

|  |
| --- |
| **OCR Level 1/Level 2 Cambridge National in Engineering Design** |
| Qualification J822Unit R040 |
| Unit Recording Sheet |

|  |
| --- |
|  |
| Please read the instructions printed at the end of this form. A Unit Recording Sheet must be completed for each candidate and unit. |
| Unit Title | Design, evaluation and modelling | Unit Code | R040 | Session | Choose an item. | Year | 2 | 0 |   |   |
| Scenario Title |       |
| Centre Name |       | Centre Number |       |
| Candidate Name |       | Candidate Number |       |
| Marking Criteria | Teacher Comments | Mark | Page No. |
| **Task 1 – Topic Area 1.1: Product Evaluation – Product Analysis** |       |  |       |
| **MB1: 1 - 3 marks** | **MB2: 4 - 6 marks** | **MB3: 7- 9 marks** |
| Produces a **basic** product analysis of the key features of products using ACCESS FM.Provides a **basic** description of the strengths and weaknesses of existing products.**Basic** use of an engineering matrix.**[1 2 3]** | Produces an **adequate** product analysis of the key features of products using ACCESS FM.Provides an **adequate** description of the strengths and weaknesses of existing products.**Appropriate** use of an engineering matrix.**[4 5 6]** | Produces a **comprehensive** product analysis of the key features of products using ACCESS FM.Provides a **comprehensive** description of the strengths and weaknesses of existing products.**Effective** use of an engineering matrix.**[7 8 9]** |
|   **/9** |

|  |  |  |  |
| --- | --- | --- | --- |
| Marking Criteria | Teacher Comments | Mark | Page No. |
| **Task 2 – Topic Area 1.2: Product Evaluation – Product Disassembly** |       |  |       |
| **MB1: 1 - 3 marks** | **MB2: 4 - 6 marks** | **MB3: 7- 9 marks** |
| Explanation shows **a limited** understanding of potential hazards and safety considerations when using tools and equipment. Produces a **limited** analysis of the components, materials, production methods, assembly, and manufacturing methods used in an engineered product.**[1 2 3]** | Explanation shows and **adequate** understanding of potential hazards and safety considerations when using tools and equipment. Produces an **adequate** analysis of the components, materials, production methods, assembly, and manufacturing methods used in an engineered product.**[4 5 6]** | Explanation shows a **clear** understanding of potential hazards and safety considerations when using tools and equipment. Produces a **comprehensive** analysis of the components, materials, production methods, assembly, and manufacturing methods used in an engineered product.**[7 8 9]** |
|   **/9** |

|  |  |  |  |
| --- | --- | --- | --- |
| Marking Criteria | Teacher Comments | Mark | Page No. |
| **Task 3 – Topic Area 2: Virtual CAD 3D** |       |  |       |
| **MB1: 1 - 4 marks** | **MB2: 5 - 8 marks** | **MB3: 9- 12 marks** |
| Produces a **basic** 3D virtual model using CAD.Produces a **simple** 3D virtual model consisting of a very limited number of components.Demonstration of complex industry-related CAD activities is **dependent** upon assistance or help from other sources. **[1 2 3 4]** | Produces an **adequate** 3D virtual model using CAD.Produces an **adequate** 3D virtual model consisting of some mated components.Demonstration of complex industry-related CAD activities is carried out with **some** assistance or help from other sources.**[5 6 7 8]** | Produces a **comprehensive** 3D virtual model using CAD.Produces a **complex** 3D virtual model consisting of many mated components.Demonstration of complex industry-related CAD activities is carried out **independently**.**[9 10 11 12]** |
|   **/12** |

