HM Government

T-LEVELS

T Level Technical Qualification in Engineering, Manufacturing, Process and Control

Employer-Set Project (8713-033)

Sample Marking Grids

City & Guilds

First teaching from September 2022

Version 1.0

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General marking approach

The following process details at high level the steps that will be undertaken by the external marking teams at City & Guilds following the submission of candidate's submitted evidence (including additional supporting evidence such as videos of presentations etc.).

Process

- Marker scans/reads the candidate's evidence, any notes on the CRF e.g. regarding level of support recorded and the band descriptors. Evidence contained on the CRF is taken into account along with all other candidate evidence at the point of marking. The external marker makes a judgement on the level of performance the candidate has demonstrated taking all the evidence into consideration and they then judge the appropriate mark following the normal process.
- Marker makes an initial assessment of the best fit to band.
- Marker reviews the candidate evidence against the initial band descriptor in more detail to decide if the response is securely sitting within the band; i.e. all characteristics described by the band descriptor are seen or it strongly meets the level of performance described by the descriptor holistically:
    - marker will also check the descriptor for the level above
    - if evidence clearly shows some of the characteristics of the higher band, the marker will select a suitable mark at the bottom of that band
    - if not showing characteristics of the higher band, the marker will revert to the original band, selecting a mark at the higher end of that mark range.

  If the response is not securely in the band, but *is partially* showing the characteristics of the band:
    - marker will check the descriptor of the level below/above
    - marker will decide on a suitable mark either at the bottom of the original band as some characteristics shown, or top of the lower band if it better describes the quality of the characteristics being shown.

  If the response is largely meeting the band, with only a few concerns and is not showing characteristics aligning with the higher or lower bands, the appropriate mark is likely to be in the middle range.

  If there is no alignment with the descriptor, the marker will reassess the starting band, and begin again.
- Based on the level of alignment with the descriptor, the marker will confirm a final mark within the band, bearing in mind the marks available form an evenly distributed scale:
    - if the quality of response fully aligns with the performance described by the descriptor, the marker will assign a high mark within the band
    - if the quality of the response partially aligns with the performance described by the descriptor, the marker will assign a low to medium mark within the band
    - the marker will consider the quality of a range of similar responses (e.g. annotated lead grade exemplification materials, responses reviewed during standardisation, and through experience) and choose a mark that would give an appropriate ranking amongst those responses in relation to the full range of marks available in each band.
- In order to fully assess the evidence, it may be necessary to focus on several distinct aspects. These have been grouped into separate sub-grids to allow the marker to make separate assessment decisions, rather than attempt to bring disparate

elements together as a holistic judgement, to support reliability, validity and manageability for the marker.

- Should a candidate make an error or display a weakness in one task that is further compounded through the inter-dependent nature of the tasks and carry through that error, the marker should penalise the candidate only once. Each task should be considered within the constraints of the marking for the task itself, focusing on the knowledge and skills to be demonstrated in that task. For example, if the candidate does not research suitable options in task 1, when they get to the presentation task 4 where the solution is presented – the marker should focus on looking at how well the candidate presents the solution they are proposing, i.e. it is the presentation and communication skills that hold the main relevance in this task, rather than further penalising the candidate for a less than optimal research and proposal from the initial task 1. Candidates can also use evaluation within later task responses to address issues they have identified.

Assessment objectives

The Employer-Set Project is assessed against five assessment objectives. The assessment objectives are mapped against each task within the marking grids:

