

Engineering Studies (ATAR)

The Engineering Studies ATAR course provides opportunities for students to investigate, research and present information through a design process, and then undertake project management to make a functioning product.

These activities provide students with opportunities to apply engineering processes, understand underpinning scientific and mathematical principles, develop engineering technology skills and to understand the interrelationships between engineering projects and society.

Technologies

Courses

Course Structure

Year 11

Unit 1

- In the development of an engineering project, students study core engineering theory and their chosen specialist area theory.
- They develop an understanding of different forms of energy, uses of these different forms, and sources of renewable and non-renewable energy.
- Given guidelines and a context, students apply their knowledge of the engineering design process and theory to develop and respond to a design brief. This requires them to investigate existing products, construction materials and components.
- Design ideas are developed through annotated sketches and concept drawings. Students then select and analyse the most suitable concept for production as a prototype or working model.
- Students finalise their chosen design by documenting its specifications in the form of appropriate orthographic drawings, specialist diagrams and lists of materials and components.
- Students calculate the cost of the prototype or model. They follow a given timeline to undertake tasks required to produce, test and evaluate the product.

Unit 2

- This unit develops students' understanding of core and specialist area theory to better understand the scientific, mathematical and technical concepts that explain how engineered products function.
- Students study the impact of the different forms of obsolescence in engineering products on society, business and the environment.
- Students continue to refine their understanding and skills of the engineering design process, undertaking tasks to produce, test and evaluate the product.
- Core and specialist area theory continues to be studied to forge greater understanding of the scientific, mathematical and technical concepts that explain how engineered products function.

Technologies

Courses

Year 12

Unit 3

- In this unit, students develop their understanding of core and specialist area theory. They also study the impacts of obtaining and using the different forms of renewable and non-renewable energy on society, business and the environment.
- Students use the engineering design process beginning with the development of a comprehensive design brief that has a focus on a problem, need or opportunity.
- They synthesise responses to the brief by engaging in a range of activities that include: detailed research of similar existing engineered products; construction materials and components; sketching, drawing and notating concepts; analysing and justifying the choice of the most promising of these for production as a prototype or working model.
- Students refine their understanding and skills of the engineering design process, undertaking tasks to produce, test and evaluate the product.

Unit 4

- In this unit, students consider and analyse the stages within the life cycle of engineering products.
- Students develop and demonstrate an understanding of the impacts on society, business and the environment that occur during the life cycle of engineered products.
- Students continue to refine their understanding and skills of the engineering design process, undertaking tasks to produce, test and evaluate the product.
- Core and specialist area theory continues to be studied to forge greater understanding of the scientific, mathematical and technical concepts that explain how engineered products function.