



MATERIALS DESIGN AND TECHNOLOGY

General 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.

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Rationale

The Materials Design and Technology General course offers students both practical and academic learning experiences. Students develop and practically apply an understanding of the relationship between materials, design and technologies and explore how ethical, historical, cultural and environmental factors influence design and development decisions. This course encourages the development of transferable skills in communication, organisation and project management.

The course has a practical focus. Students develop and apply skills and knowledge in the design and manufacture of products, emerging trends and using a variety of materials and technologies to justify design ideas and choices. Students foster an understanding of social, cultural and environmental considerations, through informed decision-making to select materials and a range of technologies to produce design solutions.

Students develop skills, such as problem-solving, ideation and creative design thinking in response to design challenges, and apply effective communication skills in the design and production process to achieve desired goals. The study of Materials Design and Technology promotes digital literacy to support informed, responsible decision-making as consumers and contributors to a technological society.

Studying this course reinforces creativity and critical thinking through the development of practical skills, such as the safe use of tools and machinery; maintaining work health and safety (WHS) requirements; time and resource management; interpreting technical drawings; and problem-solving and ideation in response to innovative design challenges. Students have opportunities to engage in tasks that promote independence and confidence, building essential skills that are transferable to a range of vocational and academic pathways.

These pathways prepare students for future education and employability in relevant industries through an understanding of how products are designed, the ways materials are selected, developed and applied in fields, such as fashion design and manufacturing; product design; textiles, drafting, building and construction; engineering; architecture; industrial design; mining and apprenticeships across various trades.

Aims

The Materials Design and Technology General course aims to develop students’:

- application of a structured design process to modify or create products, processes and/or systems to meet human/client needs
- creative and critical thinking skills to design and create solutions to meet human needs and realise opportunities
- understanding of how the structure, characteristics and properties of materials influence design development and use
- selection of materials based on structure, characteristics and properties
- knowledge of the interrelationship between the people, environmental and sustainability aspects of materials selection for an identified purpose
- knowledge, skills and techniques using equipment and machines from relevant industry contexts to achieve specified/defined manufacturing standards
- application of regulatory safety requirements when creating and modifying products and systems
- knowledge of environmental, sustainability and ethical design factors for design, materials and processes
- understanding of how product design choices impact the environment, ethical factors, society, manufacturing and design choices.