Design and Technology is divided into separate streams; Computer Aided Design, Systems Technology and Manufacturing Technology. Each is offered as a series of elective units with an emphasis on key elements of Design and Technology:

- Designing - a systematic problem solving approach, incorporating drawing methods.
- Making - developing skills and techniques in the use of tools, equipment and materials.
- Appraising - critical evaluation of products and processes, examining the impact of technology on individuals, society and the environment.

Each subject is based on a number of practical activities which apply these key elements. In material based subjects, students make their own designs, and as a result the cost of materials used for projects will be charged to the student.

**Year 7 DESIGN AND TECHNOLOGY**

This subject is offered to all students in Year 7 and runs for one term. Students are introduced to various systems, materials and processes. They develop skills in designing and making and are introduced to the concepts of problem solving and critical evaluation.

**TECHNOLOGY - COMPUTER AIDED DESIGN (CAD)**

This stream of study provides an opportunity for students to learn both mechanical design concepts and processes and architectural design skills and understandings. Industry standard programs Autodesk Inventor, Autodesk Revit, and Autodesk 3DS Max are used. In all courses students’ research, design, create and evaluate their own products.

**Year 9 & 10 TECHNOLOGY - CAD – Elective Course – One Semester**

This one semester course is aimed at students interested in design, engineering or architecture. Two major topics are covered, Mechanical Design and Architectural Design.

In Mechanical Design students learn how to use Autodesk Inventor to create parts, assemblies, animations and advertisements. Introductory tasks include small printable designs with final products manufactured by the schools 3D printer. The development of a gadget is the major assignment.

In Architectural Design students are introduced to Autodesk Revit, creating floor plans, walls, building features like doors and windows, and rendering. The design of a future house is the major assignment. Autodesk 3DS Max is also introduced as an animation tool for developed content.
Pre-requisite – It is strongly recommended that students complete Graphic Tales prior to enrolling in this course.

Stage 1 TECHNOLOGY - CAD - One Semester (10 Credits)

Stage 1 Computer Aided Design enables students to extend and apply their knowledge and understanding of digital technologies to create and share technical products in both Mechanical and Architectural design fields.

Course focus is on creating designs that effectively communicate and showcase student developed concepts.

In Mechanical Design students engage in a range of skills tasks before designing and developing a children's toy. The final product is printed on the schools 3D printer with product effectiveness tested on a target audience in the Junior School.

In Architectural Design students create and showcase a futuristic school building of their own design, ultimately developing an animation of an alternate school layout that includes all buildings developed by the class.

Students can choose either Mechanical or Architectural design as the platform for their major product, researching, designing, developing and evaluating a product based on an identified need.

Students should choose this subject if they are interested in a career in Engineering, Manufacturing, Construction, Architecture, Design or Drafting.

Pre-requisite – Students must have completed Year 9 & 10 Computer Aided Design.

Stage 2 TECHNOLOGY – CAD – Full Year (20 Credits)

Stage 2 Computer Aided Design provides an opportunity for students to extend their knowledge and understanding of mechanical and Architectural design concepts. Products are produced to industry standards and showcased via narrated videos. Students can choose either Mechanical Design or Architectural Design as their basis for each assessment task.

Course focus is on developing designs that effectively communicate and showcase student developed product concepts, and on developing skills and understanding in design concepts and processes used in related industry fields.

Assessment tasks include Skills Tasks, Materials Research task, Minor Project, Folio and associated Major Product of the student’s choice.

Students should choose this subject if they are interested in a career in Engineering, Manufacturing, Construction, Architecture, Design or Drafting.

Pre-requisite – Students must have completed Stage 1 Computer Aided Design.
TECHNOLOGY - SYSTEMS

Systems Technology examines various technological systems as Input — Control — Output. Students examine existing systems and their component parts then apply their knowledge to the design and construction of their own control systems.

