



# JOHN EDMONDSON HIGH SCHOOL

## Assessment Notification

**Faculty:** Industrial Arts    **Course:** Engineering Studies    **Year:** 11

**Assessment Task:** Task 1-Engineered Products - Analysis Report

**Assessment Weighting:** 30%    **Due:** Term 2 Week 2    **Date:** 4/05/2023

**Task Type:** Hand in Task     In Class Task     Practical Task

<b>Outcomes assessed (NESA)</b>
P1.1 identifies the scope of engineering and recognises current innovations P2.1 describes the types of materials, components and processes and explains their implications for engineering development P3.1 uses mathematical, scientific and graphical methods to solve problems of engineering practice P3.2 develops written, oral and presentation skills and applies these to engineering reports P3.3 applies graphics as a communication tool P4.1 describes developments in technology and their impact on engineering products P4.2 describes the influence of technological change on engineering and its effect on people P4.3 identifies the social, environmental and cultural implications of technological change in engineering P5.1 uses communication and information processing skills
<b>Task Description/Overview</b>
A report of the various components of an engineered product including research, calculations, and a detailed analysis in the form of an Engineering Report. IT MUST BE UPLOADED ON CANVAS by 8.20am on (or before) the due date.
<b>Detailed Assessment Task Description</b>
A report of the various components of an engineered product including research, calculations, and a detailed analysis in the form of an Engineering Report. Note that a high percentage is allocated to the proper presentation of an Engineering Report. ## See the printed guidelines and the Assignment Expectations (both supplied in class) for a detailed overview of what is expected ##

<b>Assessment Criteria</b>		
<b>Grade</b>	<b>Description</b>	<b>Mark Range</b>
<b>Outstanding (O)</b>	The student has demonstrated an outstanding ability in analysing, researching, experimenting and problem solving in engineering. In addition, the student has achieved a very high level of competence in the preparation and presentation of detailed engineering reports using appropriate means.	<b>90-100</b>
<b>High (H)</b>	The student has demonstrated a high ability in analysing, researching, experimenting and problem solving in engineering. In addition, the student has achieved a high level of competence in the preparation and presentation of detailed engineering reports using appropriate means.	<b>80-89</b>
<b>Sound (S)</b>	The student has a sound ability in analysing, researching, experimenting and problem solving in engineering. In addition, the student has achieved a decent level of competence in the preparation and presentation of engineering reports using appropriate means.	<b>60-79</b>
<b>Basic (B)</b>	The student has a basic ability in analysing, researching, experimenting and problem solving in engineering. In addition, the student has produced a basic presentation of engineering reports using appropriate means.	<b>30-59</b>
<b>Limited (L)</b>	The student has a limited ability in analysing, researching, experimenting and problem solving in engineering. In addition, the student has struggled to prepare and present an engineering report using necessary means.	<b>0-29</b>

### Satisfactory completion of courses

A course has been satisfactorily completed, when the student has:

- Followed the course developed/endorsed by the NSW Educational Standards Authority (NESA)
- Applied himself/herself with diligence and sustained effort to the set tasks and experiences provided in the course.
- Achieved some or all of the course outcomes

# Year 11 Engineering Studies Assessment Task

## Engineered Products Research Task

**Due Date: 4<sup>th</sup> May, 2023 (uploaded to CANVAS by 8.20am)**

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### Assessment Outcomes

- P1.1 identifies the scope of engineering and recognises current innovations
  - P2.1 describes the types of materials, components and processes and explains their implications for engineering development
  - P3.1 uses mathematical, scientific and graphical methods to solve problems of engineering practice
  - P3.2 develops written, oral and presentation skills and applies these to engineering reports
  - P3.3 applies graphics as a communication tool
  - P4.1 describes developments in technology and their impact on engineering products
  - P4.2 describes the influence of technological change on engineering and its effect on people
  - P4.3 identifies the social, environmental and cultural implications of technological change in engineering
  - P5.1 uses communication and information processing skills
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### Assessment Components

- A. Assessment Research
  - B. Assessment Task: **Engineered Products Analysis Report**
  - C. Marking Criteria
  - D. Engineering Report Guidelines
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### A. Assessment Research:

Students are to choose ONE engineered product from the list below. Another product may be chosen if approved by your teacher but it must have a mechanical mechanism and an electrical motor or circuit.