AO Ref	Assessment Objective
AO1	Plan their approach to meeting the project brief.
AO2	Apply core knowledge and skills as appropriate:
• AO2a	○ core knowledge
• AO2b	○ core skills: i) **analysing and interpreting -** Evaluate and confirm the brief with reference to context, objectives and constraints (e.g. requirements, resources, precedents, technical issues, costs, health and safety, regulations, possibilities) ii) **planning and preparation -** Propose and plan key activities, stages, methods, processes, techniques, documentation, resources (including types of tools and equipment) and risk assessments iii) **developing responses** - Apply engineering and manufacturing processes to achieve specific objectives and to produce quality outcomes, using relevant techniques and technology, within limits of own authority iv) **evaluating and quality assuring** - Carry out investigations, generate proposals and options, identify standard components and systems at relevant stages to gather and evaluate relevant evidence and data, and to confirm the suitability of plans, processes, actions and outcomes (including quality control and quality assurance activities) v) **communication and presentation -** Record, report, communicate and present plans, proposals, processes, issues, risks and outcomes to both technical and non-technical audiences, across a range of suitable formats and media (e.g. diagrams, physical and digital records, presentations).
AO3	Select relevant techniques and resources to meet the brief.

AO Ref	Assessment Objective
AO4	Use maths, English and digital skills as appropriate:
• AO4a	○ maths - Use of calculations to determine sizes, tolerance build up, and clearances required for the design
• AO4b	○ English - Demonstration of the ability to explain an approach to a task using written English. This should involve the use of correct engineering terminology, effective punctuation and grammar to clearly explain an approach
• AO4c	○ digital - Use of CAD systems, researching standards and electronic information from websites to gather information of standard parts.
AO5	Realise a project outcome and review how well the outcome meets the brief:
• AO5a	○ realise a project outcome – was the right outcome achieved
• AO5b	○ review how well the outcome meets the brief, how well was the brief met, the quality of the outcome in relation to the brief.

Employer-set project mark distribution

This table illustrates how the 90 marks for the employer-set project are distributed against the tasks and mapped to each assessment objective. These have been set by subject matter experts and employers and will support the comparability between versions of the employer-set project over time.

Tasks	AO1	AO2a	AO2b	AO3	AO5a	AO5b	Total	AO4a	AO4b	AO4c	
1. Research	3	3	6	3	0	0	15	3	3	3	
2. Report	3	6	6	3	0	0	18				
3. Design	3	6	6	3	3	3	24				
4. Present	3	6	6	3	3	3	24				
Total	**12**	**21**	**24**	**12**	**6**	**6**	**81**	**9**			**90**
AO marks	12	45		12	12		-	9			90
AO %	13.3%	50%		13.3%	13.3%		-	10%			100%

NB - AO2 collectively must be at least 50% (i.e. 45 marks).

1. Research

Guidance for markers

The following evidence must be used to assess performance against this assessment objective:

- research notes
- list of references/sources.

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

<table>
<tr><th></th><th colspan="3">Band 1 descriptor</th><th colspan="3">Band 2 descriptor</th><th colspan="3">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 1</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td rowspan="2">AO1 (3)

AO2a (3)

AO3 (3)</td><td rowspan="2">9</td></tr>
<tr><td>Research

(Planning, core knowledge, selecting techniques and resource)</td><td colspan="9">Indicative Content – Sample version
AO1 – The candidate has planned their research. This may be evidenced in the coherence of structure of the research notes, and in the sources/resources listed. The consistency of coverage of research requirements as detailed in the technical brief in relation to required aspects of the task.

AO2a – Evidence of the candidate researching required elements and refining their approach to the problem and considering the jig requirements meet the specification given. Candidates provided details on research of materials, standard parts and relevant specifications. Research on responses to similar problems, similar solutions or ones that relate the provided brief. Detail of health and safety considerations and risk assessment requirements.

