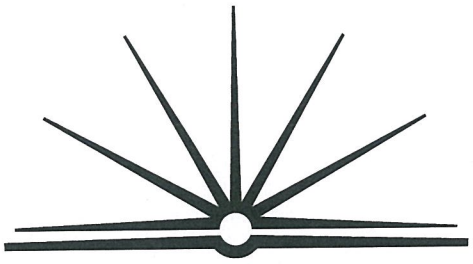

BOARD OF STUDIES
NEW SOUTH WALES

Design and Technology

Stage 6
Syllabus

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2 Rationale for Design and Technology in the Stage 6 Curriculum

From the earliest times, humans have interpreted, shaped and altered their environments in an attempt to improve the quality of their lives. In the process, technologies have evolved and been developed to the extent that, today, they have an impact on most aspects of our daily lives.

Australia needs business, industry and community leaders who understand the nature of design and technology; who will foster and promote innovation and the creative use of technologies; and who appreciate how design and technological activity contribute to the lives of individuals and to cultures and environments.

The issue of sustainable development is of concern to individuals, communities and governments as increasing evidence of the depletion of our natural resources through technological activity emerges.

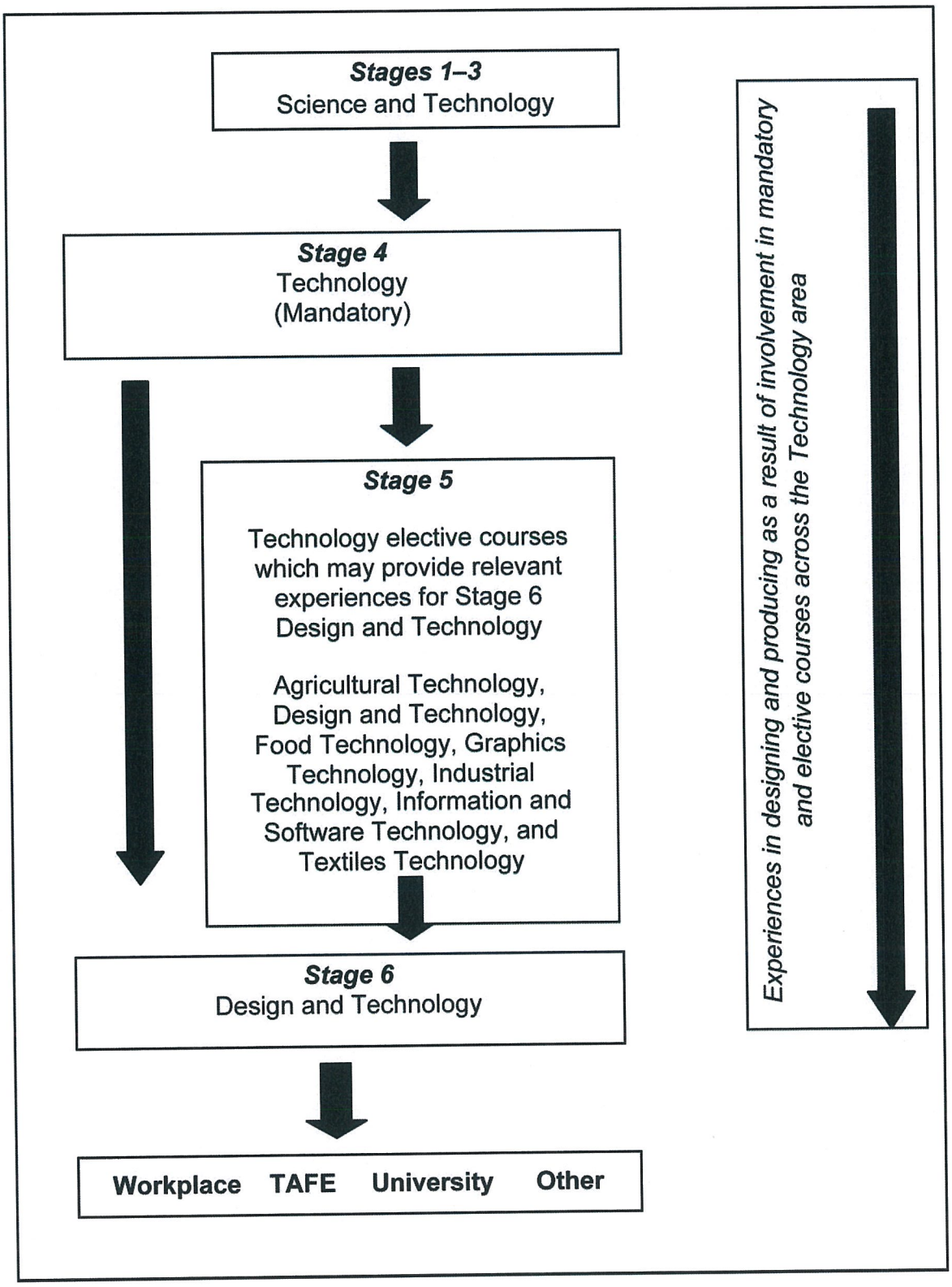
The study of Design and Technology Stage 6 develops conceptual understanding and enables students to creatively apply these to specific technological endeavours through design projects. It also seeks to develop students' appreciation of the historical and cultural influences on design and the interrelationships of design, technology, society and the environment.

