Government of **Western Australia**
School Curriculum and Standards Authority

ENGINEERING STUDIES

ATAR course

Year 12 syllabus – What's changing: Rationale and Aims

For teaching in 2027

Acknowledgement of Country

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

Background

As part of the Western Australian Certificate of Education (WACE) Refreshment for reviewing the nomenclature of courses, the Authority has updated the rationale and aims of each syllabus.

The revised rationale and aims are aligned with the mapping of the general capabilities to provide clear connections between the rationale, aims and syllabus content. The rationale outlines what the subject is about and why it is important. It describes what students can expect to study in the course, along with the knowledge, skills and understandings they will develop throughout the course. It also explains how these can be applied in everyday life and references potential future pathways, outlining how students might connect what they learn in the course to further education, training and employment opportunities.

Important information

WACE Refreshment: Reviewing the nomenclature of courses

This document contains information that will be included in the syllabus effective from 1 January 2027.

Users of the syllabus are responsible for checking its currency.

Syllabuses are formally reviewed by the Authority on a cyclical basis, typically every five years.

Rationale

The Engineering Studies ATAR course teaches students to use their creativity and problem-solving skills to turn ideas into reality by applying lateral thinking and mathematical and scientific principles. Students use engineering skills and understandings to develop solutions to problems, respond to needs and capitalise on opportunities. They also develop awareness of social issues related to engineering such as environmental impact, sustainable energy, health and safety, and consultation processes to understand social attitudes and opinions.

The course comprises core content that uses an engineering design process to enable students to learn about engineering in a practical, project-focused manner. This provides students with skills, knowledge and an understanding of general engineering concepts and processes. The content of two specialist fields (Mechanical and Mechatronics) allows students to develop a more specific practical understanding of major engineering and industrial technologies.

Students investigate, research and present information, design and make products and undertake project development. Through these opportunities students learn to apply engineering processes, understand the underlying scientific and mathematical principles, develop engineering technology skills and explore the interrelationships between engineering and society.

The course focuses on real-life contexts through a blend of theoretical and practical applied learning. It aims to prepare students for a future in an increasingly technological world by providing the foundation for lifelong learning about engineering.

Studying the course provides students with a range of skills and understandings that are valuable for further study pathways, including tertiary study and vocational education and training. The course is particularly suited to those students who are interested in future careers in engineering and technical industries such as mechatronics, robotics and automation, nanotechnology, information technology and telecommunications, or mechanical, electrical, civil and manufacturing engineering.

Aims

The Engineering Studies ATAR course aims to develop students':

- ability to identify and compare forms, sources and uses of energy
- ability to apply and communicate a process to design, make and evaluate engineered products through
  - investigating needs and opportunities
  - generating engineering production proposals to provide solutions
  - managing engineering production processes to produce solutions
  - evaluating intentions, plans and actions
- understanding and communication of the properties and behaviours of materials and components
- understanding and application of scientific and mathematical concepts used in the engineering context
- ability to use materials, skills and technologies when undertaking an engineering challenge by
  - applying initiative and organisational skills, and skills of calculation and computation
  - using materials, techniques and technologies to achieve solutions to engineering challenges
  - operating equipment and resources safely
- understanding of the interrelationships between engineering projects and society, the environment and industry.