AO3 – The candidate’s selected research techniques and resources to meet the brief and their relevance. The matching of resources and information to the various parts of the research requirement – use of specifications, diagrams, downloads etc to match the determinations that must be made.</td></tr>
</table>

	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	AOs (marks)	Total marks available
	Marking descriptors – All versions				
	Some evidence of a planned approach to research. (AO1)	Approach to research and collation of information shows planning and consistency. (AO1)	Brief requirements are considered consistently throughout the research and information collation – clear evidence of methodical and thorough approach to research and information gathering. (AO1)		
	Some elements of core knowledge referenced but focus may be imbalanced and more focused on one area than another. (AO2a)	Core knowledge applied in most areas of the brief requirements. (AO2a)	Core knowledge applied in all areas of the brief requirements. (AO2a)		
	Research techniques and resources clear as part of evidence submission. (AO3)	Evidence of a range of techniques and resources used and referenced, with different source types considered. (AO3)	Evidence of comprehensive research techniques, use of resources, and full range of sources. All sources fully detailed and presented fully and consistently. (AO3)		

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 1</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td rowspan="4">AO2b (6)</td><td rowspan="4">6</td></tr>
<tr><td rowspan="3">Research (Core skills)</td><td colspan="6">AO2b – The candidate’s demonstration of judgement and reasoning in relation to the review of the requirements from the brief and the content within the notes. Details of research on technology solutions for the drill jig in order to meet the design specification supplied by the client and support the order of the bespoke shoulder screws. The candidate’s effectiveness of communication of research conducted to meet requirements outlined in the brief – clarity and conciseness of response. Expression of ideas in associated research analysis and level to which they are supported e.g. through inclusion of images and level of referencing to sources. Evidence of planning in research in terms of consistency and balance of response (time spent consistently on researching different elements).</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Some basic elements of core skills drawn on and evidenced within task response - limited use of skills in relation to brief requirements. (AO2b)</td><td colspan="2">A range of core skills applied and evidenced consistently in task response in relation to different elements of the project brief. (AO2b)</td><td colspan="2">Core skills applied consistently and comprehensively throughout task completion with - full range of core skills evidenced. (AO2b)</td></tr>
</table>

2. Report

Guidance for markers

The following evidence must be used to assess performance against this assessment objective:

- written report.

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 2</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>AO1 (3)

AO3 (3)</td><td>6</td></tr>
<tr><td>Report

(Planned approach, selecting techniques)</td><td colspan="6">Indicative Content – Sample version
AO1 – The candidate will have planned their report. This will be evidenced in the efficiency of planning in the consistency and balance of coverage of points. Also, level of detail provided of any assumptions related to the problem and relation of the considerations for design of the required drill bit as detailed in the task. How clearly the candidate has planned and fitted the different elements of the client brief together to produce a believable and realistic response. The balance to the level/amount of detail included in report and content/detail in the submitted evidence.

AO3 – The candidate’s selected information and researched elements (as provided in the research notes from task 1) and application of them to different elements of the report. The matching of resources (downloads, standards parts, specification extracts) and other information to the various parts of the research requirement to match the determinations that must be made.</td><td></td><td></td></tr>
<tr><td></td><td colspan="6">Marking descriptors – All versions</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">Some evidence of a planned approach to task, response may lack detail and required information. (AO1)

Some relevant techniques used in the preparation and presentation of report and associated information. (AO3)</td><td colspan="2">Approach to report and required information is planned, organised and complete. (AO1)

Relevant techniques and industry conventions used throughout the preparation and presentation of report. (AO3)</td><td colspan="2">Approach to report and required information fully comprehensive and in line with standard industry practices. (AO1)

Preparation and presentation of report and associated information is fully in line with industry conventions. (AO3)</td><td></td><td></td></tr>
</table>

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 2</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td rowspan="5">AO2a (6)</td><td rowspan="5">6</td></tr>
<tr><td rowspan="4">Report

