



CURRICULUM AND CREDIT FRAMEWORK

For

Master of Science in Chemistry

As per NEP 2020

(To be Effective from June, 2026)



ORDINANCES AND REGULATIONS

Ordinances & Regulations for the Degree of Master of Science (Chemistry) (As Per NEP 2020) are as under:

Ordinances

Ord. – 1: Candidate for admission to the Master of Science (Chemistry) must have passed any graduation degree with Chemistry as a major/minor subject (B.Sc.). The University will follow the criteria for the admissions with reference to the minimum marks or its equivalent grade for various categories of the students, as prescribed by the Government of Gujarat/relevant authorities.

Ord. – 2: Definitions of Keywords

- 1. Academic Year:** An Academic Year is divided into two semesters and a semester of minimum 15 weeks comprising of 90 working days.
- 2. Programme:** An educational programme leading to award of the Post Graduate Diploma in Chemistry, Degree of Master of Science in Chemistry.
- 3. Course:** Usually referred to, as 'paper/subject' is a component of a program. The courses should define learning activities, objectives and learning outcomes. Types of courses / activities constitute the programs of study comprise lectures outreach activities / Practical / Case Study / Group Discussion / Quiz / Project work / Viva / Seminars / Assignment / Internship / Presentations / Research Project etc. or a combination of some of these.
- 4. Major (Core) Course:** Major Course is a group of courses of main focus and the degree will be awarded in that discipline. Students should secure the prescribed number of credits through major (core) courses.
- 5. Major (Elective) Course:** This course is intended to broaden the discipline specific knowledge. In addition, it will help student choose the career path.
- 6. Skills Enhancement Courses:** These courses are aimed at imparting practical skills, hands-on training, soft skills, etc., to enhance the employability of students.
- 7. Research Project (RP)/ On the Job Training (OJT):** Students have to undergo in-house Research Project or join On-Job Training in a firm, industry, or organization or joining Training program with faculty in their own or other HEIs/research institutions. Students will have an opportunity for internships with local industry, business organizations, health and allied areas, small scale industry, gruh udyog, and a wide variety of organizations so that they

may actively engage with the practical side of their learning and, as a by-product, further improve their employability.

8. Credit: It determines the number of hours of instruction required per week over the duration of a semester. Credit of different courses/ components will be computed as follows:

- i) 1 Credit of a theory subject is equivalent to one theory period of one hour per week.
- ii) 1 Credit of a practical subject is equivalent to two practical periods each of one hour per week.

9. Letter Grade and Grade Points: Letter grade is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P, F and Ab. Each Letter Grade has numeric equivalent, denoted as Grade Point.

Letter Grade	Grade Point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B (Above Average)	6
C (Average)	5
P (Pass)	4
F (Fail)	0
Ab (Absent)	0

10. Semester Grade Point Average (SGPA): It is a measure of performance or work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

11. Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

Ord. – 3: M.Sc. Degree programme is of two academic year's duration consisting of four semesters, which will be required to be completed within 4 years from the date of his/her first admission in the First Semester. Students are permitted to take a break or exit with a PG Diploma in Chemistry (PGDC). A student, however, is permitted to re-enter the course within



three years and complete the post graduate degree programme. In any case, total duration for completing the programme shall not exceed 7 years.

Ord. – 4: M.Sc. Two years (four semesters) Post Graduate Degree programme is a regular full-time programme. A student can pursue two full time academic programmes in physical mode provided that in such cases, class timing for one programme do not overlap the class timings of the other programme. Students can pursue two academic programmes, one in full time and physical mode and another in Open and Distance Learning (ODL)/ Online mode; or up to two ODL/Online programmes simultaneously.

Ord. – 5: No candidate will be admitted to any semester end examination unless it is certified by the principal that he/she has attended the course of study to the satisfaction of the principal of the school.

Ord. – 6: Candidate desirous of appearing at any semester end examination of the said programme must forward their application in the prescribed form to the University through the principal on or before the date prescribed for the purpose under the relevant ordinances.

Ord. – 7 No candidate will be permitted to reappear at any semester end examination, which he/she has already passed. The marks of successfully completed course will be carrying forwarded for the award of class.

Ord. – 8: Medium of instruction is English/Gujarati.

