

Autumn term: 2024

Section 7: Further mechanics

- Recap of Further Mechanics
- FD and gap analysis
- RP7: Investigation of Mass Spring System & Simple Pendulum System

Section 13: Astrophysics

- 13.1 Optics and optical telescope Recap
- 13.2 Comparing telescopes
- 13.3 Parallax and parsecs
- 13.4 Magnitude
- 13.5 Stars as black bodies
- 13.6 Stellar classification
- 13.7 Evolution of stars
- 13.8 Doppler shift and redshift
- 13.9 The Big bang theory
- 13.10 Detection of binary stars, quasars and exoplanets
- Summary & review
- EOU test / Mock exam 1

Section 8: Gravitational & electric fields

- 8.1 Gravitational field
- 8.2 Gravitational field Strength
- 8.3 Gravitational Potential
- 8.4 Orbits
- 8.5 Electric Fields
- 8.6 Electric Potential
- 8.7 Comparing Electric and Gravitational Fields
- Review & EOU test

Section 9: Electromagnetism

- 9.1 Magnetic flux density
- 9.2 Forces on charge particles
- 9.3 Electromagnetic induction
- 9.4 Faraday's and Len's law
- RP10 Investigating Force on a Current-carrying Wire
- RP11 Investigating Flux Linkage with a Search Coil
- 9.5 AC
- 9.6 Transformers
- Review & EOU test

Section 10: Capacitors

- 10.1 Capacitors
- 10.2 Energy stored by capacitors
- 10.3 Charging and Discharging

Half Term

Christmas break

Winter term: 2025

Section 10: *continued*

- 10.4 Time constant, time half and dielectric
- RP9 Investigating Capacitors Discharging
- Summary & review
- EOU test

Section 11

- 11.1 The Atomic Nucleus
- 11.2 Nuclear Radius and Density
- 11.3 Properties of Nuclear Radiation
- 11.4 Background radiation and intensity
- 11.5 Exponential Law of Decay
- 11.6 Half-life and its Applications
- 11.7 Nuclear Decay
- 11.8 Mass defect and the binding energy
- 11.9 Nuclear Fission and fusion
- 11. 10 Nuclear Fission Reactor

Half Term

Spring term: 2025

Section 11: *continued*

- 11.11 Nuclear Physics Summary
- RP12 Investigating the inverse square law
- EOU test

Section 12

- 12.1 Thermal energy transfer
- 12.2 The three gas laws
- 12.3 The ideal gas equation
- 12.4 Kinetic theory and the pressure of an ideal gas
- 12.5 Kinetic energy of gas molecule
- RP8: Experimental Investigation of Boyle's Law, and Investigation of Charles Law
- EOU test

Easter break

Preparation for external exam