP)	100	4		Sem - II	2T3	Paper III	MEDICAL MICROBIOLOGY AND PARASITOLOGY (MMP)	80+20	4
02	MB3-T010	Paper X	IMMUNOLOGY AND IMMUNODIAGNOSTICS (IID)	100	4		Sem - II	2T4	Paper IV	IMMUNOLOGY AND IMMUNODIAGNOSTICS (IID)	80+20	4
03	MB3-T011	Paper XI	BIOINFORMATICS (BIF)	100	4		Sem - III	3T3	Paper III	BIOINFORMATICS (BIF) - 1	80+20	4
04	MB3-T012	Paper XII	MICROBIAL FERMENTATION TECHNOLOGY (MFT)	100	4		Sem - IV	4T2	Paper II	MICROBIAL FERMENTATION TECHNOLOGY (MFT)	80+20	4

05	MB3-LAB5	Practical V	LABORATORY EXERSICE 5	80+20	4	Sem - II	2P1	Practical – III	LABORATORY EXERSICE 1	100	4	
06	MB3-LAB6	Practical VI	LABORATORY EXERSICE 6	80+20	4	Sem - II	2P2	Practical – IV	LABORATORY EXERSICE 2	100	4	
07	MB3-INT3	Seminar-III	SEMINAR	25	1	Sem - III	3S1	Seminar	Seminar	25	1	
M.Sc. Chemistry Microbiology CBS Pattern : Semester -IV						M.Sc. Subject Microbiology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MB4-T013	Paper XIII	MOLECULAR BIOLOGY AND GENETICS (MBG)	100	4		Sem - III	3T1	Paper I	MOLECULAR BIOLOGY AND GENETICS (MBG)	80+20	4
02	MB4-T014	Paper XIV	VIROLOGY (VIR)	100	4		Sem - IV	4T1	Paper I	VIROLOGY (VIR)	80+20	4
03	MB4-T015	Paper XV	DRUGS, VACCINES AND DELIVERY SYSTEMS (DVD)	100	4		Sem - III	3T4	Paper IV	DRUG AND DISEASE MANAGEMENT (DDM)	80+20	4
04	MB4-T016	Paper XVI	RECOMBINANT DNA TECHNOLOGY (RDT)	100	4		Sem - III	3T2	Paper II	RECOMBINANT DNA TECHNOLOGY AND NANOBIO TECHNOLOGY (RDTN)	80+20	4
05	MB4-LAB7	Practical VII	LABORATORY EXERSICE 7	80+20	4		Sem - III	3P1	Practical – V	LABORATORY EXERSICE 1	100	4
06	MB4-PROJ	Project	PROJECT WORK	80+20	4		Sem - IV	4PROJ1	PROJECT	PROJECT WORK	100	4
07	MB4-INT4	Seminar IV	SEMINAR	25	1		Sem - IV	4S1	SEMINAR	SEMINAR	25	1

ANNEXURE M. Sc. STATISTICS

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Statistics.. CBS Pattern : Semester -I						M.Sc. Statistics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MST 101	Paper I	Elements of Mathematical Analysis	100	4		I	1T1	Paper I	Elements of Mathematical Analysis	80+ 20	4
02	MST 102	Paper II	Distribution Theory	100	4		I	1T2	Paper II	Distribution Theory	80+20	4
03	MST 103	Paper III	Estimation Theory	100	4		I	1T3	Paper III	Estimation Theory	80+20	4
04	MST 104	Paper IV	Sampling Theory	100	4		I	1T4	Paper IV	Sampling Theory	80+20	4
05	Practical - I	Practical-I	Practical - I	80+ 20	4		I	1P1	Practical I	Practical - I	100	4
06	Practical - II	Practical-II	Practical - II	80+20	4		I	1P2	Practical II	Practical - II	100	4
07	Seminar	Seminar-I		25	1		I	1S1	Seminar	Seminar-I	25	1
M.Sc. Statistics CBS Pattern : Semester -II						M.Sc. Statistics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MST 201	Paper I	Probability Theory	100	4		II	2T1	Paper I	Probability Theory	80+20	4
02	MST 202	Paper II	Elementary Stochastic Processes	100	4		II	2T2	Paper II	Elementary Stochastic Processes	80+20	4
03	MST 203	Paper III	Testing of Hypothesis	100	4		II	2T3	Paper III	Testing of Hypothesis	80+20	4

04	MST 204	Paper IV	Linear Models and Designs of Experiments	100	4	II	2T4	Paper IV	Linear Models and Designs of Experiments	80+20	4	
05	Practical I	Practical-I	Practical - I	80+20	4	II	2P1	Practical I	Practical - I	100	4	
06	Practical II	Practical-II	Practical - II	80+20	4	II	2P2	Practical II	Practical - II	100	4	
07	Seminar	Seminar	-----	25	1	II	2S1	Seminar	Seminar-II	25	1	
M.Sc. Statistics CBS Pattern : Semester -III						M.Sc. Statistics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MST 301	Paper I	Decision Theory and Non parametric Methods	100	4		III	3T1	Paper I	Decision Theory and Non parametric Methods	80+20	4
02	MST 302	Paper II	Linear and Nonlinear Modeling	100	4		III	3T2	Paper II	Linear and Nonlinear Modeling	80+20	4
03	MST 303	Paper III	Mathematical Programming	100	4		III	3T3-A	Paper III	Mathematical Programming	80+20	4
04	MST 304	Paper IV	Industrial Process and Quality Control	100	4		III	3T4-A	Paper IV	Industrial Process and Quality Control	80+20	4
05	Practical I	Practical I	Practical - I	80+20	4		III	3P1	Practical I	Practical - I	100	4
06	Practical II	Practical II	Practical - II	80+20	4		III	3P2	Practical II	Practical - II	100	4
07	Seminar	Seminar-III	Seminar	25	1		III	3S1	Seminar	Seminar-III	25	1
M.Sc. Statistics CBS Pattern : Semester -IV						M.Sc. Statistics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	MST 401	Paper I	Multivariate Analysis	100	4		IV	4T1	Paper I	Multivariate Analysis	80+20	4
02	MST 402	Paper II	Computational Statistics	100	4		IV	4T2	Paper II	Computational Statistics	80+20	4

03	MST 403	Paper III	Operations Research	100	4
04	MST 404	Paper IV	Industrial Statistics	100	4
05	Practical I	Practical I	Practical - I	80 + 20	4
06	Practical II	Project	Project	80+20	4
07	Seminar	Seminar	Seminar	25	1

IV	4T3 -A	Paper III	Operations Research	80+20	4
IV	4T4- A	Paper IV	Industrial Statistics	80+20	4
IV	4P1	Practical I	Practical - I	100	4
IV	4PROJ 2	Project	Project	100	4
IV	4S1	Seminar	Seminar IV	25	1

ANNEXURE M. Sc. CHEMISTRY

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern(introduced in the year 2015-16 at M.Sc. Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 3 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Subject CHEMISTRY CBS Pattern : Semester -I						M.Sc. Subject CHEMISTRY Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	CH-101:	Paper I	(Inorganic Chemistry)	100	4		Sem I	1T1	Paper I	(Inorganic Chemistry)	80+ 20	4
02	CH-102:	Paper II	(Organic Chemistry)	100	4		Sem I	1T2	Paper II	(Organic Chemistry)	80+20	4
03	CH-103:	Paper III	(Physical Chemistry)	100	4		Sem I	1T3	Paper III	(Physical Chemistry)	80+20	4
04	CH-104:	Paper IV	(Analytical Chemistry)	100	4		Sem I	1T4	Paper IV	(Analytical Chemistry)	80+20	4
05	CH-105:	Practical-I	(Inorganic Chemistry)	80+ 20	4		Sem I	1P1	Practical-I	(Inorganic Chemistry)	100	4
06	CH-106:	Practical-II	(Physical Chemistry)	80+20	4		Sem I	1P3	Practical-II	(Physical Chemistry)	100	4
07	CH-107:	Seminar-I	Seminar-I	25	1		Sem I	1S1	Seminar-I	Seminar-I	25	1

M.Sc. Subject: CHEMISTRY CBS Pattern : Semester -II						M.Sc. Subject: CHEMISTRY Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	CH-201:	Paper V	(Inorganic Chemistry)	100	4		Sem II	2T1	Paper V	(Inorganic Chemistry)	80+20	4
02	CH-202:	Paper VI	(Organic Chemistry)	100	4		Sem II	2T2	Paper VI	(Organic Chemistry)	80+20	4
03	CH-203:	Paper VII	(Physical Chemistry)	100	4		Sem II	2T3	Paper VII	(Physical Chemistry)	80+20	4
04	CH-204:	Paper VIII	(Analytical Chemistry)	100	4		Sem II	2T4	Paper VIII	(Analytical Chemistry)	80+20	4
05	CH-205:	Practical-III	(Organic Chemistry)	80+20	4		Sem II	2P2	Practical-III	(Organic Chemistry)	100	4
06	CH-206:	Practical-IV	(Analytical Chemistry)	80+20	4		Sem II	2P4	Practical-IV	(Analytical Chemistry)	100	4
07	CH-207:	Seminar-II	Seminar-II	25	1		Sem II	2S1		Seminar-II	25	1

