



# ENGINEERING SKILLS

## Applied Senior Subject

Engineering Skills focuses on the underpinning industry practices and production processes required to create, maintain and repair predominantly metal products in the engineering manufacturing industry.

Students understand industry practices, interpret specifications, including technical information and drawings, demonstrate and apply safe and practical production processes with hand/power tools and machinery, communicate using oral, written and graphical modes, organise, calculate and plan production processes and evaluate the products they create using predefined specifications.

Students develop transferable skills by engaging in manufacturing tasks that relate to business and industry, and that promote adaptable, competent, self-motivated and safe individuals who can work with colleagues to solve problems and complete practical work.

### Pathways

A course of study in Engineering Skills can establish a basis for further education and employment in engineering trades. With additional training and experience, potential employment opportunities may be found, for example, as a sheet metal worker, metal fabricator, welder, maintenance fitter, metal machinist, locksmith, air-conditioning mechanic, refrigeration mechanic or automotive mechanic.

### Objectives

By the conclusion of the course of study, students should:

- describe industry practices in manufacturing tasks
- demonstrate fundamental production skills
- interpret drawings and technical information
- analyse manufacturing tasks to organise materials and resources
- select and apply production skills and procedures in manufacturing tasks
- use visual representations and language conventions and features to communicate for particular purposes
- plan and adapt production processes
- create products from specifications
- evaluate industry practices, production processes and products, and make recommendations.

## Structure

The Engineering Skills course is designed around core and elective topics.

Core topics	Elective topics
<ul style="list-style-type: none"> <li>• Industry practices</li> <li>• Production processes</li> </ul>	<ul style="list-style-type: none"> <li>• Fitting and machining</li> <li>• Sheet metal working</li> <li>• Welding and fabrication</li> </ul>

## Assessment

For Engineering Skills, assessment from Units 3 and 4 is used to determine the student's exit result, and consists of four instruments, including:

- at least two projects
- at least one practical demonstration (separate to the assessable component of a project).

Project	Practical demonstration	Examination
A response to a single task, situation and/or scenario.	A task that assesses the practical application of a specific set of teacher-identified production skills and procedures.	A response that answers a number of provided questions, scenarios and/or problems.
A project consists of a product component and at least one of the following components: <ul style="list-style-type: none"> <li>• written: 500–900 words</li> <li>• spoken: 2½–3½ minutes</li> <li>• product: continuous class time.</li> </ul>	Students demonstrate production skills and procedures in class under teacher supervision.	<ul style="list-style-type: none"> <li>• 60–90 minutes</li> <li>• 50–250 words per item</li> </ul>

## Formative assessments

Unit 1		Unit 2	
Formative internal assessment 1 (FIA1):	25%	Formative internal assessment 3 (FIA3):	25%
<ul style="list-style-type: none"> <li>• Project – Product (<b>Trailer Lock</b>)</li> <li>• Written Component</li> </ul>		<ul style="list-style-type: none"> <li>• Project – Product (<b>Sheet Metal Tool Box</b>)</li> <li>• Written Component</li> </ul>	
Formative internal assessment 2 (FIA2):	25%	Formative internal assessment (FIA4):	25%
<ul style="list-style-type: none"> <li>• Examination — Short Response</li> </ul>		<ul style="list-style-type: none"> <li>• Practical Demonstration (<b>High Pressure Nozzle</b>)</li> </ul>	

## Summative assessments

Unit 3		Unit 4	
Summative internal assessment 1 (IA1):	25%	Summative internal assessment 3 (IA3):	25%
<ul style="list-style-type: none"> <li>• Project – Product (<b>Engineer's Vice</b>)</li> <li>• Written Component</li> </ul>		<ul style="list-style-type: none"> <li>• Project – Product (<b>Camping Stove</b>)</li> <li>• Written Component</li> </ul>	
Summative internal assessment 2 (IA2):	25%	Summative internal assessment (IA4):	25%
<ul style="list-style-type: none"> <li>• Examination — Short Response</li> </ul>		<ul style="list-style-type: none"> <li>• Practical Demonstration (<b>Aluminium Soft Jaws</b>)</li> </ul>	