

# ENGINEERING

## HOW WILL I BENEFIT FROM STUDYING ENGINEERING?

Engineering is a course of study which contextualises the Australian Curriculum (Technologies, Mathematics, Science) and prepares students for Senior Engineering. It challenges you to explore open-ended problems and actively construct your learning by undertaking purposeful engineering activities and apply learned technical knowledge, Engineering principles, processes and skills.

The problem-solving process in Engineering aligns with a problem-based framework, requiring engagement with the phases of exploring, developing, generating, evaluating and refining to mirror real-world scenarios.

Engineering allows, especially, for the development of critical and creative thinking, communication, collaboration and teamwork, personal and social skills and information and communication skills.

## THE MAIN AREAS OF FOCUS THROUGH THE COURSE OF STUDY ARE:

- Engineering Materials Science
- Engineering Mathematics (Mechanics)
- Control Systems (Electronics, Flow Charts, Logic)
- Engineering Communication – CAD software (Fusion 360, ArchiCAD)
- Workshop Tools & Equipment Including Safe & Responsible Use
- 21st Century Tooling – 3D Printers, Laser Cutters, CNC Routers
- Project-Folio Compilation – Presentation & Reporting Techniques for Problem-Based Learning Challenges

## WHAT ARE THE TOPICS IN YEAR 8?

- 3D Parametric Software – Fusion 360: Modelling, Simulation, Working Drawings
- Architectural Communication – Archicad
- Additive Manufacture – 3D Printing
- Laser Cutting & Etching
- Concrete as an Engineering Material

## WHAT IS THE ASSESSMENT?

The problem-based projects in Year 8 typically span a term and require submission toward the end of a Project Folio documenting evidence of the learning that has taken place.

For Engineering Communication units (Fusion/ArchiCAD), this will take the form of:

- Engineering Drawings
- Floor Plans
- Stress Analysis/Simulation

For Concrete as an Engineering Material, this will include:

- A practical component and theoretical report

For the Additive Manufacture unit (3D Printers), this will include:

- A practical component;
- Safety test (onguard); and
- Technical report/project-folio

## STUDENT'S OVERALL ACHIEVEMENTS ARE ASSESSED WITHIN THE FOLLOWING CRITERIA:

- Knowledge & Understanding
- Processes & Production Skills