

UCT Physics OpenContent - PHY1004W

This page contains links to the course material available as open content from the UCT Department of Physics course PHY1004W. The availability of these materials is part of UCT's [OpenContent](#) initiative.

Course description

PHY1004W is a first-year, calculus-based introductory Physics course for Science students intending to continue with second-year Physics.

MODERN MECHANICS: Matter and interactions, conservation laws, the momentum principle, atomic nature of matter, conservation of energy, energy in macroscopic systems, energy quantization, multiparticle systems, exploring the nucleus, angular momentum, entropy, kinetic theory of gases, efficiency of engines.

ELECTRIC AND MAGNETIC INTERACTIONS: Electric fields, electric potential, magnetic fields, electric circuits, capacitance, resistance, magnetic force, Gauss' law, Ampere's law, Faraday's law, induction, electromagnetic radiation, waves and particles, semiconductor devices.

Lecture Slides

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- [Motion](#)
- [Systems and surroundings](#)
- [Gravitational force](#)
- [Atoms and contact forces](#)
- [Atoms and energy](#)
- [Energy](#)
- [Energy quantisation](#)
- [Thermal physics](#)
- [Electricity and magnetism I](#)
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- [Fields](#)
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- [Electromagnetic radiation](#)
- [Waves and/or particles](#)

Problem Sets

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Theory Tutorials

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VPython Tutorials

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