M.Sc. Subject: CHEMISTRY CBS Pattern : Semester -III						M.Sc. Subject CHEMISTRY Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	CH-301:	Paper IX	(Spectroscopy)	100	4		Sem III	3T4*	Paper -XII	Core Subject Centric Spectroscopy - I	80+20	4
02	CH-302:	Paper X	(Special I-Inorganic /Organic/ Physical/Analytical)	100	4		Sem III	3T1	Paper IX	(Special I-Inorganic /Organic/ Physical/Analytical)	80+20	4
03	CH-303:	Paper XI	(Special II-Inorganic /Organic/ Physical/Analytical)	100	4		Sem III	3T2	Paper X	(Special II-Inorganic /Organic/ Physical/Analytical)	80+20	4
04	CH-304:	Paper XII	(Elective- Nuclear/ Environmental/Polymer/Medical)	100	4		Sem III	3T3	Paper XI	(Elective- Nuclear/ Environmental /Polymer/Medicinal	80+20	4
05	CH-304	Paper XII	Elective-Applied Analytical	100	4		Sem III	3T4#	Paper- XII	Foundation Course Applied Analytical Chemistry -I	80+20	4
06	CH-305:	Practical V	Special (Inorganic /Organic/ Physical/Analytical)	80+20	4		Sem III	3P1	Practical V-	Special (Inorganic /Organic/ Physical/Analytical)	100	4
07	CH-306:	Practical VI	Elective (Applied Analytical/ Nuclear/ Environmental/Polymer/Medical)	80+20	4		Sem III	3P3	Practical VI- Elective	Elective (Nuclear/Environmental/ Polymer/Medicinal)	100	4
08	CH-307	Seminar-III	Seminar-III	25	1		Sem III	3S1	Seminar-III	Seminar-III	25	1

* Core Subject Centric –I; # Foundation Course

M.Sc. Chemistry CHEMISTRY CBS Pattern : Semester -IV						M.Sc. Subject CHEMISTRY Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	CH-401:	Paper XIII	(Spectroscopy)	100	4		Sem IV	4T4**	Paper -XVI	Core Subject Centric Spectroscopy-II	80+20	4
02	CH-402:	Paper XIV	(Special I-Inorganic /Organic/ Physical/Analytical)	100	4		Sem IV	4T1	Paper XIII	(Special I-Inorganic /Organic/ Physical/Analytical)	80+20	4
03	CH-403:	Paper XV	(Special II-Inorganic /Organic/ Physical/Analytical)	100	4		Sem IV	4T2	Paper XIV	(Special II-Inorganic /Organic/ Physical/Analytical)	80+20	4
04	CH-404:	Paper XVI	(Elective- Nuclear/ Environmental/Polymer/Med icinal)	100	4		Sem IV	4T3	Paper XI	(Elective- Nuclear/ Environmental /Polymer/Medicinal	80+20	4
05	CH-404	Paper XVI	Elective-Applied Analytical				Sem IV	4T4#	Paper- XII	Foundation Course Applied Analytical Chemistry -I	80+20	4
05	CH-405:	Practical VII	Special (Inorganic /Organic/ Physical/Analytical)	80+20	4		Sem IV	4P1	Practical VII	Special (Inorganic /Organic/ Physical/Analytical)	100	4
06	CH-406:	Project	Project	80+20	4		Sem IV	4PROJ1	Project	Special (Inorganic /Organic/ Physical/Analytical)	100	4
07	CH-407	Seminar IV	Seminar IV				Sem IV	4S1	Seminar-IV	Seminar-IV	25	1

**Core Subject Centric – II; # Foundation Course

ANNEXURE M. Sc. BIOTECHNOLOGY

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. BIOTECHNOLOGY CBS Pattern : Semester -I						M.Sc. BIOTECHNOLOGY Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	-	Paper I	Cell Biology and Enzymology	100	4		Sem I	(Core1) 1T1	Paper I	Cell Biology and Enzymology	80+ 20	4
02	-	Paper II	Molecular Biology	100	4		Sem I	(Core2) 1T2	Paper II	Molecular Biology	80+20	4
03	-	Paper III	Biomolecules	100	4		Sem I	(Core3) 1T3	Paper III	Biomolecules	80+20	4
04	-	Paper IV	Biophysical Technique	100	4		Sem I	(Core4) 1T4	Paper IV	Biophysical Technique	80+20	4
05	-	Practical-I	Cell Biology & Enzymology	80+ 20	4		Sem I	(Pract. Core 1&2) 1P1	Practical-I	Cell Biology & Enzymology	100	4
06	-	Practical-II	Macromolecules & Analytical Techniques	80+20	4		Sem I	(Pract. Core 3&4) 1P2	Practical-II	Macromolecules & Analytical Techniques	100	4
07	-	Seminar-I		25	1		Sem I	(Seminar-1) 1S1	Seminar-I	Seminar-I	25	1
M.Sc. BIOTECHNOLOGY CBS Pattern : Semester -II						M.Sc. BIOTECHNOLOGY Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	-	Paper V	Microbiology	100	4		Sem II	(Core5) 2T1	Paper I	Microbiology	80+20	4
02	-	Paper VI	Industrial Biotechnology and Biostatistics	100	4	Sem III	(Core Elective 1) 3T3	Paper III	(Core Elective A) Industrial Biotechnology I	80+20	4	

03	-	Paper VII	Immunology	100	4
04	-	Paper VIII	Molecular Biology & Bioinformatics	100	4
05	-	Practical-III	Microbiology & Immunology	80+20	4
06	-	Practical-IV	Molecular Biology & Bioinformatics	80+20	4
07	-	Seminar-II	-----	25	1

Sem II	(Core 6) 2T2	Paper II	Immunology	80+20	4
Sem II	(Core8) 2T4	Paper IV	Applied Molecular Biology	80+20	4
Sem II	(Pract. Core 5&6) 2P1	Practical-III	Microbiology & Immunology	100	4
Sem II	(Pract. Core 7&8) 2P2	Practical-IV	Genetic Engineering & Molecular Biology	100	4
Sem II	(Seminar-2) 2S1	Seminar 1	Seminar-II	25	1

M.Sc. BIOTECHNOLOGY CBS Pattern : Semester -III

M.Sc. BIOTECHNOLOGY Choice Based Credit System (CBCS)

S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits
01	-	Paper IX	Animal Biotechnology	100	4
02	-	Paper X	Plant Biotechnology	100	4
03	-	Paper XI	Genetic Engineering-I	100	4
04	-	Paper XII	Genetic Engineering-II	100	4
05	-	Practical V	Animal & Plant Biotechnology	80+20	4
06	-	Practical VI	Genetic Engineering	80+20	4
07	-	Seminar-III		25	1

Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
	Sem-IV	(Core11) 4T1	Paper IX	Animal Biotechnology	80+20	4
	Sem-III	(Core10) 3T2	Paper X	Plant Biotechnology	80+20	4
	Sem-II	(Core7) 2T3	Paper XI	Fundamentals of Genetic Engineering	80+20	4
	Sem-III	(Core9) 3T4	Paper XII	Genetic Engineering and its Applications	80+20	4
	Sem-III	(Pract. Core 9&10) 3P1	Practical V	Genetic Engineering & Plant Biotechnology	100	4
	Sem-II	(Pract. Core 7&8) 2P2	Practical VI	Genetic Engineering & Molecular Biology	100	4
	Sem-III	(Seminar-3) 3S1	Seminar-III	Seminar-III	25	1

M.Sc. BIOTECHNOLOGY CBS Pattern : Semester -IV						M.Sc. BIOTECHNOLOGY Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	-	Paper XIII	Environmental Science & Bioresources	100	4		Sem-III	(Core Elective 1) 3T3	Paper XIII	(Core Elective B) Environmental Biotechnology-I	80+20	4
02	-	Paper XIV	Applied Environmental Biotechnology	100	4		Sem-IV	(Core Elective 2) 4T3	Paper XIV	(Core Elective B) Environmental Biotechnology-II	80+20	4
03	-	Paper XV	Environmental Monitoring & Management	100	4		Sem-III	(Core Elective 1) 3T3	Paper XV	(Core Elective B) Environmental Biotechnology-I	80+20	4
04	-	Paper XVI	Ethics, Patenting and Bio-Entrepreneurship	100	4		Sem-IV	(Core 12) 4T2	Paper XVI	Biostatistics , Bioinformatics, Ethics & Patenting	80+20	4
05	-	Practical VII	Environmental Biotechnology	80+20	4		Sem-III	(Pract. Core Elective 1) 3P2	Practical VII	Industrial Biotechnology OR Environmental Biotechnology	100	4
06	-	Project	Project Work	80+20	4		Sem-IV	4PROJ1	Project	Project Work	100	4
07	-		Seminar IV				Sem-IV	(Seminar-4) 4S1	Seminar IV	Seminar-IV	25	1

