Physics ATAR - Summary of syllabus changes

As a result of the review, the main differences between the current Years 11 and 12 ATAR course syllabuses and the proposed Years 11 and 12 ATAR syllabuses are summarised below.

Content changes

Overall

- The Rationale and Aims remain unchanged.
- Learning outcomes have been removed from each unit.
- The Organisation of content remains unchanged except for the following change in Mathematical skills expected of students:
  - recognise the graphical representation of a sine and cosine curve.
- The Unit descriptions have been updated to reflect the revised content for each unit.
- The Science Inquiry Skills have been updated to include the following:
  - identify sources of random and systematic uncertainty
  - state absolute uncertainties in values and calculate percentage uncertainty
  - combine uncertainties in calculations
  - identify anomalous data and calculate percentage difference to the accepted value
  - relate gradients and axis intercepts in graphs
  - apply dimensional analysis to determine the units for calculated quantities
  - use uncertainty bars to represent values on a graph
- The Science as a Human Endeavour descriptions have been updated to provide a greater range of contemporary applications for each topic covered.

Year 11 specific

- Unit 1 has been modified in the following ways:
  - renamed Motion, forces and energy – these topics were moved from unit 2
  - resolution of vectors into components was added
  - formulas have been changed to correct symbols; e.g. $\Delta t = t_f - t_i$
  - motion on inclined planes, projectile motion and friction have been added
  - heating processes has been removed as a topic, but thermal energy has been retained as part of energy and work
  - change in the internal energy of a system (ΔU) was added.

- Unit 2 has been modified in the following ways:
  - renamed Waves, nuclear and electrical physics – the latter two topics were moved from unit 1
  - beat frequency was added to Waves
  - the Standard Model was added to nuclear physics, having moved from unit 4
  - electric fields and Coulomb's law added to electrical physics, having moved from unit 3
  - resistivity was added to electrical physics.

Year 12 specific

- Unit 3 has been modified in the following ways:
  - renamed Gravity and relativity – relativity was added from unit 4
  - static equilibrium and circular motion have been elaborated to provide more detail.

- Unit 4 has been modified in the following ways:
  - renamed Electromagnetism, revolutions in modern physics – the former has moved from unit 3
  - the energy – momentum equation for an object has been added to particle accelerators in electromagnetism
  - blackbody radiation has been elaborated to provide more clarity
  - X-ray production has been added as part of quantum theory.
  - Cosmology topic has been added and focuses on the development of the universe.

School-based assessment changes

Overall

- A section titled *Assessment* has been added.
- The *School-based assessment* section has been revised and now includes:
  - Summative assessments in this course must:
    - be limited in number to no more than eight tasks
    - allow for the assessment of each assessment type at least once for each unit in the unit pair
    - have a minimum value of five per cent of the total school assessment mark
    - provide a representative sampling of the syllabus content.

Assessment table – Year 11

- *Science Inquiry* has been replaced by *Science Inquiry Portfolio* with a focus on gathering experimental work to assess the science inquiry skills of students.
- The assessment types are:
  - Science inquiry portfolio
  - Test
  - Examination.

- Changes have been made to the wording of the assessment type descriptions.

Assessment table – Year 12

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- Changes have been made to the wording of the assessment type descriptions.

Assessment type weightings – Year 11

- Weightings of each assessment type are fixed:
  - Science inquiry portfolio – 20% (new)
  - Test – 40% (previously 30%)
  - Examination 40% (same)

Assessment type weightings – Year 12

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- Test – 40% (previously 30%)
- Examination 40% (new)

Reporting section changes – Overall

- This section title has been revised and is now called *Reporting* (it was previously *Grading*).

Examination design brief changes

Section/s renamed

- Section 3, *Comprehension* has been renamed *Comprehension and data analysis*.

Section/s format or weighting

- Section 3 will contain:
  - One question is comprehension and may come from an unfamiliar context.
  - One question is data analysis and requires the processing of experimental data.

Sections removed

- Nil

Sections added

- Nil

Other changes

- The following statement has been removed from *Additional information*: *When estimating numerical answers, show your working or reasoning clearly. Give final answers to a maximum of two significant figures and include appropriate units where applicable.*