

PROGRAMME NAME

M.Sc. in Chemistry

Programme Outcomes/ Learning Outcomes: (GCU) (Postgraduate)

1. **Advanced disciplinary knowledge:** Acquire comprehensive, in-depth knowledge and detail understanding of one or more disciplines from the field of Natural Sciences.
2. **Critical thinking:** Develop analytical skills to evaluate scientific evidence, identify relevant assumptions or implications, formulate coherent arguments, and critically evaluate practices, policies, and theories using a scientific approach.
3. **Analytical reasoning:** Ability to evaluate the reliability and relevance of evidence; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples addressing opposing viewpoints.
4. **Complex problem-solving:** Develop competencies for resolving complex scientific problems on the basis of knowledge acquired from disciplinary and interdisciplinary fields.
5. **Research-related skills:** Develop inquisitiveness for asking relevant/appropriate questions, identifying problems, and formulating hypotheses; analyze, interpret, and draw conclusions from data; ability to plan, execute, and report the results of an experiment or investigation.
6. **Information/digital literacy:** Capability to use ICT in a variety of learning situations; demonstrate the ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.
7. **Self-directed learning:** Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion.
8. **Moral and ethical awareness:** Demonstrate the ability to identify ethical issues related to one's work; avoid unethical behavior such as fabrication, falsification, or misrepresentation of data or committing plagiarism, appreciating environmental and sustainability issues; and adopting objective, unbiased, and truthful approaches in all aspects of work.
9. **Communication Skills:** Demonstrate communication skills to confidently express scientific ideas, listen attentively, analyze, and present complex information clearly to diverse audiences using different media.
10. **Teamwork and Leadership qualities:** Ability to work effectively with diverse teams in a cooperative or coordinated manner and demonstrate leadership qualities by motivating and inspiring team members to engage with a vision and using management skills to guide people in the right direction.

11. **Multicultural competence:** Possess knowledge of the values and beliefs of multiple cultures so as to develop empathy towards diverse groups and contribute to the holistic development of society.

12. **Lifelong learning:** Ability to acquire knowledge and skills that are necessary for participating in learning activities throughout life in the broadest context of science and innovation through self-paced and self-directed learning.

Program Specific Outcomes (PSOs) M.Sc. in Chemistry

The PSOs of the M.Sc. Program in Chemistry are as follows:

PSO1: Chemistry masters students will be well equipped with knowledge of pure and applied chemistry to utilize the knowledge in related and interdisciplinary fields to meet the demands of various industries as well as government in India and worldwide with better and efficient problem-solving skills, critical thinking, effective communication for disseminating the knowledge of chemistry to the scientific community and common people.

PSO2: The students will be well trained with adequate skills of chemistry laboratory with emphasis on industrial and real-world applications to further their career both independently and as a team as professional chemist, researcher, scientist, or science communicator with strong ethical morality and leadership skills to fulfil the needs of greater society.

PSO 3: Chemistry masters students will be trained to achieve individual career success along with being responsible citizens with strong desire for sustainable development and environmental justice, expand the knowledge of chemistry for life-long learning, teaching and research maintaining solid ethical guidelines.