ANNEXURE M. Sc. BIOCHEMISTRY

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Biochemistry CBS Pattern : Semester -I						M.Sc. Biochemistry Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	BCH1T001	Paper I	Biophysical Techniques	100	4		I	1T3	Paper I	Biochemical Research Techniques	80+ 20	4
02	BCH1T002	Paper II	Protein Biochemistry	100	4		I	1T1	Paper II	Protein Biochemistry	80+20	4
03	BCH1T003	Paper III	Advanced Enzymology	100	4		I	1T2	Paper III	Advanced enzymology	80+20	4
04	BCH1T004	Paper IV	Plant Biochemistry	100	4		I	1T4	Paper IV	Plant Biochemistry	80+20	4
05	BCH1 LAB1	Practical-I	Analytical Biochemistry & Enzymology	80+ 20	4		I	1P1	Pract.-I	Protein Biochemistry & Enzymology	100	4
06	BCH1 LAB2	Practical-II	Plant Biochemistry	80+20	4		I	1P2	Pract.-II	Biochemical Research Techniques & Plant Biochemistry	100	4
07	BCH1INT1	Seminar-I	Internal Assessment (Seminar)	25	1		I	1S1	Seminar	Seminar-I	25	1
M.Sc. Biochemistry CBS Pattern : Semester -II						M.Sc. Biochemistry Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	BCH2T005	Paper V	Cellular & Molecular Immunology	100	4		II	2T1	Paper I	Cellular & Molecular Immunology	80+20	4
02	BCH2T006	Paper VI	Cell & Molecular Biology Techniques	100	4		III	3T4	Paper II	Bio research Techniques	80+20	4

03	BCH2T007	Paper VII	Clinical Biochemistry	100	4	II	2T2	Paper III	Clinical Biochemistry	80+20	4	
04	BCH2T008	Paper VIII	Molecular Biology	100	4	II	2T4	Paper IV	Molecular Biology	80+20	4	
05	BCH2LAB 3	Practical-III	Cell & Molecular Biology	80+20	4	II	2P2	Pract I	Cell & Molecular Biology	100	4	
06	BCH2LAB 4	Practical-IV	Clinical Biochemistry	80+20	4	II	2P1	Pract. II	Clinical Biochemistry & Immunology	100	4	
07	BCH2INT2	Seminar-II	Internal Assessment(Seminar)	25	1	II	2S1	Seminar	Seminar	25	1	
M.Sc. Biochemistry CBS Pattern : Semester -III						M.Sc. Biochemistry Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	BCH3T009	Paper IX	Advanced Molecular Biology	100	4		III	3T1	Paper I	Advanced Molecular Biology	80+20	4
02	BCH3T001 0	Paper X	Biotechnology	100	4		III	3T2	Paper II	Biotechnology	80+20	4
03	BCH3T011	Paper XI	Immunology	100	4		IV	4T2	Paper III	Advanced Immunology	80+20	4
04	BCH3T001 2	Paper XII	Biochemical & Environmental Toxicology	100	4		III	3T3	Paper IV	Biochemical & Environmental Toxicology	80+20	4
05	BCH3LAB 5	Practical V	Biotechnology & Immunological techniques	80+20	4		III	3P1	Pract. I	Biotechnology & Molecular Biology	100	4
06	BCH3LAB 6	Practical VI	Biochemical & Environmental Toxicology	80+20	4		III	3P2A	Pract II	Toxicology (Biochemical & Environmental Toxicology)	100	4
07	BCH3INT3	Seminar-III	Internal Assessment (PreProject presentation for approval)	25	1		III	3S1	3S1	Seminar	25	1
M.Sc. Biochemistry CBS Pattern : Semester -IV						M.Sc. Biochemistry Choice Based Credit System (CBCS)						

S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits
01	BCH4T0013	Paper XIII	Advanced Clinical Biochemistry	100	4
02	BCH4T014	Paper XIV	Cell Biology & Cellular Biochemistry	100	4
03	BCH4T0015	Paper XV	Nutrition & Biochemistry of Movements	100	4
04	BCH4T0016	Paper XVI	Biostatistics, Research methodology, Technical writing, Computers & Bioinformatics	100	4
05	◆BCH4LAB7	Practical VII	◆Biostatistics, Bioinformatics & Cell biology	80+20	4
05	BCH4PROJ	Project	Project Work	80+20	4
06	BCH4INT4	Seminar IV	Internal Assessment (Final Project Presentation)	25	1

Equivalence To

Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
IV	4T1	Paper I	Advanced Clinical Biochemistry	80+20	4
II	2T3	Paper II	Cell Biochemistry	80+20	4
III	3T3B	Paper III	Nutritional Biochemistry	80+20	4
I	1T3	Paper IV	Biochemical Research Techniques	80+20	4
IV	BCH4LAB7◆	Pract. I	◆Biostatistics & Cell biology	100	4
IV	4PROJ1	Project	Project work	100	4
IV	4S1	4S1	Seminar	25	1

ANNEXURE M. Sc. BOTANY

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')							Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Botany CBS Pattern Semester I							M.Sc. Botany Choice Based Credit System(CBCS) pattern						
Sr. No.	Semester	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Semester	Code No.	Paper	Subject	Total Marks	Credits
01	I	BOT T I	Paper I	Microbiology, Algae and Fungi	100	4		I	1T1	Paper I	Microbiology, Algae and Fungi	80+ 20	4
02	I	BOT T II	Paper II	Bryophytes and Pteridophytes	100	4		I	1T2	Paper II	Bryophytes and Pteridophytes	80+20	4
03	I	BOT T III	Paper III	Gymnosperms and Paleobotany	100	4		I	1T3	Paper III	Gymnosperms and Paleobotany	80+20	4
	04 I	BOT T IV	Paper IV	Cytology and Genetics	100	4		I	1T4	Paper IV	Cytology and Genetics	80+20	4
05	I	BOT P I	Practical -I		80+ 20	4		I	1P1	Practical-I		100	4
06	I	BOT P II	Practical -II		80+20	4		I	1P2	Practical-II		100	4
07	I	Seminar I	Seminar -I		25	1		I	1S1	Seminar-I		25	1
M.Sc. Botany CBS Pattern: Semester II							M.Sc. Botany Choice Based Credit System (CBCS)						
01	II	BOT T V	Paper V	Plant physiology and Biochemistry	100	4	Equivalence To	II	2T1	Paper V	Plant physiology and Biochemistry	80+20	4
02	II	BOT T VI	Paper VI	Plant Development and Reproduction	100	4		II	2T2	Paper VI	Plant Development and Reproduction	80+20	4
03	II	BOT T VII	Paper VII	Cell and Molecular Biology- I	100	4		II	2T3	Paper VII	Cell and Molecular Biology- I	80+20	4
	04 II	BOT T VIII	Paper VIII	Angiosperms- I	100	4		II	2T4	Paper VIII	Angiosperms - I & Ethnobotany	80+20	4
05	II	BOT	Practic		80+20	4		II	2P1	Practical-III		100	4

		P III BOT	al-III										
06	II	P IV	Practical-IV		80+20	4		II	2P2	Practical-IV		100	4
07	II	Seminar-II	Seminar-II		25	1		II	2S1	Seminar-II		25	1
M.Sc. Botany CBS Pattern: Semester III							M.Sc. Botany Choice Based Credit System(CBCS)						
01	III	BOT T IX	Paper IX	Plant Ecology	100	4	Equivalence To	III	3T1	Paper IX	Plant Ecology and Conservation Biology	80+20	4
02	III	BOT	Paper X	Cell and Molecular Biology- II	100	4		IV	4T1	Paper XIII	Cell and Molecular Biology-II	80+20	4
03	III	BOT	Paper XI	Plant Biotechnology	100	4		IV	4T2	Paper XIV	Plant Biotechnology and Plant Breeding	80+20	4
04	III	BOT	Paper XII	Angiosperms- II	100	4		III	3T2	Paper X	Angiosperms-II	80+20	4
05	III	BOT P V BOT	Practical V		80+20	4		III	3P1	Practical V		100	4
06	III	P VI	Practical VI		80+20	4		III	3P2	Practical VII		100	4
07	III	Seminar-III	Seminar-III		25	1		III	3S1	Seminar-III	-----	25	1
M.Sc. Botany CBS Pattern: Semester IV							M.Sc. Botany Choice Based Credit System(CBCS)						
01	IV	BOT T XIII	Paper XIII	Plant conservation, IPR and Ethnobotany	100	4	Equivalence To	II III	2T4	Paper VIII	Ethnobotany	80+20	4
02	IV	BOT T XIV BOT	Paper XIV	Pl. Res. Util., Bioethics, Biosafety, Pl. Breed. & Biostat.	100	4		IV	3T1	Paper IX	Plant Ecology and Conservation Biology	80+20	4
03	IV	T XV	Paper XV	Elective –I	100	4		III	4T2	Paper XIV	Plant Biotechnology and Plant Breeding	80+20	4
04	IV	BOT	Paper XV	Elective –II	100	4		IV	3T3	Paper XI	Elective –I	80+20	4
								IV	4T3	Paper XV	Elective –II	80+20	4

