



**Royal College of Arts Science and Commerce (Autonomous)**  
*Affiliated to University of Mumbai*

**Program: BSc**  
**Course: Chemistry**

**Syllabus for Field Project**

**Syllabus for Undergraduate Programme as per  
National Education Policy (NEP-2020) with effect from  
the academic year 2026-2027**

# **SEMESTER**

# **V**

|                            |                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Course/ Paper Title</b> | <b>Field Project(Chemistry)</b>                                                                                                      |
| <b>Course offered as</b>   | <b>FP</b>                                                                                                                            |
| <b>Course Code</b>         | <b>RUSCHF501</b>                                                                                                                     |
| <b>Semester</b>            | <b>V</b>                                                                                                                             |
| <b>No. of Credits</b>      | <b>4</b>                                                                                                                             |
| <b>Duration</b>            | <b>90 hours (Field Work) + 30hours (Orientation, Planning, Discussion, Documentation and Report Writing) :<br/>Total - 120 hours</b> |

| <b>Sr. No.</b> | <b>Course Learning Objectives</b>                                                                                      |
|----------------|------------------------------------------------------------------------------------------------------------------------|
| <b>CLO1</b>    | To foster critical thinking, analytical reasoning, and research motivation.                                            |
| <b>CLO2</b>    | To provide practical exposure to real-world chemical processes in industries, laboratories, or environmental settings. |
| <b>CLO3</b>    | To bridge the gap between theoretical knowledge and its application in field-based situations                          |
| <b>CLO4</b>    | To develop skills in sample collection, analysis, and interpretation of chemical data                                  |
| <b>CLO5</b>    | Facilitate problem-solving, decision-making, teamwork, and collaboration.                                              |
| <b>CLO6</b>    | To apply fundamental chemistry concepts to real-world natural or industrial phenomena.                                 |

#### **Course Outcome:**

|            | <b>After completing the field project, students will be able to:</b>                                            |
|------------|-----------------------------------------------------------------------------------------------------------------|
| <b>CO1</b> | Design and execute a scientific investigation or field experiment, identifying key physical principles involved |
| <b>CO2</b> | Apply fundamental concepts of chemistry to analyze real-life field problems.                                    |
| <b>CO3</b> | Collect, handle, and analyze samples using appropriate chemical techniques.                                     |
| <b>CO4</b> | Interpret experimental data and draw meaningful conclusions.                                                    |
| <b>CO5</b> | Utilize advanced laboratory/field instrumentation to acquire accurate measurements                              |
| <b>CO6</b> | Identify the environmental, sustainability, or social impact of the physical phenomenon or technology studied.  |

**Orientation and Planning (20 Hours)****Field Project Activities (80 Hours)**

**Field Project Topics:** The areas of field work will be decided by the head of the department in consultation with the faculty of the department. The topic selected for field project must be relevant and important as per core subject (Chemistry) The project can be done individually or in a group of maximum two students

**List of Topics:**

- Water Analysis
- Effluent Treatments
- Soil Analysis
- Green Chemistry
- Agro Chemicals
- Chemical Preservatives in food products
- Cosmetic Analysis
- Ayurvedic and Unani formulation
- Herbal Analysis
- Extraction techniques
- Plastic Waste Degradation and Environmental Impact Study
- Dyeing and Textile Chemical Processing Analysis

**Documentation and Report Preparation (20 Hours)**

- Students must maintain field diaries and evidence of attendance of successful completion of activity.
- Prepare a structured project reports with scientific explanation.
- Get feedback from participants and communities wherever relevant.

## Report Format

- Title Page (Name, Class, Activity, Mentor Name, Place of Activity)
- Introduction (Objectives)
- Activity Execution (Description of Activity Conducted along with dates of activity)
- Chemistry concepts involved.
- Observations, Data, and Analysis
- Outcome and Learning
- Geo-tagged Photos and Attachments
- Conclusion and Suggestions
- Acknowledgement

## Evaluation Scheme

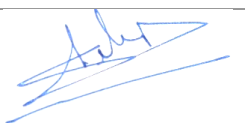
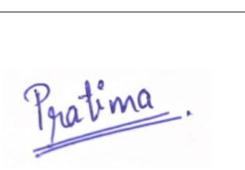
### Internal evaluation: 40 marks

|                            |          |
|----------------------------|----------|
| Attendance and interaction | 20 marks |
| Weekly Progress Report     | 20 marks |

