Stage 1 Design, Technology and Engineering:   
Industry and Entrepreneurial Solutions

Assessment Type 1: Specialised Skills Task 1

# Purpose

Students develop knowledge and skills through specialised skills tasks. They apply the skills, processes, and techniques in the chosen context. This informs the design development for a solution in Assessment Type 2. Students evaluate and assess the development of their own skills in this assessment task. They review how these processes and techniques may influence their solution.

# Description of task

## Fusion 360 Product/Parts Modelling:

Students will produce at least one Fusion 360 model. They could be either a full model of their chosen product which includes parts that are required to be 3D printed. This will be negotiated with teacher during Design Development. This informs the design development for a solution in Assessment Type 2: 1.1 Design Development and Planning (models made will be sent to the clients to ask if the design is effective and fulfil its needs).

Students provide photographic or multimedia evidence of at least 4 different versions of the model or 4 different models of different parts produced and an evaluation of their skills and review on how these processes and techniques may be used in their solution for Assessment Type 2. This can be in the form of a recorded discussion by the student with the teacher or the student verbally responding and recording or writing to the following criteria.

### Students describe, explain and evaluate:

1. The progress of the product/parts against the final design of the model (screenshots)
2. Skills developed (e.g. methods, tools, new functions) to produce the model

and improve the design. Some of the examples of skills in Fusion 360 that can be developed:

* Competent
  + Changing preferences
  + Different orbit tools
  + Understand Sketch
  + Solid > Extrude and other tools
  + Insert SVG
  + Construct new plane
* Proficient
  + Using multiple “Component” effectively for different bodies
  + Modifying Sketch e.g. cut sketch, separate sketch into two parts
  + Cut bodies
  + Using “construction” option in Sketch mode and finding a centre
* Highly Proficient
  + Product specific tools chosen and used effectively

1. How process and procedure used allow the design ideas to be executed and/or translated to the model
2. Technical problems occurred and skills developed to overcome these
3. How these processes and techniques may influence their solution.

# Assessment conditions

The combined evidence for the specialised skills task should be a maximum of 500 words if written, a maximum of 3 minutes if oral, or the equivalent in multimodal form. If presenting in multimodal form use screen casting video using saved drafts on Fusion 360 or screenshots on PowerPoint with a voice track.

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

### Production

P1 Application of skills, processes, procedures, and techniques to create a solution.

P2 Development of solutions to technical problems or recommendations for improvement.

### Evaluation

E1 Evaluation of the solution features, realisation process, and /or response to issues.

# Work Evidence Template

You may use the following template to keep the evidence of your work. The images and notes you keep will be necessary to produce a multimodal presentation that will be submitted.

|  |  |  |
| --- | --- | --- |
| Screenshot (minimum of 4) and the progress | Description and Explanation of:   * Skills Used/Developed to produce/improve design [P1] * Technical problems occurred and skills developed to overcome these | Evaluation on Skills/Techniques:   * How process and procedure used allow the design ideas to be executed and/or translated to the model * How these processes and techniques may influence their solution |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |
| 4. |  |  |

**Performance Standards for Stage 1 Design, Technology and Engineering**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | **A** | **B** | **C** | **D** | **E** |
| **Investigation and Analysis** | **I1** | Comprehensive and insightful review of the design features of products, processes, materials, systems, and/or production techniques. | Thoughtful and well-considered review of the design features of products, processes, materials, systems, and/or production techniques. | Considered review of the design features of products, processes, materials, systems, and/or production techniques. | Identification of the design features of products, processes, materials, systems, and/or production techniques. | Attempted identification of the design features of products, processes, materials, systems, and/or production techniques. |
| **I2** | Planned and thorough research and discussion of ethical, legal, economic, and/or sustainability issues related to a solution. | Detailed and considered research and discussion of ethical, legal, economic, and/or sustainability issues related to a solution. | Research and discussion of ethical, legal, economic and/or sustainability issues related to a solution. | Some description of information about ethical, legal, economic, and/or sustainability issues related to a solution. | Some accessing of information about ethical, legal, economic, and/or sustainability issues related to a solution. |
| **Design Development and Planning** | **D1** | Polished and comprehensive communication of design concepts, using relevant technical language and visual representations. | Thoughtful and well-considered communication of design concepts, using relevant technical language and visual representations. | Clear communication of design concepts, using technical language and some visual representations. | Basic communication of design concepts, using some technical language. | Superficial and simplistic communication of design concepts. |
| **D2** | Insightful planning and development of design concepts and procedures | Well-considered planning and development of design concepts and procedures. | Competent planning and development of design concepts and procedures. | Some planning and development of design concepts and/or procedures. | Limited use of information to plan design concepts. |
| **Production** | **P1** | Highly proficient application of skills, processes, procedures, and techniques to create a solution. | Proficient application of skills, processes, procedures, and techniques to create a solution. | Competent application of skills, processes, procedures, and techniques to create a solution. | Basic application of some skills, processes, procedures, and techniques to create a solution. | Limited application of emerging skills. |
| **P2** | Comprehensive development of solutions to technical problems that arise during the solution realisation. | Thoughtful development of solutions to technical problems that arise during the solution realisation. | Development of solutions to technical problems that arise during the solution realisation. | Some endeavour to develop solutions to technical problems that arise during the solution realisation. | Attempted development of a solution to a technical problem. |
| **Evaluation** | **E1** | Comprehensive and insightful evaluation of the solution features, realisation process, and/or response to issues. | Well-informed and detailed evaluation of the solution features, realisation process, and/or response to issues. | Considered evaluation of the solution features, realisation process, and/or response to issues. | Some description of the solution features, realisation process, and/or response to issues. | Emerging recognition of the solution features, realisation process, and/or response to issues. |
|  |  |  |  |  | **Overall:** |  |