Design and Technology has a unique focus on creativity, innovation and the successful implementation of innovative ideas. Students will investigate the importance of evaluation, the role of computer-based technologies, management, communication and collaborative design, as well as exploring current and emerging technologies. Through the completion of quality design projects, students are provided with the opportunity to develop specific production and manufacturing skills.

Design and Technology is inclusive of the needs, interests and aspirations of all students. It provides opportunities for students to develop design projects in areas of individual interest, to discuss equity issues related to design, production and manufacturing in the Australian society and to consider careers in the fields of design and manufacturing.

Students will be given the opportunity to explore and develop technologies and demonstrate insight into the future uses of technology. They will articulate arguments on issues and consequences including environmental and social impacts. They will develop skills that are transferable and which lead to lifelong learning.

3 Continuum of Learning for Design and Technology Stage 6 Students



4 Aim

Design and Technology Stage 6 is designed to develop students' confidence, competence and responsibility in designing, producing and evaluating to meet both needs and opportunities, and to understand the factors that contribute to successful design and production.

5 Objectives

Students will develop:

1. knowledge and understanding about design theory and design processes in a range of contexts;
2. knowledge, understanding and appreciation of the interrelationship of design, technology, society and the environment;
3. creativity and an understanding of innovation and entrepreneurial activity in a range of contexts;
4. skills in the application of design processes to design, produce and evaluate quality design projects that satisfy identified needs and opportunities;
5. skills in research, communication and management in design and production;
6. knowledge and understanding about current and emerging technologies in a variety of settings.

6 Course Structure

Preliminary Course
120 indicative hours

Each of the content areas should be introduced and given appropriate emphasis through teaching and learning activities and a minimum of two design projects.

Designing and Producing

The study of:

- design theory and practice
- design processes
- factors affecting designing and producing
- design and production processes in domestic, community, industrial and commercial settings
- technologies in industrial and commercial settings
- environmental and social issues
- creative approaches to design
- collaborative approaches to design
- project analysis
- marketing and market research
- techniques, materials, tools and other resources
- the realisation of ideas through the manipulation of techniques, materials tools and other resources
- work health and safety
- evaluation
- project management
- factors affecting management
- communication
- research methods
- interpreting and presenting data
- ethics in research
- manufacturing and production
- computer-based technologies.

As part of this study, students will complete a minimum of two design projects.

HSC Course
120 indicative hours

Each of the content areas is addressed through the major design project, case study and through other teaching and learning activities.

Innovation and Emerging Technologies

The study of:

- designs and design practice
- factors which may impact on successful innovation
- entrepreneurial activity
- the impact of emerging technologies
- the impact on Australian society
- historical and cultural influences
- ethical and environmental issues
- creativity.

As part of this study, students will complete a case study of an innovation which includes reference to the above factors.

Designing and Producing

The study of:

- **Project proposal and project management**
  - identification and exploration of the need
  - areas of investigation
  - criteria to evaluate success
  - action, time and finance plans
- **Project development and realisation**
  - design theory and practice
  - creativity
  - research
  - development and evaluation of ideas
  - study of practices in industrial and commercial settings
  - production techniques
  - communication
  - safe working practices
  - selection and use of resources
- **Project evaluation**
  - criteria for evaluation
  - analysis of evaluation
  - impact of the major design project on the individual, society and the environment.

As part of this study, students will complete a major design project.

Preliminary Course Structure

The Preliminary course is 120 indicative hours and will involve a minimum of two design projects. The projects will develop skills and knowledge to be further developed in the HSC course. Each project will place emphasis on the development of different skills and knowledge in designing and producing.

Students must participate in hands-on, practical activities to achieve the outcomes of this course. Class activities should be designed to develop knowledge and skills in designing and producing. Students should develop their knowledge of the activities within industrial and commercial settings which support design and technology and relate these processes to the processes used in their own designing and producing.

Design projects must involve the design, production and evaluation of a product, system or environment that includes evidence of design processes recorded in a design folio, which may be in a variety of different forms. Students should be encouraged to communicate their design ideas using a range of appropriate media.

HSC Course Structure

The HSC course is 120 indicative hours and includes the development and realisation of the major design project, a case study of an innovation and other teaching and learning activities. The comprehensive study of design and the processes of designing and producing that were studied in the Preliminary course are synthesised and applied.

The major design project involves students selecting and applying appropriate design, production and evaluation skills to a product, system or environment which satisfies an identified need or opportunity. Students have developed a wide range of skills and knowledge in the Preliminary course and in the HSC course are able to select and use those skills and knowledge appropriate to their selected project. The students relate the techniques and technologies used in industrial and commercial settings to those used in the development of design projects.

The case study involves the critical analysis of an innovation. By conducting a detailed case study of an innovation, students will be able to identify the factors underlying the success of the innovation; analyse ethical issues in relation to the innovation; and discuss the impact of the innovation on Australian society. They may also be able to apply processes similarly in the exploration and development of the major design project.