(Core knowledge)</td><td colspan="6">Indicative Content – Sample version
AO2a – The candidate will apply core knowledge to the preparation of the report. This will be evidenced by the choice of language and information used, its technical level and consistency with the intended audience. For example, the use of technical terminology and accuracy when describing the considerations for the drill jig design, and how it meets the requirements of the brief. The intended approach proposed, how well the response aligns to industry guidance, has the potential to be implemented and their technical sense and level of consideration of safety factors.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Some elements of core knowledge drawn on and evidenced - limited comprehension of knowledge in relation to brief requirements e.g. brief requirements omitted indicating lack of knowledge of that area. (AO2a)</td><td colspan="2">Knowledge from across the core applied and evident in relation to different elements of the project brief. (AO2a)</td><td colspan="2">Core knowledge applied consistently throughout response with minimal technical inaccuracies. (AO2a)</td></tr>
<tr><td colspan="2">Some links to the application of core knowledge to support judgements, but connections are not always clear and accurate. (AO2a)</td><td colspan="2">Links to the application of core knowledge to justify and support judgements, but with some gaps or inaccuracies. Concepts explained/referenced clearly and correctly. (AO2a)</td><td colspan="2">Connections between elements of core knowledge exploited to strengthen arguments and demonstrate understanding. (AO2a)</td></tr>
</table>

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 2</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td rowspan="4">AO2b (6)</td><td rowspan="4">6</td></tr>
<tr><td rowspan="4">Report

(Core skills)</td><td colspan="6">Indicative Content – Sample version
AO2b – The candidate’s incorporation of the required aspects in the response – use of logical and synergised approach to requirements. Evaluation of health and safety considerations in relation to the intended use of materials and methods to design the drill jig and undertake production of the bespoke shoulder screws. Consideration of quality assurance relating to the approach proposed, such as how drilling tolerances will be managed. How quality assurance could be implemented within a process and communication considerations.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Some elements of core skills drawn on and evidenced within task response - limited use of skills in relation to brief requirements. (AO2b)</td><td colspan="2">A range of core skills applied and evident in task response in relation to different elements of the project brief. (AO2b)</td><td colspan="2">Core skills applied consistently throughout task completion with - full range of core skills evidenced. (AO2b)</td></tr>
<tr><td colspan="2">Response has limited logic and shows superficial coherence between different aspects of the brief. (AO2b)</td><td colspan="2">Response is logical and shows some coherence between different aspects of the brief. (AO2b)</td><td colspan="2">Response is logical and demonstrates detailed coherence between different aspects of the brief. (AO2b)</td></tr>
</table>

3. Design

Guidance for markers

The following evidence must be used to assess performance against this assessment objective:

- assembly drawings
- design calculations and reflection notes.

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 3</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>AO1 (3)

AO3 (3)</td><td>6</td></tr>
<tr><td>Design

(Plan approach, select techniques/ resources)</td><td colspan="6">Indicative Content – Sample version
AO1 – The candidate’s planning of the task response (design). The achievability and realism of the overall design. Inclusion of required considerations and elements as detailed in the task outline.

AO3 – The candidate’s demonstration of judgements in the design coverage of required elements, and level of logic applied to the design. Use of technical terminology, scales and symbols as part of annotations and labels of the jig design and operation. Consistency of information provided and appropriateness for intended audience.</td><td></td><td></td></tr>
<tr><td></td><td colspan="6">Marking descriptors – All versions</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">Some evidence of a planned approach to design task, response may lack detail and calculation information. (AO1)</td><td colspan="2">Approach to design and calculation information is planned, organised and complete. (AO1)</td><td colspan="2">Approach to design and calculations fully comprehensive and in line with standard industry practices. (AO1)</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">Some relevant techniques used in the preparation and presentation of drawings/sketches and associated calculations. (AO3)</td><td colspan="2">Relevant techniques and industry drawing conventions used throughout the preparation and presentation of drawings/sketches and associated calculations. (AO3)</td><td colspan="2">Preparation and presentation of drawings/sketches and associated calculations is fully in line with industry drawing conventions showing the use of all correct techniques. (AO3)</td><td></td><td></td></tr>
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<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 3</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>AO2a</td><td>6</td></tr>
<tr><td rowspan="4">Design

