**National Institute of Technology Raipur**

Department of Chemistry

### ****Laboratory Facilities****

The Department of Chemistry is equipped with well-organized laboratories supporting both academic instruction and research activities.

**For B.Tech. Students**

1. Applied Chemistry Laboratory (1st & 2nd Semester)
2. Environment and Ecology Laboratory (1st & 2nd Semester)

**For M.Sc. Chemistry Students**

1. Chemistry Laboratory (1st & 2nd Year)

These laboratories provide essential practical exposure aligned with theoretical courses.

#### ****Research Laboratory****

A dedicated research facility supports advanced investigations and includes:

1. UV-Visible Spectrophotometer
2. Atomic Absorption Spectrophotometer
3. Fluorescence Spectrophotometer
4. Potentiometer
5. Rheometer
6. Millipore Water Purifier

**Applied Chemistry Laboratory**

**List of Experiments:**

1. Determination of percentage composition of a mixture of Sodium Hydroxide and Sodium Chloride.
2. Determination of the type and extent of alkalinity of given water sample.
3. Redox titration using Potassium Permanganate and Potassium Dichromate as oxidizing agents.
4. Determination of hardness of given water sample by complexometric titration.
5. Determination of Ca and Mg hardness of given water sample.
6. Determination of Chloride Ion by Argentometric titration-Mohr’s method.
7. Determination of Calorific Value of fuel by Bomb Calorimeter.
8. Determination of Flash Point and Fire Point of lubricant by Pensky Martin apparatus.
9. Synthesis of Bakelite.
10. Flue Gas analysis by Orsat’s apparatus.

**Environment and Ecology Laboratory**

**List of Experiments:**

1. Determination of free CO2 in a given water sample.
2. Determination of acidity of given sample of water.
3. Determination of free residual chlorine present in given water sample.
4. Determination of hardness of water sample.
5. Determination of Dissolved Oxygen present in given water sample.
6. Determination of Chemical Oxygen Demand in waste water sample.
7. Measurement of pH of the given water sample.
8. Determination of sulphate in the given water sample.
9. Determination of sodium and potassium in the given water sample by Flame Photometer.
10. Measurement of Turbidity of given water sample by Nephelo-Tubidity meter.

**Equipment Available in B.Tech. Laboratory**

|  |  |  |
| --- | --- | --- |
| **Name of Equipment** | **Photo** | **Is Working?** |
| B.Tech. Laboratory |  | Yes |
| pH Meter | A device with a number on it  AI-generated content may be incorrect. | Yes |
| Turbidity meter | A black case with a device and other items  AI-generated content may be incorrect. | Yes |
| Pensky-Merten Apparatus | A machine with a metal cover and a switch  AI-generated content may be incorrect. | Yes |

**Equipment Available in M.Sc. Chemistry Laboratory**

|  |  |  |
| --- | --- | --- |
| **Name of Equipment** | **Photo** | **Is Working?** |
| Conductivity Meter |  | Yes |
| Fluorescence Spectrophotometer |  |  |
| Digital Melting Point Apparatus |  | Yes |
| Flame Photometer |  | Yes |
| Computer Lab | 5 computers | Yes |

**Equipment Available in Research Laboratory**

|  |  |  |
| --- | --- | --- |
| **Name of Equipment** | **Photo** | **Is Working?** |
| UV-VIS Spectrophotometer |  | Yes |
| Atomic Absorption Spectrophotometer |  | Yes |
| Fluorescence Spectrophotometer |  |  |
| Potentiostat/Galvanostat |  | Yes |
| Rheometer |  | Yes |
| Millipore Water Purifier |  | Yes |