



*At Northpine, students investigate and select from a range of technologies – materials, systems, components, tools and equipment. They consider the ways characteristics and properties of technologies can be combined to design and produce sustainable designed solutions to problems for individuals and the community.*

### **Curriculum Overview**

At Northpine students use design and technologies knowledge and understanding, processes and production skills and design thinking to produce designed solutions to identified needs or opportunities of relevance to individuals and regional and global communities. Problem-solving activities acknowledge the complexities of contemporary life and make connections to related specialised occupations and further study. Students specifically focus on preferred futures, taking into account ethics; legal issues; social values; economic, environmental and social sustainability factors and using strategies such as life cycle thinking. Students use creativity, innovation and enterprise skills with increasing confidence, independence and collaboration.

## Course focus

### Years 7, 8 and 9

Design and Technology provides students with experiences in exploring outcomes that promote:

- critical thinking skills
- discerning consumers and designers who consider the social and environmental impact of design solutions

Within contexts of healthy eating, textiles and resistant materials students explore:

- a range of factors and criteria relevant to creating appropriate design solutions
- a variety of manufacturing technologies appropriate to current industry application
- the application of mechanisms and systems to product design
- the appropriateness of products

Students will acquire

- safe work practices with tools and equipment
- an understanding of materials and their properties
- graphical skills including CAD to communicate design solutions
- problem solving skills highly relevant for now and into the future

### Year 10

The Design and Technology programs provides learning experiences that provide a progression into the senior pathway of Technology Studies.

Within the resistant materials units, students produce a comprehensive design folio that demonstrates an entire design process from analysing design problems, applying design factors and synthesising and evaluating designs. Students produce products that meet an identified specification through the use of a range of materials and processes.

Communication of concepts and final working drawings through Computer Aided Design (CAD) is explored further providing students with an enhanced skill level in this area of design.

The Textiles unit in Home Economics provides students with a deeper understanding of textiles skills and techniques, with a new emphasis on sustainability in clothing that will carry through to senior Home Economics.

The Food Technology unit focuses on Australian food history and food for special needs. Students will apply their knowledge and understanding of these topics to their practical and written assessments by relevant investigation, analysis and evaluation.

### Years 11 and 12

Senior Design & Technology Program options include:

**Certificate I in Construction**

**Certificate II in Engineering Pathways**

**Certificate III in Aviation (Drones)**

**Certificate II in Hospitality**

**Certificate III in Hospitality Design (General Subject)**

Design focuses on the application of design thinking to envisage creative products, services and environments in response to human needs, wants and opportunities. Designing is a complex and sophisticated form of problem-solving that uses divergent and convergent thinking strategies that can be practised and improved. Designers are separated from the constraints of production processes to allow them to appreciate and exploit new innovative ideas.

**Engineering (General Subject)**

Engineering includes the study of mechanics, materials science and control technologies through real-world engineering contexts where students engage in problem-based learning.

They recognise and describe engineering problems, determine solution success criteria, develop and communicate ideas and predict, generate, evaluate and refine prototype solutions.



## Career Opportunities

architecture, digital media design, fashion design, graphic design, industrial design, interior design, landscape architecture, civil, mechanical, mechatronic, electrical, aerospace, mining, process, chemical, marine, biomedical, telecommunications, environmental, micro-nano and systems, project management, aviation, surveying and spatial sciences.

## Enquiries

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