**Stage 2 Material Solutions**

**Design, Technology and Engineering**

School Assessment

**Assessment Type 2: Design Process and Solution**

Purpose

Students produce up to three tasks in the design process and solution assessment type that together provide evidence of the stages of the Design Realisation Process.

Students create a design brief that provides the basis for the development of potential solutions. The importance of the design process as a preliminary to the realisation process is emphasised, as is ongoing evaluation of the solution. Students investigate, plan then create a solution.

A solution in this subject is an outcome of the design and realisation process in relation to the chosen context. A solution could be fully realised or a model, prototype, system, part, process (i.e. procedures to output a product) or product.

Description of task

Article of furniture for use inside or outside of a building, room or house.

Section 1. Create a design brief

Identifying end users’ needs and outline constraints and considerations that then establish the criteria to evaluate solution with.

Research and analyse factors to inform the design brief e.g. investigation and analysis of existing solutions (articles of furniture) or selections and validations of joining systems, finishing systems, hardware, etc.

Provide a description of your final solution that include technical drawings and specifications

Section 2. Create your solution

Create your article of furniture to your design brief specifications.

Provide evidence showing between 8-10 stages of construction is required and your completed solution. This can be presented in multimodal form or as a written table format that include images of stages and comments that identify issues and solutions that arise during construction.

Section 3 Evaluate your solution

Comment on the sustainability of your solution (i.e. life cycle analysis, carbon footprint, potential to reuse or recycle, fair trade, customs) and any legal responsibilities (patents, safety requirements, intellectual property, creative commons, Australian International Standard, regulations and legislation including OH&S, safety of the product for the user) you have identified.

Indicate the changes you would make (if any) to the way in which your solution was made, (e.g. material selections, assembly techniques, joining systems, hardware) and evaluate your solution against the criteria established in the design brief.

Assessment conditions

Provide evidence of the above three sections, using a document of a maximum 3000 words, or 18 minutes of multi-modal presentation

For this assessment type, students provide evidence of their learning in relation to the following assessment design criteria:

* Investigating and Analysis (I1 & I2)
* Design Development and Planning (D1)
* Production (P1 & P2)
* Evaluation (E1)

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| Investigations and Analysis | Design Development and Planning | Production | Evaluation |
| A | Comprehensive and insightful analysis of the design features of products, processes, materials, systems and/or production techniquesPurposeful research and critical analysis of ethical, legal, economic and/or sustainability issues | Insightful and comprehensive communication of design concepts using relevant technical language and visual representationsInsightful and thorough planning, development, testing and validation of design concepts and procedures | Highly proficient application of skills, processes, procedures and techniques to create a solutionComprehensive development of solutions to technical problems that arise during the solution realisation | Comprehensive and insightful evaluation of the solution features and realisation process |
| B | Thoughtful and well-considered analysis of the design features of products, processes, materials, systems and/or production techniquesDetailed research and well-considered discussion of ethical, legal, economic and/or sustainability issues | Thoughtful and well-considered communication of design concepts using relevant technical language and visual representationsWell-considered planning, development, testing and validation of design concepts and procedures  | Proficient application of skills, processes, procedures and techniques to create a solutionThoughtful development of solutions to technical problems that arise during the solution realisation | Well-informed and detailed evaluation of the solution features and realisation process |
| C | Considered analysis of the design features of products, processes, materials, systems and/or production techniquesResearch and some analysis of ethical, legal, economic and/or sustainability issues | Clear communication of design concepts using technical language and some visual representationsCompetent planning, development, testing and validation of some design concepts and procedures  | Competent application of skills, processes, procedures and techniques to create a solutionDevelopment of solutions to technical problems that arise during the solution realisation | Considered evaluation of the solution features and realisation process |
| D | Identification of the design features of products, processes, materials, systems and/or production techniquesSome description of information about ethical, legal, economic and/or sustainability issues | Basic communication of design concepts using some technical languageSome planning and development of design concepts and/or procedures | Basic application of some skills, processes, procedures and techniques to create a solutionSome endeavour to develop solutions to technical problems that arise during the solution realisation | Some description of the solution features and realisation process |
| E | Attempted identification of the design features of products, processes, materials, systems and/or production techniquesSome accessing of information about ethical, legal, economic and/or sustainability issues | Superficial and simplistic communication of design concepts Limited use of information to plan design concepts  | Limited application of emerging skills Attempted development of a solution to a technical problem  | Emerging recognition of the solution features and realisation process |

Teacher comment:

Overall grade