

HIGHER NITEC IN CHEMICAL TECHNOLOGY

Core Modules

Introductory Chemistry

On completion of the module, students should be able to perform manual titration, as well as identify the common elements of organic molecules, nomenclature used, chemical structure and bonding, common functional groups, and the properties associated with the various functional groups of organic compounds.

Analytical Chemistry

On completion of the module, students should be able to perform analysis using simple equipment to perform pH test, automated titration, physical tests, extractions, gravimetric and particle size analysis.

Laboratory Techniques and Quality Control

On completion of the module, students should be able to prepare stock solution and perform dilution, maintain the quality standards of chemical laboratory, including record-keeping for traceability purposes, calibration of measuring instruments, and application of quality control tools for laboratory applications.

Laboratory Mathematics and Data Analysis

On completion of the module, students should be able to apply the various mathematical principles such as algebra, logarithms and graphs construction for laboratory operations and analysis. They should also be able to collate data and perform basic functions using common software programme.

Sampling Handling and Processing

On completion of the module, students should be able to perform common sample pre-treatment methodologies, as well as sampling activities and processes which comply with industrial standards such as cGMP and GLP.

Basic Instrumental Analysis

On completion of the module, students should be able to perform the various modes of spectroscopy which include ultra-violet and infrared spectrometry, atomic spectrometry, and the applications of inductive-coupled plasma and thermal bench instruments. They will also be taught to troubleshoot and maintain spectroscopic and thermal bench instruments.

Advanced Instrumental Analysis

On completion of the module, students should be able to perform the various modes of chromatography which include High Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), LC-Mass Spectrometry and GC-Mass Spectrometry. They will also be able to troubleshoot and conduct basic routine maintenance for chromatographic instruments.

Industry Attachment

Students are provided with the opportunity to work in a laboratory-based environment to gain hands-on training in the real work environment.