		T XVI	XVI										
05		BOT P VII	Practic al VII		80+20	4		III	3P2	Practical VI		100	4
06		BOT P VIII	Projec t		80+20	4		IV	4PRO J1	Project		100	4
07		Seminar IV	Semin ar IV						4S1	Seminar-IV		25	1

ANNEXURE M. Sc. Molecular Biology and Genetic Engineering

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. MBGE CBS Pattern : Semester -I						M.Sc. MBGE Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	1T	Paper I	Cell Biology	100	4		I	1T1	Paper I	Cell Biology	80+ 20	4
02	II T	Paper II	Basic Biochemistry	100	4		I	1T2	Paper II	Basic Biochemistry	80+20	4
03	IIIT	Paper III	Practical Biochemistry And Analytical Techniques	100	4		II	2T1	Paper I	Biophysical Analytical Techniques	80+20	4
04	IV T	Paper IV	Molecular Biology I	100	4		I	1T3	Paper III	Molecular Biology I	80+20	4
05	V T	Paper V	Molecular Biology II	100	4		1	I T 4	Paper IV	Molecular Biology II		
05	1P	Practical-I	Based On Course I,II,III	80+ 20	4			I PI	Practical-I	Based On Course I,II	100	4
06	II P	Practical-II	Based On Course IV,V	80+20	4			I PII	Practical-II	Based On Course III & IV	100	4
07									Seminar-I	25	1	
M.Sc. MBGE CBS Pattern : Semester -II						M.Sc. MBGE Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	VI T	Paper VI	Enzyme Technology	100	4		II	2T2	Paper II	Enzyme Technology & Immunology	80+20	4

08							3SI		Seminar-III	25	1		
M.Sc. MBGE CBS Pattern : Semester -IV						M.Sc. MBGE Choice Based Credit System (CBCS)							
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits	
06		Project	Project	100	8				4PRO J1		Project	100	4
07			Seminar IV	50	2						Seminar-IV	25	1

NOTE- ELECTIVE PAPER WAS NOT OPERATIVE IN THE CBS HENCE NO NEED OF EQUIVALENCE.
 IN CBS FOURTH SEMESTER WAS FOR ONLY PROJECT AND SEMINAR
 NO SEMINAR IN THE I,II,III SEMESTER IN CBS SYSTEM.

ANNEXURE M. Sc. MEDICINAL PLANTS

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')							Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Medicinal Plants CBS Pattern Semester I							M.Sc. Medicinal Plants Choice Based Credit System(CBCS)						
Sr. No.	Semester	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Semester	Code No.	Paper	Subject	Total Marks	Credits
01	I	T I	Paper I	Indian System of Medicines	100	4		I	1T1	Paper I	Indian System of Medicines	80+ 20	4
02	I	T II	Paper II	Systematics of Plants	100	4		I	1T2	Paper II	Systematics of Plants	80+20	4
03	I	T III	Paper III	Cell & Molecular Biology	100	4		I	1T3	Paper III	Cell & Molecular Biology	80+20	4
04	I	T IV	Paper IV	Modern Analytical Techniques	100	4		I	1T4	Paper IV	Modern Analytical Techniques	80+20	4
05	I	P I	Practical -I		80+ 20	4		I	1P1	Practical-I		100	4
06	I	P II	Practical -II		80+20	4		I	1P2	Practical-II		100	4
07	I	Seminar I	Seminar -I		25	1		I	1S1	Seminar-I		25	1
M.Sc. Medicinal Plants CBS Pattern: Semester II							M.Sc. Medicinal Plants Choice Based Credit System (CBCS)						
01	II	T V	Paper V	Fundamentals of Pharmacognosy	100	4		II	2T1	Paper V	Fundamentals of Pharmacognosy	80+20	4
02	II	T VI	Paper VI	Plant Biochemistry	100	4		II	2T2	Paper VI	Plant Biochemistry	80+20	4
03	II	T VII	Paper VII	Plant Metabolism and Development	100	4		II	2T3	Paper VII	Plant Metabolism and Development	80+20	4
04	II	T VIII	Paper VIII	Natural Plant Products and Phytochemistry-I	100	4		III	3T3 Core elective-	Paper XI	Natural Plant Products and Phytochemistry-I	80+20	4

								1					
05	II	P III	Practical-III		80+20	4		II	2P1	Practical-III		100	4
06	II	P IV	Practical-IV		80+20	4		II	2P2	Practical-IV		100	4
07	II	Seminar-II	Seminar-II		25	1		II	2S1	Seminar-II		25	1
M.Sc. Subject: Medicinal Plants CBS Pattern: Semester						M.Sc. Subject: Medicinal Plants Choice Based Credit System(CBCS) Semester							
01	III	T IX	Paper IX	Natural Plant Products and Phytochemistry-II	100	4		IV	4T3 Core elective-2	Paper XV	Natural Plant Products and Phytochemistry-II	80+20	4
02	III	T X	Paper X	Medicinal Plant Biotechnology	100	4		II	2T4	Paper VIII	Medicinal Plant Biotechnology	80+20	4
03	III	T XI	Paper XI	Fermentation Technology	100	4		III	3T4 Foundation-I	Paper XII	Fermentation Technology	80+20	4
04	III	T XII	Paper XII	Immunology and Microbiology	100	4		III	3T1	Paper IX	Immunology and Microbiology	80+20	4
05	III	P V	Practical V		80+20	4		III	3P1	Practical V		100	4
06	III	P VI	Practical VI		80+20	4		III	3P2	Practical VI		100	4
07	III	Seminar-III	Seminar-III		25	1		III	3S1	Seminar-III	-----	25	1
M.Sc. Medicinal Plants. CBS Pattern: Semester						M.Sc. Subject: Medicinal Plants Choice Based Credit System (CBCS)							
01	IV	T XIII	Paper XIII	Herbal Cosmetics	100	4		III	3T2	Paper X	Herbal Cosmetics	80+20	4
02	IV	T XIV	Paper XIV	Herbal Drug Technology & Development	100	4		IV	4T1	Paper XIII	Herbal Drug Technology & Development	80+20	4
03	IV	T XV	Paper XV	Drug Standardization and Regulations	100	4		IV	4T2	Paper XIV	Drug Standardization and Regulations	80+20	4

04	IV	T XVI	Paper XVI	Project	100	4		IV	4T4 Foundat ion -2	Paper XVI	Ethnobotany	80+20	4
05		P VII	Practica l VII		80+20	4		IV	3P2	Practical VII		100	4
06		P VIII	PVIII		80+20	4		IV	4PROJ1	Project		100	4
07		Seminar IV	Semina r IV						4S1	Seminar-IV		25	1

ANNEXURE M. Sc. Environmental Science

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 3 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Subject Environmental Science CBS Pattern : Semester -I						M.Sc. Environmental Science Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Environmental Chemistry	100	4		I	1T1	Paper I	Environmental Chemistry	80+ 20	4
02		Paper II	Atmospheric Science	100	4		I	1T2	Paper II	Atmospheric Science	80+20	4
03		Paper III	Environmental Biology	100	4		I	1T3	Paper III	Environmental Biology	80+20	4
04		Paper IV	Environmental Microbiology and Biotechnology	100	4		I	1T4	Paper IV	Environmental Microbiology and Biotechnology	80+20	4
05		Practical-I	Environmental Chemistry and Atmospheric Science	80+ 20	4		I	1P1	Practical-I	Environmental Chemistry and Atmospheric Science	100	4
06		Practical-II	Environmental Biology, Environmental Microbiology and Biotechnology	80+20	4		I	1P2	Practical-II	Environmental Biology, Environmental Microbiology and Biotechnology	100	4
07		Seminar-I		25	1			1S1		Seminar-I	25	1
M.Sc. Subject: Environmental Science CBS Pattern : Semester -II						M.Sc. Environmental Science Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper V	Environmental Ecosystem and Biodiversity	100	4		II	2T1	Paper V	Environmental Ecosystem and Biodiversity	80+20	4
02		Paper VI	Natural Resources Management	100	4		II	2T2	Paper VI	Natural Resources Management	80+20	4
03		Paper VII	Environmental Sampling and Research Methodology	100	4		II	2T3	Paper VII	Environmental Sampling and Research Methodology	80+20	4