|  |  |  |  |
| --- | --- | --- | --- |
| Marking Criteria | Teacher Comments | Mark | Page No. |
| **Task 4 – Topic Area 2: Physical Modelling – Production Planning** |       |  |       |
| **MB1: 1 - 2 marks** | **MB2: 3 - 4 marks** | **MB3: 5- 6 marks** |
| A **basic** description of the planning stages to be used in the manufacturing of the prototype.Shows **limited** understanding of safety considerations.**[1 2]** | An **adequate** description of the planning stages to be used in the manufacturing of the prototype.Shows **some** understanding of safety considerations.**[3 4]** | A **comprehensive** description of the planning stages to be used in the manufacturing of the prototype.Shows a **detailed** understanding of safety considerations.**[5 6]** |
|   **/6** |

|  |  |  |  |
| --- | --- | --- | --- |
| Marking Criteria | Teacher Comments | Mark | Page No. |
| **Task 5 – Topic Area 2: Physical Modelling – Prototype Production** |       |  |       |
| **MB1: 1 - 6 marks** | **MB2: 7 - 12 marks** | **MB3: 13- 18 marks** |
| **Dependent** upon prompts to use PPE equipment when working with tools, machines, materials, chemicals, finishes and solvents.Use tools and processes with **limited** effectiveness to produce and assemble an outcome that partly meets the production plan. The prototype will be incomplete.Produces a **limited** record of the key stages of making the prototype.**[1 2 3 4 5 6]** | Requires **some** prompting to use appropriate PPE when working with tools, machines, materials, chemicals, finishes and solvents.Use tools and processes with **some** effectiveness to produce and assemble an outcome that mostly meets the production plan. The prototype will be mostly complete.Produces an **adequate** record of most of the key stages of making the prototype.**[7 8 9 10 11 12]** | **Independently** uses appropriate PPE when working with tools, machines, materials, chemicals, finishes and solvents.Use tools and processes **effectively** to produce and assemble an outcome that is of a high quality, accurate and fully meets the production plan. The prototype will be fully complete.Produces a **detailed** and accurate record of the key stages of making the prototype.**[13 14 15 16 17 18]** |
|   **/18** |

|  |  |  |  |
| --- | --- | --- | --- |
| Marking Criteria | Teacher Comments | Mark | Page No. |
| **Task 6 – Topic Area 2: Physical Modelling – Evaluation of a prototype** |       |  |       |
| **MB1: 1 - 2 marks** | **MB2: 3 - 4 marks** | **MB3: 5- 6 marks** |
| Produces a **basic** evaluation of the prototype outcome against the product specification.Provides **limited** potential improvements. No justification is provided.**[1 2]** | Produces an **adequate** evaluation of the prototype outcome against the product specification.Provides **some** potential improvements, with justification.**[3 4]** | Produces a **comprehensive** evaluation of the prototype outcome against the product specification.Provides **detailed** potential improvements with justification.**[5 6]** |
|   **/6** |
| **Total** |   /**60** |  |

|  |  |
| --- | --- |
| Please tick to confirm this work has been standardised internally | **[ ]**  |

Please note: This form may be updated on an annual basis. The current version of this form will be available on the OCR website ([www.ocr.org.uk](http://www.ocr.org.uk)).
A Centre Authentication form (CCS160) **must** be completed for each submission to the moderator. This **must** be held in your centre to be available on request at centre inspection.

Guidance on Completion of this Form

1 One form should be used for every candidate.

2 Please make sure that all parts of the form are completed.

3 Please enter specific page numbers where evidence can be found in the portfolio, and where possible, indicate to which part of the text in the mark band the evidence relates.

4 Circle/highlight the mark awarded for each strand of the marking criteria in the appropriate box.

5 Enter the circled/highlighted mark in the 'Mark' column.

6 Add the marks for the strands together to give a total out of 60. Enter this total in the relevant box.

7 For Paper-based submissions, one of these sheets, suitably completed, should be attached to the assessed work of each candidate.

8 For Electronic Internal submissions, prior to submitting ‘candidate evidence’ to OCR (via the Repository/SfA or via a USB), the Centre should add a separate folder containing the Unit Recording Sheets.