

UCT Physics OpenContent - PHY2014F

This page contains links to the course material available as open content from the UCT Department of Physics course PHY2014F. The availability of these materials is part of UCT's [OpenContent](#) initiative.

Course description

PHY2014F is a second-year half course, aimed primarily at students who are majoring in physics.

VIBRATIONS AND WAVES: Harmonic oscillations, damped and forced oscillations, resonance, Fourier analysis, harmonic chains, waves, dispersion, interference, diffraction.

ELECTROMAGNETISM: Vector calculus (div, grad, curl), electrostatics, special techniques for potentials, electric fields in matter, magnetostatics, magnetic fields in matter, current, Ohm's law, circuits, electromagnetic induction, electrodynamics, Maxwell's equations.

Lecture slides

Vibrations and waves

- [Formula sheet for VW](#)
- [Part 1](#)
- [Part 2](#)
- [Part 3](#)

Electromagnetism

- [Introduction and review](#)
- [Vector calculus](#)
- [Electrostatics](#)
- [Special techniques for potentials](#)
- [Electric fields in matter](#)
- [Magnetostatics](#)
- [Electrodynamics](#)
- [Conservation laws](#)
- [Electromagnetic waves](#)
- [Potential difference and line integral of electric field](#)

Electromagnetism worked examples

- [Worked Example 1](#)
- [Worked Example 2](#)
- [Worked Example 3](#)
- [Worked Example 4](#)
- [Worked Example 5](#)
- [Worked Example 6](#)
- [Worked Example 7](#)
- [Worked Example 8](#)
- [Worked Example 9](#)
- [Worked Example 10](#)
- [Worked Example 11](#)
- [Worked Example 12](#)
- [Worked Example 13](#)
- [Worked Example 14](#)

- [Worked Example 15](#)
- [Worked Example 16](#)
- [Worked Example 17](#)
- [Worked Example 18](#)

Weekly problem sets

- [Weekly Problem Set 1](#)
- [Weekly Problem Set 2](#)
- [Weekly Problem Set 3](#)
- [Weekly Problem Set 4](#)
- [Weekly Problem Set 5](#)
- [Weekly Problem Set 6](#)
- [Weekly Problem Set 7](#)
- [Weekly Problem Set 8](#)
- [Weekly Problem Set 9](#)
- [Weekly Problem Set 10](#)
- [Weekly Problem Set 11](#)
- [Weekly Problem Set 12](#)
- [Weekly Problem Set 13](#)
- [Weekly Problem Set 14](#)
- [Weekly Problem Set 15](#)