

Welcome to our Engineering Chemistry Laboratory...!



**CNR RAO ENGINEERING CHEMISTRY LAB**



**ENGINEERING CHEMISTRY LAB-1**

Engineering Chemistry laboratory is an essential component of the engineering curriculum, providing students with hands-on experience and practical knowledge in a variety of chemical concepts.

The Engineering Chemistry Lab is furnished with state-of-the-art facilities and equipment, affording students the opportunity to conduct experiments in a safe and controlled environment. The lab is overseen by seasoned and knowledgeable faculty members who are dedicated to assisting students in comprehending and implementing chemical principles.

In this laboratory, students gain knowledge of chemical reactions, stoichiometry, acid-base chemistry, electrochemistry, and other fundamental concepts. They also acquire expertise in using laboratory instruments, including spectrophotometers, pH meters, and gas chromatographs, to analyze chemical samples and data. By engaging in laboratory experiments, students develop critical thinking skills and learn to work effectively in teams. Additionally, they gain a deeper understanding of the practical applications of chemistry in engineering and related fields.

The Engineering Chemistry Laboratory offers a unique learning experience for students, equipping them with the necessary tools to succeed in future careers in engineering and related fields. We are committed to maintaining a safe and supportive learning environment for all students and look forward to welcoming you to the lab

## Objectives of Engineering Chemistry Lab

1. **Providing hands-on experience:** The primary objective of the engineering chemistry lab is to provide students with practical experience in the field of chemistry. Students have the opportunity to apply theoretical concepts learned in the classroom to real-life situations, enhancing their understanding of chemical principles.
2. **Developing critical thinking skills:** The engineering chemistry lab aims to develop critical thinking skills in students by challenging them to analyze data, draw conclusions, and make informed decisions based on their observations and experiments.
3. **Promoting teamwork:** The lab encourages students to work in teams, fostering a collaborative learning environment. This not only helps students develop teamwork skills but also enhances their communication and interpersonal skills.

4. **Enhancing safety awareness:** The engineering chemistry lab promotes safety awareness among students, teaching them safe laboratory practices and procedures, and how to handle and dispose of chemicals safely.
5. **Preparing students for industry:** The lab prepares students for future careers in engineering and related fields by providing them with practical knowledge and skills that are applicable in industry. This helps them to be better equipped to solve real-world problems in their future careers.

Overall, the Engineering Chemistry Lab aims to equip students with a solid foundation in chemistry, practical skills, and problem-solving abilities to help them succeed in their academic and professional pursuits.

## Lab Courses Offered

The Engineering Chemistry Lab offers the following courses that cover various chemical concepts and principles.

1. **Engineering Chemistry Lab:** The course is offered for Civil and mechanical engineering programs. The course comprises several experiments that enable students to apply theoretical concepts learned in the classroom to real-world situations, preparing them for future careers in the field of chemistry. The course includes a variety of experiments that cover a broad range of topics, including complexometry, potentiometry, colorimetry, and conductometry.
2. **Chemistry Lab:** The course is offered for CSE, EEE, ECE, AI&DS, AIML, CSE(DS) and CSE(AI) engineering programs. This course encompasses a plethora of experiments that facilitate students to apply their theoretical knowledge acquired in the classroom to practical scenarios, thereby equipping them with the necessary skills and expertise required for their future endeavors in the realm of chemistry. The experiments are diverse and cover a wide array of topics, ranging from complexometry and potentiometry to colorimetry and conductometry.

## Equipment offered by Chemistry Labs

The chemistry laboratory is well-equipped with a range of advanced instruments that are used to conduct various experiments with high accuracy and precision. The laboratory includes an array of sophisticated equipment, such as a digital colorimeter equipped with eight filters, a digital conductivity meter, and a dissolution test apparatus. Additionally, the lab boasts a double beam UV visible spectrophotometer, a bomb calorimeter with Oxygen cylinder, and two Redwood viscometers for viscosity measurements. Other essential equipment in the laboratory includes an analytical balance, a magnetic stirrer with oil bath, and a digital electronic balance. The laboratory is also equipped with a deionizer plant to ensure the purity of the water used in experiments. The state-of-the-art equipment available in the chemistry laboratory ensures that students have access to the best resources to enhance their learning experience and develop their practical skills. The following equipment is available for use.

- Digital colorimeter (8 filters)
- Digital conductivity meter
- Dissolution test apparatus
- Double beam UV Visible spectrophotometer
- Bomb calorimeter with Oxygen cylinder
- Red wood viscometer – 1 & 2
- Analytical balance
- Magnetic stirrer with oil bath
- Digital electronic balance
- Deionizer plant