### External evaluation: 60 marks

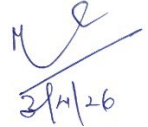
|                    |          |
|--------------------|----------|
| Content and report | 20 marks |
| Presentation       | 20 marks |
| Viva               | 20 marks |

### Board of studies in Chemistry (2026-2027)

|   | Category                            | Name and Designation                                                          | Affiliation                                                                             | Signature                                                                             |
|---|-------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1 | Chairperson<br>(Head of Department) | Dr. Aqeela A. S. Qureshi,<br>Associate Professor                              | Royal College of Arts, Science and Commerce. Mira Road, Thane                           |                                                                                       |
| 2 | Internal BOS Members                | Prof. Kalpana Patankar Jain.<br>Principal                                     | Royal College of Arts, Science and Commerce. Mira Road                                  |                                                                                       |
|   |                                     | Dr. Chitrarekha Kotian<br>Associate Professor                                 |                                                                                         |                                                                                       |
|   |                                     | Dr. Gunwanti Negi<br>Assistant Professor                                      |                                                                                         |                                                                                       |
|   |                                     | Dr. Vibha Bhagat<br>Assistant Professor                                       |                                                                                         |                                                                                       |
|   |                                     | Dr. Mustaqeem Mohammed<br>- Assistant Professor                               |                                                                                         |                                                                                       |
|   |                                     | Ms. Aamina Kadari                                                             |                                                                                         |                                                                                       |
| 3 | External Subject Expert             | Prof. Atul Chaska -<br>Professor                                              | Institute of Chemical Technology,<br>Matunga , Mumbai.                                  |  |
|   |                                     | Prof. Yogita Shinde -<br>Professor                                            | K.C. College,<br>S.N.C. University,<br>Mumbai 400020                                    |  |
| 4 | Vice-Chancellor Nominee             | Prof. Krishnakant T. Waghmode                                                 | Ruparel College of Arts, Science & Commerce, Mumbai                                     |  |
| 5 | Industry Representative             | Shailesh G. Poojary<br>- Chief Manager, Parle Quality Systems, Parle Products | Parle Products<br>VS Khandekar<br>Marg, Vile Parle East<br>Mumbai-400057                |  |
| 6 | Postgraduate meritorious alumnus    | Ms. Pratima Rajesh Yadav<br>PhD. Scholar from ICT, Mumbai.                    | Institute of Chemical Technology ,<br>, Nathalal Parekh Marg, Matunga, Mumbai – 400019. |  |



### Board of studies in Physics

|   | Category                               | Name and Designation                                                | Affiliation                                                                   | Signature                                                                             |
|---|----------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1 | Chairperson (Head of Department)       | Dr. Nandini Kachhap,<br>Associate Professor                         | Royal College of Arts,<br>Science and<br>Commerce.                            |    |
| 2 | Internal BOS<br>Members                | Dr. Vinod Panchal<br>Assistant Professor                            | Royal College of Arts,<br>Science and<br>Commerce.                            |    |
|   |                                        | Mr. Abdul Kayum<br>Chaudhary<br>Assistant Professor                 | Royal College of Arts,<br>Science and<br>Commerce.                            |    |
| 3 | External Subject<br>Expert             | Dr. Shirish Pathare,<br>Scientific Officer – E                      | Homi Bhabha Centre<br>for Science Education                                   |    |
|   |                                        | Dr. Mohan Narayan,<br>Professor,<br>Department of Physics           | Institute of<br>Chemical Technology                                           |   |
| 4 | Vice-Chancellor<br>Nominee             | Prof. Mahendra<br>Khandpekar<br>Professor,<br>Department of Physics | Birla College                                                                 |  |
| 5 | Industry<br>Representative             | Krishan Kumar Pandey,<br>Scientific Officer G                       | High Pressure &<br>Synchrotron Radiation<br>Physics Division,<br>BARC, Mumbai |                                                                                       |
| 6 | Postgraduate<br>meritorious<br>alumnus | Shailendra Singh,<br>Assistant Professor                            | Department of<br>Physics,<br>Thakur College                                   |                                                                                       |
| 7 | Nomination by<br>Management            | Dr. Anil Raghav,<br>Assistant Professor                             | Department of<br>Physics,<br>University of Mumbai                             |                                                                                       |