Ord. – 9: M.Sc. Programme of the University as per NEP 2020 is implemented along with the Continuous and Comprehensive Evaluation (CCE) and minimum attendance is at least 75% attendance.

Ord. – 10: Multiple Entry and Exit Options

The main aim of the NEP-2020 is to facilitate Multiple Entry and Exit options with PG diploma or Post Graduation degree, depending upon the number of credits secured. The Entry and Exit options for students, who enter in the M.Sc. programme, are as follows:

1ST YEAR:

Entry 1: The entry requirement for Level 6.0 is a bachelor's degree (3 Years/six semesters) obtained after the successful completion of Graduation and should fulfil the admission norms /regulations of the BMTU.

Exit 1: PG Diploma: A PG diploma shall be awarded if a student exits at the end of first year (two semesters) after successfully securing 44 credits (to be accumulated in Academic Bank of Credits). A student is allowed to re-enter the Post Graduate degree programme within three years and complete the same within the stipulated maximum period of seven years.



2ND YEAR:

Entry 2: The entry requirement for Level 6.5 is a Bachelor's degree (4 years/eight Semesters) with Chemistry as a major discipline with at least 240 credit points obtained from any recognized University or a PG Diploma in Chemistry, obtained from BMTU or any other recognized University with at least 220 credit points at Bachelor's level + 40 credits of PGDC (at level 6)

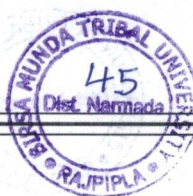
Exit 2:PG Degree: A PG degree (M.Sc. (Chemistry)) shall be awarded if a student successfully completes the program after two years (four semesters) after successfully securing 88 credits from level 6.5. A student having four years bachelor's degree / PG Diploma in Chemistry will be awarded the PG Degree after successfully completing one year (two semesters) of the program securing 44 credits.

Summary of Exit Options

Exit	Award	Credit Requirement
1	PG Diploma	44 credits (Sem 1-2)
2	PG Degree (M.Sc. (Chemistry)) (1 Year)	44 credits (Sem 3-4)
	PG Degree (M.Sc. (Chemistry)) (2 Years)	88 credits (Sem 1-4)

Ord. – 11: A regular candidate having obtained minimum marks for passing in CCE and SEE (40% of total marks) or more but fails to obtain minimum 40% aggregate marks will be required to re-appear in both the components viz CCE and SEE. In such a case candidate will not be required to keep term for the respective semester. The marks of the examination in which the student has passed will be carried forward.

CCE	SEE	Result	Require to Appear in Exam
Pass	Pass	Pass	N.A.
Pass	Fail	Fail	SEE Only



CCE	SEE	Result	Require to Appear in Exam
Fail	Pass	Fail	CCE Only
Fail	Fail	Fail	Both (CCE & SEE)

Ord. – 12: The University may from time-to-time revise, amend and change the Ordinances, the Regulations, and the Curricula, if found necessary.

Regulations

R.1 Continuous and Comprehensive Evaluation (CCE) and Semester End Examination (SEE) Credit and marks scheme

The new curriculum as per NEP 2020 is not only student centric in the teaching-learning processes but also in their evaluation process. The evaluation consists of the following two components: Continuous and Comprehensive Evaluation (CCE) and Semester End Examination (SEE). The division of marks between the two shall be 50:50 in the NEP 2020. The concerned faculty shall be accountable for transparency and reliability of the entire evaluation.

In each course, every credit carries 25 marks, of which 50% marks is assigned for CCE and rest 50% for SEE.

No.	Evaluation	2 credit subjects (Marks)	4 credit subjects (Marks)	6 credit subjects (Marks)	10 credit subjects (Marks)
1	CCE (50%)	25	50	75	125
2	SEE (50%)	25	50	75	125
	Total	50	100	150	250

R-2: Continuous and Comprehensive Evaluation (CCE)

Subject-wise CCE will be undertaken by the concerned faculty member. The mode of evaluation will be decided by the faculty member.



Normally CCE Theory/Practical includes Assignment, MCQ quizzes, Seminar, Journal/Reflective notes, class participation, case analysis and presentation, tutorials, slip tests (announced/surprised), attendance etc. or any combination of these.

