



ANTYODAY MAHAVIDYALAYA, DEVGRAM (Autonomous)

TAH. NARKHED DIST. NAGPUR- 441301 (MS)

Master of Science (M.Sc. Chemistry)

English Medium

NEP Pattern

Timing: 11:00 AM to 3.30 PM

Two Year Degree Course [M.Sc. I & II (CBCS) (Semester Pattern As Per NEP)]

Student will have to opt for Subjects as per following Table

M.Sc. Part-I (Semester- I)

SR. NO.	SUBJECT TYPE	SUBJECT NAME	CREDIT
1	Major Mandatory	Inorganic Chemistry	04
2		Physical Chemistry	04
3	Electives (Choose any one)	a) Bioinorganic Chemistry	04
		b) Biomolecules	04
		C) Foundation of Thermodynamics and Electrochemistry	04
		c) Analytical Separation Techniques	04
		e) Equivalent MOOC Course	04
4	Research Methodology	Research Methodology	04
5	DSC Practical	Inorganic Chemistry	03
6		Physical Chemistry (Including RM)	03
7	OJT/FP (on job training, internship/Apprenticeship/Field Project.	NA	00
8	R. P (Research Project)	NA	00
Total Credit			20-22

Distribution of Marks for Semester Pattern

Theory, 80 Marks per Subjects, Internal Assessment 20 per Subject
Practical Semester End Examination (SEC) 50 marks and Continuous
Internal Evaluation (CIE) 50 marks.

Dr. Shital H. Barange
Head Department of Chemistry



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M.Sc. Part-I (Semester- II)			
SR. NO.	SUBJECT TYPE	SUBJECT NAME	CREDIT
1	Major Mandatory	Organic Chemistry	04
2		Analytical Chemistry	04
3	Electives (Choose any one)	a) Solid State and Organometallic Chemistry	04
		b) Organic Reaction Mechanism	04
		c) Quantum, Statistical and Nuclear Chemistry	04
		d) Instrumental Methods of Analysis	04
		e) Equivalent MOOC Course	04
4	Research Methodology	NA	00
5	DSC Practical	Organic Chemistry	03
6		Analytical Chemistry	03
7	OJT/FP (on job training, internship/Apprenticeship/ Field Project.	Mandatory	04
8	R. P (Research Project)	NA	00
Total Credit			20-22
Distribution of Marks for Semester Pattern Theory, 80 Marks per Subjects, Internal Assessment 20 per Subject Practical Semester End Examination (SEC) 50 marks and Continuous Internal Evolution (CIE) 50 marks.			

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M.Sc. Part-II (Semester- III)

SR. NO.	SUBJECT TYPE	SUBJECT NAME	CREDIT
1	Major Mandatory	Spectroscopy	04
2		Advanced Organic Chemistry I	04
3		Advanced Inorganic Chemistry	04
4	Electives (Choose any one)	a) Inorganic Chemistry Special I	04
		b) Organic Chemistry Special I	04
		c) Physical Chemistry Special I	04
		d) Analytical Chemistry Special I	04
		e) Equivalent MOOC Course	04
	DSC Practical (As per Elective Subject)	Organic Chemistry Special Practical	02
6	Research Methodology	NA	00
7	OJT/FP (on job training, internship/Apprenticeship/Field Project.	NA	00
8	R. P (Research Project)	Mandatory	04
Total Credit			20-22
Distribution of Marks for Semester Pattern Theory, 80 Marks per Subjects, Internal Assessment 20 per Subject Practical Semester End Examination (SEC) 50 marks and Continuous Internal Evolution (CIE) 50 marks.			

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M.Sc. Part-II (Semester- IV)

SR. NO.	SUBJECT TYPE	SUBJECT NAME	CREDIT
1	Major Mandatory	Spectroscopy II	04
2		Advanced Organic Chemistry II	04
3		Advanced Physical Chemistry	04
4	Electives (Choose any one)	a) Inorganic Chemistry Special II	04
		b) Organic Chemistry Special II	04
		c) Physical Chemistry Special II	04
		d) Analytical Chemistry Special II	04
		e) Equivalent MOOC Course	04
5	Research Methodology	NA	00
6	OJT/FP (on job training, internship/Apprenticeship/ Field Project.	NA	00
7	R. P (Research Project)	Mandatory	06
Total Credit			20-22
Distribution of Marks for Semester Pattern Theory, 80 Marks per Subjects, Internal Assessment 20 per Subject Practical Semester End Examination (SEC) 50 marks and Continuous Internal Evaluation (CIE) 50 marks.			