Year 8 or 9 TECHNOLOGY - SYSTEMS 1 - Elective Course - One Semester

This course focuses on the areas of:
- *Electronics* - The nature of electricity and electronics, electrical safety, basic components, designing with electronic circuits, Ohms Law, using a multimeter and circuit board assembly.
- *Machines and Mechanisms* - motion and forces, simple machines

Year 9 or 10 TECHNOLOGY - SYSTEMS 2 - Elective Course - One Semester

Aimed primarily at Year 9 students this semester course focuses on the areas of:
- *Electronics* - Electronic devices, sensing circuits, semiconductors, output devices, construction techniques.
- *Machines and mechanisms* - Simple machines, machine efficiency, mechanical advantage, CO2 powered vehicles.
- *Robotics* - Robolab construction, Explorer programming. Futures

Success, wisdom, balance
Year 10 TECHNOLOGY - SYSTEMS 3 - Elective Course – One Semester

This semester course focuses on the areas of:

- **Energy** – Renewable and non-renewable energy sources. Alternative energy.
- **Electronics** - Semiconductors, Integrated circuits, modelling circuits, operational applications.
- **Digital Electronics** - Boolean logic circuits, digital control, digital computers
- **Robotics** - Automatic control programs, sequential control, sensors, Robolab construction, NXT programming, futures. Students designing and building Robots

**TECHNOLOGY - MANUFACTURING**

This stream has a focus on woodworking, plastics and metalworking. Students experience designing and working with tools and materials to produce their own projects.

Year 8 or 9 TECHNOLOGY - MANUFACTURING 1 – Elective Course - One Semester

Aimed primarily at students in Year 8 this semester course focuses on the areas of:
**Designing** - The design process, communicating ideas, technical drawing, a design plan, costing.
**Making** - Safety, hand tools and skills used in marking out, cutting, shaping and jointing, gluing and finishing methods.
**Critiquing** - Evaluation of the student’s own work, an investigation into the impact of manufacturing technology on the individual, futures.

Year 9 or 10 TECHNOLOGY - MANUFACTURING 2 – Elective Course - One Semester

Aimed primarily at Year 9 students, this semester course focuses on the areas of:
**Designing**: - Problem solving, researching, communicating, ideas, technical drawing, introduction to CAD.
**Making** - Safety, development of the use of tools, machines and equipment in manufacturing techniques.
**Critiquing** - Evaluation of commercial products, the student’s own work and processes used, an investigation into the impact of an aspect of technology on society or the environment, futures.

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Year 10 TECHNOLOGY - MANUFACTURING 3 – Elective Course - One Semester

Aimed primarily at Year 10 students, this semester course focuses on the areas of:
- **Designing** - Problem solving, researching, communicating ideas, technical drawing, CAD, developing a design folio.
- **Making** - Safety, further development of the use of tools, machines and equipment in more advanced manufacturing techniques.
- **Critiquing** - Evaluation of commercial products, the students’ own work and processes used, an investigation into the impact of an aspect of technology on individuals, society or the environment.

Stage 1 TECHNOLOGY - CONSTRUCTION – One or Two Semesters (10 or 20 Credits)

As in previous years, this course will be hands on, involving the 3 key elements of Design and Technology: Critiquing, Designing and Making. The course is offered as two separate semester units.

The emphasis of the course is on timber construction and industry. Student work is based around the investigation, design, production and evaluation of their own pieces. As students are making their own designs, the cost of materials used for projects will be charged to the student.

**Assessment tasks:**
- Design folio
- Issues - Research essay, Regular Assignments
- Skills - Construction of designed quality products.

For some students, further study in technology at TAFE may be the most appropriate option. This is a common practice and students spend part of their time in school and perhaps a half day or a day each week in TAFE. Students for whom this is the most appropriate course should discuss options with Mr. Johncock.

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Stage 2 TECHNOLOGY - CONSTRUCTION - Full Year (20 Credits)

Technology Studies at Year 12 will further develop the skills learnt in Year 11. Student work is based around the investigation, design, production and evaluation of pieces of their own devising. As students are making their own designs, the cost of materials used for projects will be charged to the student.

This course is offered as a full year subject. The program will include components in Designing, Skills, Knowledge and Understanding and Issues. The requirements of students will involve: - Examining market influences and technological issues, Product design, Production and evaluation, Specialised skills tasks.

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