(Apply core knowledge)</td><td colspan="6">Indicative Content – Sample version
AO2a – The candidate’s application of core knowledge to the preparation of the designs and associated calculations. Details of relevant jig parts and components, materials used correctly matched to components/parts, clear indications of methods of insertion and extraction and component retention. Correct use of terms and scales on diagrams and calculations.</td><td rowspan="4"></td><td rowspan="4"></td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Some elements of core knowledge drawn on and evidenced - limited comprehension of knowledge in relation to brief requirements e.g. brief requirements omitted indicating lack of knowledge of that area. (AO2a)</td><td colspan="2">Knowledge from across the core applied and evident in relation to different elements of the project brief. (AO2a)</td><td colspan="2">Core knowledge applied consistently throughout response with minimal technical inaccuracies. (AO2a)</td></tr>
<tr><td colspan="2">Supporting information details some links to the application of core knowledge to support judgements, but connections are not always clear and accurate. (AO2a)</td><td colspan="2">Supporting information details links to the application of core knowledge to justify and support judgements, but with some gaps or inaccuracies. (AO2a)</td><td colspan="2">Connections between elements of core knowledge exploited to strengthen arguments and demonstrate understanding. (AO2a)</td></tr>
</table>

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<tr><td>Task 3</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td rowspan="4">AO2b</td><td rowspan="4">6</td></tr>
<tr><td rowspan="3">Design

(Apply core skills)</td><td colspan="6">Indicative Content – Sample version
AO2b – The professionalism of the presentation of the designs and to what extent it is conveyed using industry standard notation and features. Use of recognised methods of presentation (i.e. layout) and comprehensiveness of completion (e.g. task content requirements). How comprehensively the design and calculations meet the activities required. The coverage of required considerations.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Some elements of core skills drawn on and evidenced within task response - limited use of skills in relation to brief requirements. (AO2b)</td><td colspan="2">A range of core skills applied and evident in task response in relation to different elements of the project brief. (AO2b)</td><td colspan="2">Core skills applied consistently throughout task completion with - full range of core skills evidenced. (AO2b)</td></tr>
</table>

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 3</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td rowspan="4">AO5a (3)

AO5b (3)</td><td rowspan="4">6</td></tr>
<tr><td rowspan="3">Design

(Realise outcome, review outcome review outcome)</td><td colspan="6">Indicative Content – Sample version
AO5a – The effectiveness of the prepared task response and to what extent it meets the requirements of the given product design specification/brief. Evidence of how ‘fit for purpose’ and ‘believable’ the solution of the drill jig is to meet the requirements of the bespoke shoulder screw order. The feasibility of the solution presented (e.g. manageability, effectiveness, production at scale) and level of amendments required.

AO5b – Evidence of evaluation and review of requirements as presented in reflection notes or in iterations of designs (if provided) – indications on how these have been met with proposed task response. Depth and detail of any notes on drawings.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Response partially addresses some of the task requirements. (AO5a)

Evaluation and review do not clearly address how well the task outcome met the brief and lacks clarity and reasoning in places. (AO5b)</td><td colspan="2">Response addresses all aspects of the task requirements. (AO5a)

Evaluation and review address how well the task outcome was achieved. (AO5b)</td><td colspan="2">Response fully addresses all aspects of all the elements of the task requirements. (AO5a)

Evaluation and review are comprehensive and specifically addresses how well the task outcome was achieved. (AO5b)</td></tr>
</table>

4. Present

Guidance for markers

The following evidence must be used to assess performance against this assessment objective:

- presentation materials (slides, handouts etc.)
- video recording of presentation (including question and answers).

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 4</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>AO1 (3)

AO3 (3)</td><td>6</td></tr>
<tr><td>Present

(Plan approach, select techniques/ resources, English)</td><td colspan="6">Indicative Content – Sample version
AO1 – The candidate’s level of planning in relation to their presentation. The logic and order of the presentation (e.g. containing an introduction to themselves, an introduction to what will be covered within the presentation, a conclusion, and an invitation to ask questions from the audience).