04		Paper VIII	Analytical Techniques for Environmental Monitoring	100	4		II	2T4	Paper VIII	Analytical Techniques for Environmental Monitoring	80+20	4
05		Practical-III	Environmental Ecosystem and Management & Natural Resources management	80+20	4		II	2P1	Practical-III	Environmental Ecosystem and Management & Natural Resources management	100	4
06		Practical-IV	Industrial chemistry & Analytical techniques	80+20	4		II	2P2	Practical-IV	Industrial chemistry & Analytical techniques	100	4
07		Seminar-II		25	1		II	2S1		Seminar-II	25	1
M.Sc. Subject: Environmental Science CBS Pattern : Semester -III						M.Sc. Environmental Science Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper IX	Water Supply and Resources	100	4		III	3T3	Paper XII	(ELECTIVE-II) Water Supply and Resources	80+20	4
02		Paper X	Water and Water Treatment	100	4		III	3T3	Paper XI	(ELECTIVE-I) Water and Water Treatment	80+20	4
03		Paper XI	Physico- Chemical Treatment of Water & Waste Water	100	4		III	3T1	Paper IX	Physico- Chemical Treatment of Water & Waste Water	80+20	4
04		Paper XII	Biological process in waste water Treatment	100	4		III	3T2	Paper X	Biological process in waste water Treatment	80+20	4
06		Practical V	Water & Water Treatment Water Supply and Resources	80+20	4		III	3P2	Practical V	A) (ELECTIVE-I) Water & Water Treatment OR B) (ELECTIVE-II) Water Supply and Resources	100	4
07		Practical VI	Biological process in waste water Treatment	80+20	4		III	3P1	Practical VI	Physico-chemical treatment of water and waste water AND Biological process in waste water Treatment	100	4
08		Seminar-III		25	1		III	3S1		Seminar-III	25	1

M.Sc. Subject Environmental Science CBS Pattern : Semester -IV						M.Sc. Environmental Science Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper XIII	Air and Noise Pollution Control Technology	100	4		IV	4T1	Paper XV	Air and Noise Pollution Control Technology	80+20	4
02		Paper XIV	Solid and Hazardous Waste Management	100	4		IV	4T2	Paper XVI	Solid and Hazardous Waste Management	80+20	4
03		Paper XV	Environmental Impact Assessment and Legislation	100	4		IV	4T3	Paper XVII	(ELECTIVE-I) Environmental Impact Assessment and Legislation	80+20	4
04		Paper XVI	Environmental Management	100	4		IV	4T3	Paper XVIII	(ELECTIVE-II) Environmental Management	80+20	4
05		Practical VII	Air and Noise Pollution Control Technologies AND Solid and Hazardous Waste Management	80+20	4		IV	4P1	Practical VII	Air and Noise Pollution Control Technologies AND Solid and Hazardous Waste Management AND EIA & Legislation	100	4
05		Practical VIII	EIA & Legislation & Environmental Management	80+20	4		IV	4P1	Practical VII	Air and Noise Pollution Control Technologies AND Solid and Hazardous Waste Management AND EIA & Legislation	100	4
06		Project		80+20	4		IV	4PR OJ1		Project	100	4
07			Seminar IV	25	1		4S1		Seminar-IV	25	1	

ANNEXURE M. Sc. Computer Science

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Computer Science CBS Pattern : Semester -I						M.Sc. Computer Science Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	Paper 1	Paper I	Discrete Mathematical Structure	100	4		I	1T1	Paper I	Discrete Mathematical Structure	80+ 20	4
02	Paper 2	Paper II	Programming in Java	100	4		I	1T2	Paper II	Programming in Java	80+20	4
03	Paper 3	Paper III	Digital Electronics and Microprocessor	100	4		I	1T3	Paper III	Digital Electronics and Microprocessor	80+20	4
04	Paper 4	Paper IV	Advanced DBMS and Administration	100	4		I	1T4	Paper IV	Advanced DBMS and Administration	80+20	4
05	Practical-I	Practical-I	Practical-I based on theory paper-1 and 2	80+ 20	4		I	1P1	Practical-I	Practical-I based on theory paper-1 and 2	100	4
06	Practical-II	Practical-II	Practical-II based on theory paper-3 and 4	80+20	4		I	1P2	Practical-II	Practical-II based on theory paper-3 and 4	100	4
07		Seminar-I	Seminar	25	1		I		Seminar-I	Seminar I	25	1
M.Sc. Computer Science CBS Pattern : Semester -II						M.Sc. Computer Science Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	Paper 1	Paper V	Windows Programming using VC++	100	4		II	2T1	Paper 5	Windows Programming using VC++	80+20	4
02	Paper 2	Paper VI	Theory of Computation and Compiler	100	4		II	2T2	Paper 6	Theory of Computation and Compiler Construction	80+20	4

			Construction		
03	Paper 3	Paper VII	Computer Architecture and Organization	100	4
04	Paper 4	Paper VIII	Computer Graphics	100	4
05	Practical-I	Practical-III	Practical-I based on theory paper-1 and 2	80+20	4
06	Practical-II	Practical-IV	Practical-II based on theory paper-3 and 4	80+20	4
07		Seminar-II	Seminar	25	1

II	2T3	Paper 7	Computer Architecture and Organization	80+20	4
II	2T4	Paper 8	Computer Graphics	80+20	4
II	2P1	Practical 3	Practical 3 based on theory paper-5 and 6	100	4
II	2P2	Practical 4	Practical 4 based on theory paper-7 and 8	100	4
II		Seminar 2	Seminar 2	25	1

M.Sc. Computer Science CBS Pattern : Semester -III

M.Sc. Computer Science Choice Based Credit System (CBCS)

S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits
01	Paper 1	Paper IX	Data Communication and Networks	100	4
02	Paper 2	Paper X	Software Engineering	100	4
03	Paper 3	Paper XI	Neural Network	100	4
04	Paper 4	Paper XII	Elective-1 1.1 Mobile Computing	100	4
04	Paper 4	Paper XII	Elective-1 1.2 Multimedia Technologies	100	4
04	Paper 4	Paper XII	Elective-1 1.3 ASP.NET	100	4
05	Practical-I	Practical V	Practical-I based on theory paper-1 and 2	80+20	4

Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
	III	3T1	Paper 9	Data Communication and Networks	80+20	4
	III	3T2	Paper 10	Software Engineering	80+20	4
	III	3T3	Paper 11	<u>Core Elective 1</u> CE1-1 Neural Network	80+20	4
	III	3T4	Paper 12	<u>Core(Discipline Centric)1</u> CDC1 Mobile Computing	80+20	4
	III	3T4	Paper 12	<u>Core(Discipline Centric)1</u> CDC1 Mobile Computing	80+20	4
	III	3T4	Paper 12	<u>Core(Discipline Centric)1</u> CDC1 Mobile Computing	80+20	4
	III	3P1	Practical 5	Practical 5 based on theory paper-9	100	4

06	Practical-II	Practical VI	Practical-II based on theory paper-3 and 4	80+20	4
07		Seminar-III	Seminar	25	1

			and 10		
III	3P2	Practical 6	Practical 6 based on paper 11	100	4
III		Seminar 3	Seminar 3	25	1

M.Sc. Computer Science CBS Pattern : Semester -IV

M.Sc. Computer Science Choice Based Credit System (CBCS)

S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits
01	Paper 1	Paper XIII	Data Mining	100	4
02	Paper 2	Paper XIV	Artificial Intelligence & Expert System	100	4
03	Paper 3	Paper XV	Design and Analysis of Algorithm	100	4
04	Paper 4	Paper XVI	Elective-2 2.1 Embedded System	100	4
04	Paper 4	Paper XVI	Elective-2 2.2 Pattern Recognition	100	4
04	Paper 4	Paper XVI	Elective-2 2.3 Parallel Computing	100	4
05	Practical-I	Practical VII	Practical-I based on theory paper-1 to 4	80+20	4
06	Project	Project	Project	80+20	4
07			Seminar		

Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
	IV	4T1	Paper 13	Data Mining	80+20	4
	IV	4T2	Paper 14	Artificial Intelligence & Expert System	80+20	4
	IV	4T3	Paper 15	Core Elective 2 CE2-1 Design and Analysis of Algorithm	80+20	4
	IV	4T4	Paper 16	Core(Discipline Centric)2 CDC2 Parallel Computing	80+20	4
	IV	4T4	Paper 16	Core(Discipline Centric)2 CDC2 Parallel Computing	80+20	4
	IV	4T4	Paper 16	Core(Discipline Centric)2 CDC2 Parallel Computing	80+20	4
	IV	4P1	Practical 7	Practical 7 based on theory paper-13,14,15	100	4
	IV	4PROJ1	Project	Project	100	4
	IV		Seminar 4	Seminar 4	25	1

