School of Chemistry

Aims and Objectives: Session 2023-2024, Semester 2

Module CH2701: Physical Chemistry 2 (Laboratory)

Duration: 36 (12 x 3) hours laboratory work.

Staff: Professor S. E. M. Ashbrook, Dr A. S. Gibbs, Dr D. G. Pinto (Co-ordinator) and Professor W. Zhou.

Aims: The physical laboratory class consists of a series of experiments designed to be completed in either one or two sessions. The laboratory is designed to illustrate and reinforce concepts covered in the lecture-based part of the course. The students will be introduced to a number of spectroscopic and analytical techniques.

Objectives: To perform eight experiments covering analytical chemistry, catalysis, diffraction, IR spectroscopy, kinetics, thermodynamics, electrochemistry and quantum mechanics.

Analytical Chemistry:
Preparation of $K[ICl_4]$

Catalysis:
Catalytic application of zeolites – the Cyclar process

Diffraction:
Powder X-ray diffraction on a pc

Spectroscopy:
The rovibrational IR spectra of HCl/DCl

Kinetics:
Spectroscopic investigation of the kinetics of a simple organic reaction

Thermodynamics:
The decomposition of ammonium carbamate

Electrochemistry:
The Button Cell experiment

Quantum mechanics:
Absorption Spectra of Conjugated Systems