- Electric/rechargeable lawnmower
- Food processor
- DC (cordless) drill
- Hair dryer
- Ceiling or desk fan
- Fan heater
- Toaster
- Vacuum Cleaner

and research and analyse the materials, motor and recyclability related to that product.

Research information should be gathered from:

- Internet Sites
- Course Notes
- Library
- Text books

## **Assessment Task: Engineered Products Analysis Report**

Using the information obtained from your research, write a word processed report, using graphics and diagrams, analysing the **product** chosen on the following areas:

### **1. Materials used in 5 components:**

- Select 5 different components
- Name the materials used for each component
- Outline the properties of the materials used and their suitability for that use by explaining why it would have been chosen.
- Describe the manufacturing/forming processes used to create each component and any changes to the materials' properties from that process. Include annotated diagrams and pictures of that process to explain the process used to manufacture it.

### **2. Electrical system:**

- Describe the electrical system used to power the product you have chosen. Is there any 'control' system used?
- What is the voltage/current/wattage?
- Explain how the electric motor operates. Describe 'magnetic induction'.

### **3. Recyclability:**

- Has the product been 'designed for disassembly'? Does the manufacturer have arrangements for their obsolete products to be returned for recycling?
- Outline which materials used in your product can be recycled. What alternate materials could be used to enable a greater percentage of the product to be recycled?(Eg. Not all polymers are able to be recycled; can one be substituted for another?)
- Explain the environmental effects of recycling and the cost vs benefit for the manufacturer. (Eg. Transport and energy for recycling some materials can be too high for any benefit).

### **4. Presentation/Communication**

- The assessment must be done on a computer, using Microsoft Word or equivalent. Assessment is to be submitted on Canvas by 8:20am on the due date as attached file upload.
- The report should follow the **engineering report guidelines** and have a title, contents page, headings, sub-headings and page numbers, as well your name.
- The report must have adequate and appropriate use of labelled **diagrams** and **pictures**.
- Figures must be annotated to explain them, and also have a Figure number that matches it in the bibliography.
- The assessment must be free of spelling and grammatical errors SO CHECK IT BEFORE YOU FINALISE IT.
- The assessment must have adequate & accurate bibliographic **references** for all sections of the assessment. Use the <https://www.citethisforme.com/au/referencing-generator/apa> website to APA standard referencing.
- You must use at least 5 references for sources as well as the reference for each picture/diagram
- The bibliography must be presented on a separate page at the end of the assessment.

# Engineered Products Analysis Report - Marking Criteria

**Marks Achieved**

**Student Name:** .....

**Product Name:** .....

**TOTAL**  
**/100**

<p>1. Materials used</p>	<p><b>Accurate &amp; detailed analysis of the materials and processes used for each component</b> 20 - 30                  Accurate &amp; reasonable analysis of some components 7 - 19                  Inaccurate or poor analysis of some components 0- 6</p>	<p>/30</p>
<p>2. Electrical system</p>	<p><b>Accurate &amp; detailed analysis of the electrical system</b> 7 - 10                  Accurate &amp; reasonable analysis 3 - 6                  Inaccurate or poor analysis 0- 2</p>	<p>/10</p>
<p>3. Recyclability</p>	<p><b>Accurate &amp; detailed analysis of the recyclability of the materials used</b> 15 - 20                  Accurate &amp; reasonable analysis 8 - 15                  Inaccurate or poor analysis 0- 7</p>	<p>/20</p>
<p>4. Presentation/Communication</p>	<p><b>Presentation follows report guidelines and is well laid out. Includes Summary &amp; Contents</b> 0 - 20  <b>Communication uses diagrams, pictures &amp; is well referenced</b> 0 - 20</p>	<p>/20  /20</p>

**Comments:**

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