Another part of CCE consists of Internal Examination, which is compulsory for all students. The duration of the Internal Evaluation shall be one hour.

R-3: Semester End Evaluation (SEE)

The SEE carries 50% of the marks assigned to a course. Marks and duration of SEE for different subjects will be as follows:

Sr. No.	Credit	Theory Subject		Practical Subject	
		Marks	Duration	Marks	Duration
1	4	50	2 hours	-	-
2	4 (3+1)	35	1 hour	15	1 hour
3	2	25	1 hour	-	-
4	2	-	-	25	2 hours

The controller of the examination will conduct this examination. The backlog exam will be conducted twice a year just after the result declared of the semester evaluation.

R-4: Eligibility Criteria to appear in SEE

To be able to appear for the SEE, a student must comply with the following conditions:

1. Should have at least 75% of attendance in all the courses put together
2. Should not have any disciplinary proceedings pending against him/her
3. Should have no pending due

R-5: Practical Examination

Practical examination (wherever applicable) shall be conducted at the end of every semester (Both internal/University). The examination shall be conducted as per norms decided by the concerned authority of the University.

R-6: Research Project Work

The research Project work and the Supervisor/Guide shall be assigned to the student by the concerned school well in advance. Evaluation of Project will be done by the subject experts appointed by the university. Maximum marks of the Research Project will be 150.



R-7: On-Job-Training/Internship

Students must accomplish a mandatory internship or OJT during the last semester. It can be carried out either in physical mode or online or in hybrid modes. The minimum duration is 160 hours. Performance of a student is assessed out of 250 marks through a comprehensive and continuous evaluation based on Activity Log, Industry Supervisor's Report, Internship Report, Viva Voce, and a formal Presentation.

R-8: Letter Grades and Grade Points

Grade	Description	Grade Point	Marks Range (%)
O	Outstanding	10	96.0 – 100
A+	Excellent	9	86.0 - 95.9
A	Very Good	8	76.0 - 85.9
B+	Good	7	66.0 - 75.9
B	Above Average	6	56.0 - 65.9
C	Average	5	46.0 - 55.9
P	Pass	4	40.0 – 45.9
F	Fail	0	Below 40.0
Ab	Absent	0	Absent

R-9: Minimum passing marks:

Maximum Marks	Minimum Passing Marks
15	6
25	10
35	14
50	20
75	30
125	50



R-10: Calculation of SGPA and CGPA

As per UGC recommendation the calculation of SGPA is done as follows:

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

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.

Example for Computation of SGPA:

Semester	Course	Credit	Letter Grade	Grade point	(Credit × Grade)
1	Major (Core)	4	A	8	$4 \times 8 = 32$
1	Major (Core)	4	B+	7	$4 \times 7 = 28$
1	Major (Core)	4	B	6	$4 \times 6 = 24$
1	Major (Core)	4	O	10	$4 \times 10 = 40$
1	Major (Elective)	4	C	5	$4 \times 5 = 20$
1	Skill Enhancement	2	B	6	$2 \times 6 = 12$
	Total Credit	22			156
SGPA					$156/22 = 7.09$

As per UGC recommendation the calculation of CGPA is done as follows:

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

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

Semester 1	Semester 2	Semester 3	Semester 4
Credit 22	Credit 22	Credit 22	Credit 22
SGPA 7.1	SGPA 7.8	SGPA 5.6	SGPA 6.0
CGPA = $(22 \times 7.1 + 22 \times 7.8 + 22 \times 5.6 + 22 \times 6.0)/88 = 6.63$			

R-11: Percentage Calculation

Percentage = Total Marks Obtained in all the semesters × 100 / Grand Total of Maximum Marks of all the semesters



R-12: Award of Class

No.	Range of Marks
1	$\geq 70\%$ and $< 100\%$
2	$\geq 60\%$ and $< 70\%$
3	$\geq 48\%$ and $< 60\%$
4	$\geq 40\%$ and $< 48\%$
5	$< 40\%$

R-13: Grant of term

A candidate failing in all the courses/papers of the semester is eligible to enter in next semester till the last semester. The result of the last semester shall not be declared (kept withheld) unless and until the candidate clears all the courses/papers of a programme.