ANNEXURE M. Sc. Information Technology

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Information Technology CBS Pattern : Semester -I						M.Sc. Information Technology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	Paper 1	Paper I	Computer Architecture and Organization	100	4		I	1T1	Paper I	Computer Architecture and Organization	80+ 20	4
02	Paper 2	Paper II	Internet Computing With ASP.NET	100	4		I	1T2	Paper II	Internet Computing With ASP.NET	80+20	4
03	Paper 3	Paper III	Distributed Operating System	100	4		I	1T3	Paper III	Distributed Operating System	80+20	4
04	Paper 4	Paper IV	Advanced DBMS and Administration	100	4		I	1T4	Paper IV	Advanced DBMS and Administration	80+20	4
05	Practical-I	Practical-I	Practical-I based on theory paper-1 and 2	80+ 20	4		I	1P1	Practical-I	Practical-I based on theory paper-1 and 2	100	4
06	Practical-II	Practical-II	Practical-II based on theory paper-3 and 4	80+20	4		I	1P2	Practical-II	Practical-II based on theory paper-3 and 4	100	4
07		Seminar-I	Seminar I	25	1		I		Seminar-I	Seminar I	25	1
M.Sc. Information Technology CBS Pattern : Semester -II						M.Sc. Information Technology Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	valence	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits

01	Paper 1	Paper V	Windows Programming using VC++	100	4
02	Paper 2	Paper VI	Theory of Computation and Compiler Construction	100	4
03	Paper 3	Paper VII	Network Programming	100	4
04	Paper 4	Paper VIII	Open source Web Programming using PHP	100	4
05	Practical-I	Practical-III	Practical-I based on theory paper-1 and 2	80+20	4
06	Practical-II	Practical-IV	Practical-II based on theory paper-3 and 4	80+20	4
07		Seminar-II	Seminar	25	1

II	2T1	Paper 5	Windows Programming using VC++	80+20	4
II	2T2	Paper 6	Theory of Computation and Compiler Construction	80+20	4
II	2T3	Paper 7	Network Programming	80+20	4
II	2T4	Paper 8	Open source Web Programming using PHP	80+20	4
II	2P1	Practical 3	Practical 3 based on theory paper-5 and 6	100	4
II	2P2	Practical 4	Practical 4 based on theory paper-7 and 8	100	4
II		Seminar 2	Seminar 2	25	1

M.Sc. Information Technology CBS Pattern : Semester -III

M.Sc. Information Technology Choice Based Credit System (CBCS)

S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits
01	Paper 1	Paper IX	Data Communication and Networks	100	4
02	Paper 2	Paper X	Software Engineering	100	4
03	Paper 3	Paper XI	Soft Computing	100	4
04	Paper 4	Paper XII	Elective-1 1.1 Distributed Databases	100	4
04	Paper 4	Paper XII	Elective-1 1.2 Object Oriented Analysis and Design using UML	100	4
04	Paper 4	Paper XII	Elective-1 1.3 CORBA	100	4
05	Practical-I	Practical V	Practical-I based on theory paper-1 and 2	80+20	4

Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
III	3T1	Paper 9	Data Communication and Networks	80+20	4
III	3T2	Paper 10	Software Engineering	80+20	4
III	3T3	Paper 11	Core Elective 1 CE1-1 Soft Computing	80+20	4
III	3T4	Paper 12	Core(Discipline Centric)1 CDC1 CORBA	80+20	4
III	3T4	Paper 12	Core(Discipline Centric)1 CDC1 CORBA	80+20	4
III	3T4	Paper 12	Core(Discipline Centric)1 CDC1 CORBA	80+20	4
III	3P1	Practical 5	Practical 5 based on theory paper-9	100	4

Equivalence To

06	Practical-II	Practical VI	Practical-II based on theory paper-3 and 4	80+20	4
07		Seminar-III	Seminar	25	1

			and 10		
III	3P2	Practical 6	Practical 6 based on paper 11	100	4
III		Seminar 3	Seminar 3	25	1

M.Sc. Information Technology CBS Pattern : Semester -IV

M.Sc. Information Technology Choice Based Credit System (CBCS)

S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits
01	Paper 1	Paper XIII	Data Warehousing And Data Mining	100	4
02	Paper 2	Paper XIV	Artificial Intelligence & Expert System	100	4
03	Paper 3	Paper XV	Design and Analysis of Algorithm	100	4
04	Paper 4	Paper XVI	Elective-2 2.1 Cloud Computing	100	4
04	Paper 4	Paper XVI	Elective-2 2.2 Mobile Computing	100	4
04	Paper 4	Paper XVI	Elective-2 2.3 Enterprise Computing	100	4
05	Practical-I	Practical VII	Practical-I based on theory paper-1 to 4	80+20	4
06	Project	Project	Project	80+20	4
07			Seminar		

Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
	IV	4T1	Paper 13	Data Warehousing And Data Mining	80+20	4
	IV	4T2	Paper 14	Artificial Intelligence & Expert System	80+20	4
	IV	4T3	Paper 15	Core Elective 2 CE2-1 Design and Analysis of Algorithm	80+20	4
	IV	4T4	Paper 16	Core(Discipline Centric)2 CDC2 Enterprise Computing	80+20	4
	IV	4T4	Paper 16	Core(Discipline Centric)2 CDC2 Enterprise Computing	80+20	4
	IV	4T4	Paper 16	Core(Discipline Centric)2 CDC2 Enterprise Computing	80+20	4
	IV	4P1	Practical 7	Practical 7 based on theory paper-13,14,15	100	4
	IV	4PRO J1	Project	Project	100	4
	IV		Seminar 4	Seminar 4	25	1

ANNEXURE M. Sc. Physics

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Physics CBS Pattern : Semester -I						M.Sc. Physics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper I	Mathematical Physics	100	4		I	1T1	1	Mathematical Physics	80+ 20	4
02		Paper II	Classical Mechanics	100	4		II	2T3	7	Classical Mechanics	80+20	4
03		Paper III	Solid State Physics I	100	4		III	3T2	10	Solid State Physics and Spectroscopy	80+20	4
04		Paper IV	Electrodynamics I	100	4		I	1T4	4	Electrodynamics I	80+20	4
05		Practical-I	Practical I (Sem I)	80+ 20	4		1	1P1		Practical I	100	4
06	:	Practical-II	Practical II (Sem I)	80+20	4		1	1P2		Practical II	100	4
07		Seminar-I	Seminar (Sem I)	25	1		1	1S1		Seminar-I (Sem I)	25	1
M.Sc. Physics: CBS Pattern : Semester -II						M.Sc. Physics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper V	Quantum Mechanics I	100	4		2	2T1	5	Quantum Mechanics I	80+20	4
02		Paper VI	Numerical Methods	100	4	1	1T2	2	Complex Analysis and Numerical methods	80+20	4	

03		Paper VII	Statistical Physics	100	4	2	2T2	6	Statistical Physics	80+20	4	
04		Paper VIII	Electrodynamics II	100	4	2	2T4	8	Electrodynamics II	80+20	4	
05		Practical-III	Practical I (Sem II)	80+20	4	2	2P1		Practical 3	100	4	
06		Practical-IV	Practical II (Sem II)	80+20	4	2	2P2		Practical 4	100	4	
07		Seminar-II	Seminar (Sem II)	25	1	2	2S1		Seminar-II (Sem II)	25	1	
M.Sc. Physics: CBS Pattern : Semester -III						M.Sc. Physics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper IX	Quantum Mechanics II	100	4		3	3T1	9	Quantum Mechanics II	80+20	4
02		Paper X	Nuclear and Particle Physics I	100	4		1	1T3	3	Electronics* (There is no overlap between these two subjects.)	80+20	4
03		Paper XI	Materials Science I	100	4		3	3T3	11	Materials Science I	80+20	4
04		Paper XI	Atomic and Molecular Physics (Spectroscopy I)	100	4		3	3T3	11	Atomic and Molecular Physics I	80+20	4
05		Paper XI	Applied Electronics I	100	4		3	3T3	11	Applied Electronics I	80+20	4
06		Paper XI	X-Rays I	100	4		3	3T3	11	X-Rays I	80+20	4
07		Paper XI	Nanoscience and Nanotechnology I	100	4		3	3T3	11	Nanoscience and Nanotechnology I	80+20	4
08		Paper XII	X-rays	100	4		3	3T4	12 S1.2	Nanoscience and Nanotechnology	80+20	4
09		Paper XII	Materials Science	100	4		3	3T4	12 S1.2	Nanoscience and Nanotechnology	80+20	4

