

School administrators and Heads of Learning Area – Science and teachers of Physics ATAR Year 12 are requested to note for 2027 the following minor syllabus changes. The syllabus is labelled ‘For teaching from 2027’.

Physics | ATAR Year 12 | Summary of minor syllabus changes for 2027

The content identified by ~~striketrough~~ has been deleted from the syllabus and the content identified in *italics* has been revised in the syllabus for teaching from 2027.

For teaching from 2027

Unit 3 – Science as a Human Endeavour

Gravity and motion

- Einstein’s theory of general relativity explains phenomena including time dilation in atomic clocks on global positioning system (GPS) satellites, the existence of black holes, *gravitational* waves and gravitational lensing

Unit 4 – Science Understanding

Electromagnetism

- a changing magnetic flux induces a potential difference; this process of electromagnetic induction is used in DC and AC generators, including applying the relationships

$$\text{induced emf: } \varepsilon = -N \frac{\Delta \Phi}{\Delta t} = -N \frac{\Delta B A_{\perp}}{\Delta t} \quad \text{where } A_{\perp} = \text{area perpendicular to the field } B$$

$$\text{AC generator emf}_{\max}: \varepsilon_{\max} = 2N\ell vB = 2\pi NBAf \quad \varepsilon_{\text{rms}} = \frac{\varepsilon_{\max}}{\sqrt{2}}$$

Particle accelerators

- the total energy E of a moving object is the sum of the energy due to its mass and kinetic energy, including applying the relationships

$$E = E_{\text{rest}} + E_k \quad E_{\text{rest}} = mc^2 \quad \cancel{E_k} = E - \cancel{E_{\text{rest}}}$$