Engineering Studies

General course

Externally set task

Sample 2016

Note: This Externally set task sample is based on the following content from Unit 3 of the General Year 12 syllabus.

**Engineering design process**

**Investigating**

* develop a design brief
* use research skills to identify existing solutions/products
* describe and analyse existing solutions/products
* research and describe materials and components relevant to the design brief
* consider forms of energy supplies

**Devising**

* produce annotated pictorial drawings of design ideas
* produce annotated orthographic drawings of design ideas
* analyse the chosen option to be used as the solution

**Producing**

* present specifications for the selected solution
	+ dimensioned pictorial and orthographic drawings
	+ orthographic drawings and sketches are 3rd angle projections and include lines (outlines, hidden detail and centerlines) and dimensioning (linear, radii, circles, holes)
	+ materials selected
	+ parts lists
	+ costing of prototype or working model
* develop and use a timeline to construct and test the solution
* construct solutions by selecting and using appropriate tools and machines, following safe work practices
* test the solution for correct function and document, using checklists and test data

**Evaluating**

* evaluate the final solution in terms of
	+ meeting the requirements of the design brief
	+ function and finish of the product
	+ variations and changes to the design

**Engineering in society**

**Energy**

* define and describe relationships between energy, power, and work

In future years, this information will be provided late in Term 3 of the year prior to the conduct of the Externally set task. This will enable teachers to tailor their teaching and learning program to ensure that the content is delivered prior to the students undertaking the task in Term 2 of Year 12.

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# Engineering Studies

## Externally set task

Working time for the task: 60 minutes

Total marks: 30 marks

Weighting: 15% of the school mark

In relation to the engineering design process, you have studied and applied during the year, reflect on a product you devised.

1. Outline the design brief. **(6 marks)**

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2. Describe, providing examples, each step in how you processed through from the devising phase to the production phase. **(12 marks)**

In support of your description:

* produce annotated pictorial drawings of design ideas
* produce annotated orthographic drawings of design ideas
* analyse the chosen option to be used as the solution

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Question 2 continued

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3. Reflect on a product you designed and produced during this year, and the investigation of power sources, power supply and power used for your product. **(12 marks)**

(a) Describe the function of the product in terms of:

* meeting the functional requirements of the design brief
* variations and changes to the design

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(b) Evaluate the operation and consumption of supplied power of the product, and relationships between:

* energy
* power
* work

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