

COURSE DETAIL

FOUNDATIONS OF QUANTUM MECHANICS

Country

United Kingdom - Scotland

Host Institution

University of Edinburgh

Program(s)

University of Edinburgh

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Physics

UCEAP Course Number

120

UCEAP Course Suffix**UCEAP Official Title**

FOUNDATIONS OF QUANTUM MECHANICS

UCEAP Transcript Title

FOUND QUANTUM MECH

UCEAP Quarter Units

4.00

UCEAP Semester Units

2.70

Course Description

This course covers fundamentals of quantum mechanics and its applications to atomic and molecular systems. The course examines non-relativistic quantum mechanics, supplying the basic concepts and tools needed to understand the physics of atoms, molecules, and the solid state. One-dimensional wave mechanics are also reviewed. It introduces the postulates and calculational rules of quantum mechanics, including Dirac notation. Angular momentum and spin are shown to be quantized, and students discuss the corresponding wave-function symmetries. Students solve the eigenvalue equation for the energy for a number of important cases, including the harmonic oscillator and the Hydrogen atom. They also study approximate methods of solution, including time-independent perturbation theory, with application to atomic structure.

Language(s) of Instruction

English

Host Institution Course Number

PHYS09051

Host Institution Course Title

FOUNDATIONS OF QUANTUM MECHANICS

Host Institution Course Details

<http://www.drps.ed.ac.uk/24-25/dpt/cxphys09051.htm>

Host Institution Campus

Edinburgh

Host Institution Faculty

Host Institution Degree

Host Institution Department

Physics and Astronomy

Course Last Reviewed

2024-2025

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