10		Paper XII	Numerical Methods and Programming	100	4	3	3T4	12 S1.2	Nanoscience and Nanotechnology	80+20	4	
11		Paper XII	Spectroscopy Elective I	100	4	3	3T4	12 S1.2	Nanoscience and Nanotechnology	80+20	4	
12		Paper XII	Lasers, Fibre Optics and Applications Elective I	100	4	3	3T4	12 S1.2	Nanoscience and Nanotechnology	80+20	4	
13		Paper XII	Digital Electronics and Microprocessors	100	4	3	3T4	12 S1.4	Digital Electronics and Microprocessors	80+20	4	
14		Practical V	Practical 1 (Sem III)	80+20	4	3	3P1		Practical 5	100	4	
15		Practical VI	Practical II (Sem III)	80+20	4	3	3P2		Practical 6	100	4	
16		Seminar-III	Seminar (Sem III)	25	1	3	3S1		Seminar-III (Sem III)	25	1	
M.Sc. Physics CBS Pattern : Semester -IV						M.Sc. Physics Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01		Paper XIII	Solid State Physics II	100	4		4	4T2	14	Solid State Physics	80+20	4
02		Paper XIV	Nuclear And Particle Physics II	100	4		4	4T1	13	Nuclear and Particle Physics	80+20	4
03		Paper XV	Materials Science II	100	4		4	4T3	15	Materials Science II	80+20	4
04		Paper XV	Atomic and Molecular Physics (Spectroscopy II)	100	4		4	4T3	15	Atomic and Molecular Physics II	80+20	4
05		Paper XV	Applied Electronics II	100	4		4	4T3	15	Applied Electronics II	80+20	4
06		Paper XV	X-rays II	100	4		4	4T3	15	X-Rays II	80+20	4
07		Paper XV	Nanoscience and Nanotechnology II	100	4		4	4T3	15	Nanoscience and Nanotechnology II	80+20	4

08		Paper XVI	Nanoscience	100	4	4	4T4	16 S2.2	Experimental Techniques in Physics	80+20	4
09		Paper XVI	Nonlinear Dynamics with applications to Physics and other sciences	100	4	4	4T4	16 S2.2	Experimental Techniques in Physics	80+20	4
10		Paper XVI	Condensed Matter Physics	100	4	4	4T4	16 S2.2	Experimental Techniques in Physics	80+20	4
11		Paper XVI	Electroacoustics	100	4	4	4T4	16 S2.4	Electroacoustics	80+20	4
12		Paper XVI	Spectroscopy Elective II	100	4	4	4T4	16 S2.4	Experimental Techniques in Physics	80+20	4
13		Paper XVI	Lasers, Fibre optics and Applications elective II	100	4	4	4T4	16 S2.4	Experimental Techniques in Physics	80+20	4
14		Practical VII	Practical I(Sem IV)	80+20	4	4	4P1		Practical 7 (Sem IV)	100	4
15		Project	Project	80+20	4	4	4PROJ1		Project	100	4
16		Seminar IV	Seminar (Sem IV)	25		4	4S1		Seminar-IV (Sem IV)	25	1

ANNEXURE M. Sc. ZOOLOGY

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M.Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')							Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper					
M.Sc. Zoology CBS Pattern : Semester -I							M.Sc. Zoology Choice Based Credit System (CBCS) Semester -I					
S. No.	Semester	Code No.	Paper	Name of Paper	Total Marks	Credits	Code No.	Paper	Subject	Total Marks	Credits	
01	Sem-I		Paper -I	Structure and function of Invertebrates	100	4	Equivalent	1T ₁	Paper -I	Structure and function of Invertebrates	80+ 20	4
02	Sem-I		Paper- II	General Physiology	100	4		1T ₂	Paper- II	General Physiology	80+20	4
03	Sem-I		Paper- III	Cell Biology and Genetics	100	4		1T ₃	Paper –III	Cell Biology and Genetics	80+20	4
04	Sem-I		Paper- IV	Advance Reproductive Biology	100	4		1T ₄	Paper- IV	Advance Reproductive Biology	80+20	4
05	Sem-I		Practical-I	Structure and Function of Invertebrates and General Physiology	80+ 20	4		1P ₁	Practical –I	Structure and Function of Invertebrates and General Physiology	100	4
06	Sem-I		Practical-II	Cell Biology, Genetics and Advance Reproductive Biology	80+20	4		1P ₂	Practical -II	Cell Biology, Genetics and Advance Reproductive Biology	100	4
07	Sem-I		Seminar-I		25	1		1S ₁			25	1
M.Sc. Zoology CBS Pattern : Semester -II							M.Sc. Zoology Choice Based Credit System (CBCS) Semester -II					
S. No.	Semester	Code No.	Paper	Name of Paper	Total Marks	Credits	Code No.	Paper	Subject	Total Marks	Credits	
01	Sem-II		Paper –V	Structure and Function of Vertebrate	100	4	Equivalent	2T ₁	Paper- V	Structure and Function of Vertebrates	80+20	4
02	Sem-II		Paper -VI	Comparative Endocrinology	100	4		2T ₂	Paper-VI	Comparative Endocrinology	80+20	4
03	Sem-II		Paper- VII	Molecular Biology and Biotechnology	100	4		2T ₃	Paper-VII	Molecular Biology and Biotechnology	80+20	4
04	Sem-II		Paper- VIII	Advance Developmental Biology	100	4		2T ₄	Paper -VIII	Advance Developmental Biology	80+20	4
05	Sem-II		Practical-III	Structure and Function of Vertebrates and Comparative Endocrinology	80+20	4		2P ₁	Practical- III	Structure and Function of Vertebrates and Comparative Endocrinology	100	4
06	Sem-II		Practical-	Molecular Biology,	80+20	4		2P ₂		Molecular Biology,	100	4

			IV	Biotechnology and Developmental Biology					Biotechnology and Developmental Biology			
07	Sem-II		Seminar-II		25	1		2S ₂		25	1	
M.Sc. Zoology CBS Pattern: Semester -III							M.Sc. Zoology Choice Based Credit System (CBCS) Semester -III					
S. No.	Semester	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalent	Code No.	Paper	Subject	Total Marks	Credits
01	Sem-III		Paper -IX	Parasitology	100	4		3T ₁	Paper -IX	Parasitology and Immunology	80+20	4
02	Sem-III		Paper -IX	Immunology	100	4		3T ₁	Paper -IX	Wild Life and Avian Biology	80+20	4
03	Sem-III		Paper -X	Entomology-I	100	4		3T ₂	Paper-X	Entomology-I	80+20	4
	Sem-III		Paper- X	Fish and fisheries-I	100	4		3T ₂	Paper-X	Fish and fisheries-I	80+20	4
	Sem-III		Paper -X	Mammalian Reproductive Physiology-I	100	4		3T ₂	Paper-X	Mammalian Reproductive Physiology-I	80+20	4
	Sem-III		Paper -X	Animal Physiology-I	100	4		3T ₂	Paper-X	Animal Physiology-I	80+20	4
	Sem-III		Paper- X	Cell Biology-I	100	4		3T ₂	Paper-X	Cell Biology-I	80+20	4
	Sem-III		Paper- X	Freshwater Zoology-I	100	4		3T ₂	Paper-X	Freshwater Zoology-I	80+20	4
	Sem-III		Paper -X	Aquaculture-I	100	4		3T ₂	Paper-X	Aquaculture-I	80+20	4
	Sem-III		Paper -X	Environmental Biology-I	100	4		3T ₂	Paper-X	Environmental Biology-I	80+20	4
	Sem-III		Paper- X	Sericulture-I	100	4		3T ₂	Paper-X	Sericulture-I	80+20	4
04	Sem-III		Paper -XI	Entomology-II	100	4		3T ₃	Paper-XI	Entomology-II	80+20	4
	Sem-III		Paper-XI	Fish and fisheries-II	100	4		3T ₃	Paper-XI	Fish and fisheries-II	80+20	4
	Sem-III		Paper-XI	Mammalian Reproductive Physiology-II	100	4		3T ₃	Paper-XI	Mammalian Reproductive Physiology-II	80+20	4
	Sem-III		Paper-XI	Animal Physiology-II	100	4		3T ₃	Paper-XI	Animal Physiology-II	80+20	4
	Sem-III		Paper-XI	Cell Biology-II	100	4		3T ₃	Paper-XI	Cell Biology-II	80+20	4
	Sem-III		Paper-XI	Freshwater Zoology-II	100	4		3T ₃	Paper-XI	Freshwater Zoology-II	80+20	4
	Sem-III		Paper-XI	Aquaculture-II	100	4		3T ₃	Paper-XI	Aquaculture-II	80+20	4
	Sem-III		Paper-XI	Environmental Biology-II	100	4		3T ₃	Paper-XI	Environmental Biology-II	80+20	4
05	Sem-III		Practical-V	Parasitology and Immunology	80+20	4	3P ₁		Parasitology and Immunology	100	4	
06	Sem-III		Practical- VI	Practical of all the specializations	80+20	4	3P ₂		Practical of all the specializations	100	4	
07	Sem-III		Seminar-III		25	1	3S ₃	Seminar-III		25	1	
M.Sc. Zoology CBS Pattern : Semester -IV							M.Sc. Zoology Choice Based Credit System (CBCS) Semester -IV					
S. No.	Semester	Code	Paper	Name of Paper	Total	Cre	Equivalent	Code	Paper	Subject	Total	Credit