AO3 – The candidate’s selection and application of techniques for delivering the presentation, how appropriate and effective they are (e.g. use of slide deck, reference to notes, provision of handouts, use of other reference material). The candidate’s use of positive non-verbal communication during delivery (e.g. maintaining eye contact with the audience) and clarity of speaking/delivery, and the level of which distraction behaviour is displayed (e.g. rocking, tapping, pausing).</td><td></td><td></td></tr>
<tr><td></td><td colspan="6">Marking descriptors – All versions</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">The presentation lacks structure and does not always follow a logical approach due of ineffective planning. (AO1)</td><td colspan="2">The presentation is structured and follows a logical approach in response to the task with evidence of planning. (AO1)</td><td colspan="2">The presentation is organised, structured and logical in its approach. It is clear that the presentation content has been considered in terms of its audience. (AO1)</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">Technique used to deliver the presentation is sometimes effective. However technical information is not always complete and accurate. (AO3)</td><td colspan="2">Techniques used to deliver the presentation are mostly effective. The technical information provided is accurate most of the time with valid reasoning. (AO3)</td><td colspan="2">Techniques used to deliver the presentation are effective with well justified reasoning behind the information provided. (AO3)</td><td></td><td></td></tr>
</table>

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 4</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td rowspan="4">AO2a (6)</td><td rowspan="4">6</td></tr>
<tr><td rowspan="4">Present

(Apply core knowledge)</td><td colspan="6">Indicative Content – Sample version
AO2b – The candidate’s use of core knowledge in the preparation of the presentation. The demonstration of judgements in the preparation of the presentation, how well they are reasoned and cover the key features task requirements. The level to which the presentation defines the challenges interpreted from within the brief and explanations as to how these have been overcome in the solutions presented. Considerations linked to the requirement points as indicated within the brief – links made and articulated. The confidence and accuracy of the candidate’s responses to questions presented by the assessor/client. The use of technical language (with consideration of target audience) and level of evidence that demonstrates understanding of the factors influencing the task outcome.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Engineering concepts relating to the core knowledge conveyed through the presentation - these may not always be accurate or be directly linked to the brief requirements. (AO2a)</td><td colspan="2">Engineering concepts relating to the core knowledge and core skills are coherent throughout the presentation to meet the requirements of the brief set. (AO2a)</td><td colspan="2">Engineering concepts relating to the core knowledge and core skills are coherent with clear justifications on how these are applied in response to the brief requirement. (AO2a)</td></tr>
<tr><td colspan="2">Terminology used may have inaccuracies and content provided may include inconsistencies and not clear to the target audience. (AO2a)</td><td colspan="2">Terminology used is mostly accurate with minor errors. The content provided is mostly correct but does not always consider the target audience/ may be imbalanced or biased (e.g. to either technical or non-technical focus). (AO2a)</td><td colspan="2">Terminology used is accurate and error free. The content provided is clear and easily understood by the target audience, with no bias in tone/ imbalance across audience type (where appropriate). (AO2a)</td></tr>
</table>

<table>
<tr><th></th><th colspan="2">Band 1 descriptor</th><th colspan="2">Band 2 descriptor</th><th colspan="2">Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Task 4</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td rowspan="4">AO2b (6)</td><td rowspan="4">6</td></tr>
<tr><td rowspan="3">Present

(Apply core skills)</td><td colspan="6">Indicative Content – Sample version
AO2b – How effectively the candidate’s presentation communicates their solution and considerations – including fluency, clarity and conciseness. Professionalism of slides/presentation methods. Clarity /size of images and figures, inclusion of labels, font size. The candidate’s effectiveness of use of digital features to enhance the quality of the presentation.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Communication of engineering concepts is sometimes effective. The delivery of technical information may lack accuracy and clarity for the target audience. (AO2b)</td><td colspan="2">Engineering concepts are communicated effectively most of the time in an appropriate manner for the target audience. There are minor inaccuracies in the delivery of information which causes a lack of clarity in some instances. (AO2b)</td><td colspan="2">Highly effective communication of engineering concepts is appropriate for the target audience. Technical information is presented accurately and delivered with clarity. (AO2b)</td></tr>
</table>

