School of Chemistry

Aims and Objectives: Session 2032-2024

Module CH2701: Physical Chemistry 2

Course Title: Quantum Mechanics 1

Duration: 12 hours

Lecturer: Dr G. Haehner

Aims: The aim of this course is to provide an introduction to the *quantum mechanics* of atoms.

Objectives:

1. To understand the concept of **quantisation** and how it arises.
2. To know the form of the time-independent **Schrödinger** equation and the meaning of the quantities therein.
3. To follow the treatment of '**free electron**' systems and understand how **energy levels**, **quantum numbers**, **degeneracy** and the effects of **symmetry** result from this.
4. To follow in broad outline the solution of the Schrödinger equation for the **hydrogen atom** and to know the general form of the energy levels and atomic orbitals and how the shapes of the latter arise.
5. To appreciate, **in principle**, how the electronic structure of **'many-electron'** atoms can be constructed and **understood**.