

MSc in Analytical Chemistry
Program Intended Learning Outcomes (PILOs)

Program Objectives

The MSc in program in Analytical Chemistry aims to prepare bachelor's degree holders from the Chemical and Physical Sciences discipline for employment and career in analytical laboratory. The areas of study range from materials and forensic testing to environmental sampling and food quality control. By focusing on both the background principles of modern analysis techniques and emphasis on analytical problems applied to the real-world, the program provides students with significant advantage in the job market.

The program covers key aspects of modern analysis methods with clear explanation on the physical principles behind the techniques and numerous examples showing how the techniques apply to a wide range of analytical problems. It also contains modules for extensive experimental hands-on experience including both a laboratory-based course and an individual or group project. Safety training, risk assessment and laboratory management skills are also included in the study.

PILOs

Upon successful completion of the program, students should be able to:

1. Appraising the appropriate and safe application of a wide range of modern analytical techniques to diverse fields from forensics and pharmaceuticals to the environmental and materials sciences, based on detailed knowledge of their working principles.
2. Solving practical analytical problems by selection of the most appropriate available technique and either adapt or extend existing methodologies to new systems, obtaining reliable results, through appropriate calibration and data processing.
3. Critically analyzing and reporting scientific data, highlighting their significance and giving numerical results with appropriate uncertainties from statistical observations, after minimizing possible sources of systematic error.
4. Executing modern laboratory best practices, with a view to emphasizing safety, minimizing hazardous waste, and incorporating risk assessment exercises for projects and individual experiments, and, where appropriate, identifying legal issues and compliance with any relevant regulations.