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GENERAL GUIDELINES FOR M.Sc. CHEMISTRY (NEP / SEMESTER PATTERN)

I. PATTERN OF QUESTION PAPER

A. Theory Papers (4 Credits – 80 Marks University Examination)

1. Each theory paper shall consist of **four units**.
2. The question paper shall contain **five questions**, all of which are compulsory.
3. **Each question shall carry 16 marks**
(Total: 5 Questions × 16 Marks = 80 Marks)
4. **Question 1 to Question 4:**
 - Each question shall be set from **one unit**.
 - Each question will have **internal choice** (*one out of two*).
 - Questions will be **analytical, descriptive, and problem-solving based**, including:
 - Reaction mechanisms
 - Numerical problems
 - Derivations
 - Spectral interpretation
5. **Question 5:**
 - Shall be set from **the entire syllabus (all four units)**
 - Will be **long answer type** (no short questions)
 - May include a **combination of conceptual, analytical, and problem-solving components**
 - **No internal choice**

II. DURATION AND MARKS

Component	Credits	Duration	Marks
Theory Paper	4 Credits	3 Hours	80
Internal Assessment	—	—	20
Total	—	—	100

III. INTERNAL ASSESSMENT (20 MARKS)

Assessment shall be continuous and based on:

Activity	Marks
Seminar Presentation (Recent advances / assigned topic)	05
Home Assignment / Problem Solving	05
Viva Voce	05
Attendance & Participation (Lab/Academic Activities)	05

IV. PRACTICAL / LABORATORY WORK

1. Practical courses are **compulsory** and form an integral part of the curriculum.
2. Students must maintain a **certified laboratory record**.
3. Practical examination shall include:
 - Experiment performance
 - Viva voce
 - Record evaluation
4. Emphasis will be given to:
 - Organic synthesis
 - Inorganic preparations
 - Physical chemistry experiments
 - Instrumental techniques (UV-Vis, FTIR, NMR – interpretation level)

V. INTERNSHIP / INDUSTRIAL TRAINING

1. Students shall undergo **Internship / Industrial Training (3–4 weeks)** after **Semester II**.
2. Training may be carried out in:
 - Chemical industries
 - Pharmaceutical industries
 - Research institutes
 - Analytical laboratories
3. Submission:
 - Detailed **training report**
 - Certificate from industry/institute
4. Evaluation:
 - Report: 50 marks
 - Internal Assessment/Viva: 50 marks

VI. FIELD PROJECT / ENVIRONMENTAL STUDY

1. Students shall undertake a **field-based project** such as:
 - Water analysis
 - Soil analysis
 - Environmental monitoring
 - Industrial effluent analysis
2. The report must include:
 - Data collection
 - Experimental methods
 - Results and discussion
 - Conclusion
3. Evaluation:
 - Report: 50 marks
 - Internal: 50 marks

VII. RESEARCH PROJECT

Semester III (4 Credits Project)

- Total Marks: **100**
 - End Semester Examination (SEE): 50
 - Continuous internal Evolution (CIE): 50
- Minimum Passing: **50 marks (combined)**

Contents of Project Proposal:

- a) Title of research problem
- b) Objectives
- c) Literature review
- d) Methodology
- e) Expected outcomes

Semester IV (6 Credits Project / Dissertation)

- Total Marks: **200**
 - End Semester Examination (SEE): 100
 - Continuous internal Evolution (CIE): 100
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- Minimum Passing: **100 marks (combined)**

Work to be completed:

- a) Experimental work
 - b) Data analysis and interpretation
 - c) Use of analytical techniques
 - d) Dissertation writing as per scientific format
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VIII. PROJECT CONTINUATION

1. Students may:
 - Undertake a **new project**, OR
 - Continue the **Semester III project** in Semester IV
 2. Continuation must show **significant advancement in research work**
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IX. SUPERVISION AND APPROVAL

1. All projects shall be conducted under the supervision of a **recognized faculty member**.
 2. The topic must be approved by the **Head, Department of Chemistry**.
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X. SUBMISSION RULES

1. All reports (Internship, Field Project, and Dissertation) must be submitted **before commencement of theory examinations**.
2. Late submission may lead to **non-acceptance or penalty as per university norms**.

Dr. Shital H. Barange
Head Department of Chemistry
Antyoday Mahavidyalaya,
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