	r	No.			Marks	credits		No.			Marks	s
01	Sem-IV		Paper- XIII	Biotechniques, Biostatistics, Ethology, Toxicology	100	4		4T ₁	Paper -XIII	Biotechniques, Biostatistics, Ethology, Toxicology and Bioinformatics	80+20	4
02	Sem-IV		Paper- XIII	Bioinformatics	100	4		4T ₁	Paper -XIII	Radiation and Chronobiology	80+20	4
03	Sem-IV		Paper- XIV	Entomology-I	100	4		4T ₂	Paper-XIV	Entomology-I	80+20	4
	Sem-IV		Paper -XIV	Fish and fisheries-I	100	4		4T ₂	Paper- XIV	Fish and fisheries-I	80+20	4
	Sem-IV		Paper -XIV	Mammalian Reproductive Physiology-I	100	4		4T ₂	Paper- XIV	Mammalian Reproductive Physiology-I	80+20	4
	Sem-IV		Paper -XIV	Animal Physiology-I	100	4		4T ₂	Paper- XIV	Animal Physiology-I	80+20	4
	Sem-IV		Paper -XIV	Cell Biology-I	100	4		4T ₂	Paper- XIV	Cell Biology-I	80+20	4
	Sem-IV		Paper- XIV	Freshwater Zoology-I	100	4		4T ₂	Paper -XIV	Freshwater Zoology-I	80+20	4
	Sem-IV		Paper -XIV	Aquaculture-I	100	4		4T ₂	Paper- XIV	Aquaculture-I	80+20	4
	Sem-IV		Paper- XIV	Environmental Biology-I	100	4		4T ₂	Paper- XIV	Environmental Biology-I	80+20	4
	Sem-IV		Paper -XIV	Sericulture-I	100	4		4T ₂	Paper- XIV	Sericulture-I	80+20	4
04	Sem-IV		Paper-XV	Entomology-II	100	4		4T ₃	Paper-XV	Entomology-II	80+20	4
	Sem-IV		Paper-XV	Fish and fisheries-II	100	4		4T ₃	Paper-XV	Fish and fisheries-II	80+20	4
	Sem-IV		Paper-XV	Mammalian Reproductive Physiology-II	100	4		4T ₃	Paper-XV	Mammalian Reproductive Physiology-II	80+20	4
	Sem-IV		Paper-XV	Animal Physiology-II	100	4		4T ₃	Paper-XV	Animal Physiology-II	80+20	4
	Sem-IV		Paper-XV	Cell Biology-II	100	4		4T ₃	Paper-XV	Cell Biology-II	80+20	4
	Sem-IV		Paper-XV	Freshwater Zoology-II	100	4		4T ₃	Paper-XV	Freshwater Zoology-II	80+20	4
	Sem-IV		Paper-XV	Aquaculture-II	100	4		4T ₃	Paper-XV	Aquaculture-II	80+20	4
	Sem-IV		Paper-XV	Environmental Biology-II	100	4		4T ₃	Paper-XV	Environmental Biology-II	80+20	4
	Sem-IV		Paper-XV	Sericulture-II	100	4		4T ₃	Paper-XV	Sericulture-II	80+20	4
05	Sem-IV		Practical-VII	Practicals of all specializations	80+20	4		4P ₁	Practical – VII	Practicals of all specializations	100	4
06	Sem-IV		Project	Project Work (Equivalent)	80+20	4		4PROJ1	Project work	Project	100	4
07	Sem-IV		Seminar-IV		25	1		4S ₄	Seminar- IV		25	1

Head
Dr. Mrs. M.S. Sastry

ANNEXURE M. Sc. Electronics

Equivalence of Syllabus / papers between CBS & CBCS syllabus for desirous students (CBS Pattern students (introduced in the Year 2012-2013) in CBCS Pattern (introduced in the year 2015-16 at M. Sc Semester I and II and in the year 2016-17, at M.Sc. Semester –III and Semester IV

If the candidate has failed in any of the papers mentioned below (As described in Point no. 22 'b', 'c', 'd', and 'e')						Then, the candidate shall appear and clear the paper shown in the respective row as equivalent paper						
M.Sc. Electronics: CBS Pattern : Semester -I						M.Sc. Electronics : Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	ELE 101	Paper I	Fundamentals of Semiconductor Devices	100	4		I	1T1	Paper I	Fundamentals of Semiconductor Devices	80+ 20	4
02	ELE 102	Paper II	Digital Design and Applications	100	4		I	1T2	Paper II	Digital Design and Applications	80+20	4
03	ELE 103	Paper III	Advanced Microprocessors	100	4		I	1T3	Paper III	Advanced Microprocessors	80+20	4
04	ELE 104	Paper IV	Programming in C	100	4		I	1T4	Paper IV	Programming in C	80+20	4
05	ELE 1P1	Practical-I	Lab Course I- Analog and Digital Electronics Lab	80+ 20	4		I	1P1	Practical-I	Lab Course I- Analog and Digital Electronics Lab	100	4
06	ELE 1P2	Practical-II	Lab Course II- Computer Interfacing and Programming in C	80+20	4		I	1P2	Practical-II	Lab Course II- Computer Interfacing and Programming in C	100	4
07		Seminar-I	Seminar	25	1		I	1S1	Seminar-I	Seminar	25	1
M.Sc. Electronics : CBS Pattern : Semester -II						M.Sc. Electronics: Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits
01	ELE 201	Paper V	Embedded Systems and Applications	100	4		II	2T1	Paper V	Embedded Systems and Applications	80+20	4
02	ELE 202	Paper VI	Biomedical Instrumentation	100	4		II	2T2	Paper VI	Biomedical Instrumentation	80+20	4
03	ELE 203	Paper VII	Computer Organisation and Interfacing	100	4		II	2T3	Paper VII	Computer Organisation and Interfacing	80+20	4
04	ELE 204	Paper VIII	Virtual Instrumentation	100	4		II	2T4	Paper VIII	Virtual Instrumentation	80+20	4

05	ELE 2P1	Practical-III	Lab Course III – Microcontroller and Interfacing	80+20	4		II	2P1	Practical-III	Lab Course III – Microcontroller and Interfacing	100	4	
06	ELE 2P2	Practical-IV	Lab Course IV- Virtual instrumentation and Programming in Lab VIEW	80+20	4		II	2P2	Practical-IV	Lab Course IV- Virtual instrumentation and Programming in Lab VIEW	100	4	
07		Seminar-II	Seminar	25	1		II	2S1	Seminar-II	Seminar	25	1	
M.Sc. Electronics: CBS Pattern : Semester -III						M.Sc. Electronics: Choice Based Credit System (CBCS)							
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	Equivalence To	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits	
01	ELE 301	Paper IX	Network Analysis and Synthesis	100	4		III	3T1	Paper IX	Network Analysis and Synthesis	80+20	4	
02	ELE 302	Paper X	Fuzzy Logic and Artificial Neural Networks	100	4		III	3T2	Paper X	Fuzzy Logic and Artificial Neural Networks	80+20	4	
03	ELE 303	Paper XI	Digital signal Processing	100	4		III	3T3-1	Paper XI	Digital signal Processing	80+20	4	
04	ELE 304	Paper XII	Mechatronics	100	4		III	3TSC1	Paper XII	Mechatronics	80+20	4	
06	ELE 3P1	Practical V	Lab Course V- Fuzzy Logic and Artificial Neural Network	80+20	4		III	3P1	Practical V	Lab Course V- Network Analysis; Fuzzy Logic and Artificial Neural Network using MATLAB	100	4	
07	ELE 3P2	Practical VI	Lab Course VI- Digital Signal and Mechatronics	80+20	4		III	3P2	Practical VI	Lab Course VI- Digital Signal Processing using MATLAB and Mechatronics/Digital Image Processing	100	4	
08		Seminar-III	Seminar	25	1			3S1	Seminar-III	Seminar	25	1	
M.Sc. Electronics: CBS Pattern : Semester -IV							M.Sc. Electronics : Choice Based Credit System (CBCS)						
S. No.	Code No.	Paper	Name of Paper	Total Marks	Credits	va	le	Sem	Code No.	Paper	Name of Paper	Total Marks	Credits

01	ELE 401	Paper XIII	Electromagnetic Fields and Antennas	100	4
02	ELE 402	Paper XIV	Digital Communication	100	4
03	ELE 403	Paper XV	Microwave and Optical Communication	100	4
04	ELE 404	Paper XVI	Mobile and Satellite Communication	100	4
05	ELE 4P1	Practical VII	Lab Course VII – Communication Lab	80+20	4
06	ELE 4P2	Project	Project and Seminar	80+20	4
07			Seminar IV		

IV	4T1	Paper XIII	Electromagnetic Fields and Antennas	80+20	4
IV	4T2	Paper XIV	Digital Communication	80+20	4
IV	4T3-1	Paper XV	Microwave and Optical Communication	80+20	4
IV	4TSC 2	Paper XVI	Mobile and Satellite Communication	80+20	4
IV	4P1	Practical VII	Lab Course VII – Antenna and Digital Communication Lab; and Microwave & Optical Communication/ Mobile and Satellite Communication	100	4
IV	4PRO J1	Project	Project and Seminar	100	4
	4S1		Seminar-IV	25	1