	Band 1 descriptor		Band 2 descriptor		Band 3 descriptor		AOs (marks)	Total marks available
Task 4	**1**	**2**	**3**	**4**	**5**	**6**	**AO5a (3)** **AO5b (3)**	**6**
Present **(Realise outcome, review outcome)**	**Indicative Content – Sample version** **AO5a** – The effectiveness of the candidate's project response and how fully it meets the requirements of task four covering the challenges presented by the product design specification and how these have been overcome. Clarity of identification of which areas of the brief were/were not satisfied. Reflections on additional aspects of research/planning process, rework of research/planning that would improve/enhance a future project outcome or if the proposed response was to be re-worked. **AO5b** – The clarity of the candidate's evaluation and review of the challenges of the client specification. Indications within the presentation on how these have been overcome. Clarity of explanation of how the candidate's proposed solution addresses the requirements of the product design specification brief, including any features considered by the candidate to be of particular importance. Evaluation on ideas relating to how earlier tasks could be built on and indications of reasons why this happened.							

	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	AOs (marks)	Total marks available
	Marking descriptors – All versions				
	Project outcome as a whole partially addresses some of the brief requirements. Articulates some challenges encountered. (AO5a)	Project outcome as a whole address all aspects of the brief requirements. Articulates all challenges encountered and attempts to overcome them. (AO5a)	Project outcome as a whole fully addresses all aspects of the brief requirements and considers alternative options where appropriate. Articulates fully all challenges encountered and comprehensively covers how they were overcome. (AO5a)		
	No or minimal reasons and justification in how effectively the brief was met across project tasks. (AO5b)	There is reason and justification in how effectively some areas of the brief were met across project tasks. (AO5b)	Detailed reasoning behind how successfully the project brief was met across project tasks. (AO5b)		

Maths, English and Digital skills (AO4)

Maths

Guidance for markers

The following evidence must be used to assess performance against this assessment objective:

- assembly drawings
- design calculations.

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	AOs (marks)	Total marks available
Tasks 1 – 4	**1**	**2**	**3**	**AO4a (3)**	**3**
Maths	**Indicative Content – Sample version** **AO4a** – The candidate's use of appropriate mathematics in relation to design development and associated calculations. The candidate's accuracy and use of measurements, scales etc as part of the design and completion of assembly diagrams.				
	Marking descriptors – All versions				
	Limited mathematical concepts and calculations applied. (AO4a)	A range of mathematical concepts and calculations shown and applied appropriately. (AO4a)	Mathematical approaches and concepts applied fully and consistently. (AO4a)		
	Workings or techniques omitted as part of calculations, assumptions lack detail and full definition. Workings shown but calculation errors made/ inaccurate execution. (AO4a)	Working contains inaccuracies or could be more efficient (i.e. expressed in shorthand). Workings inconsistently shown. (AO4a)	Calculations presented accurately and in correct format, workings shown and evidence of checking to ensure correct results (e.g. estimation workings, reverse calculation checks). (AO4a)		

English

Guidance for markers

The following evidence must be used to assess performance against this assessment objective:

- research notes
- written report
- presentation materials (slides, handouts, notes etc.)
- video recording of presentation.

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	AOs (marks)	Total marks available
Tasks 1 – 4	**1**	**2**	**3**	**AO4b (3)**	**3**
English	**Indicative Content – Sample version** **AO4b** – The candidate's use of appropriate and accurate English. Clarity and articulateness of use of English, number of grammatical, spelling and punctuation errors in written work such as the report, and associated text on drawings. Use of terminology within written evidence which is technical and consistent with the intended audience. Candidate's confidence in the use of language during verbal presentations – their level of articulation and clarity in the delivery of information.				
	Marking descriptors – All versions				
	Evidence within task responses lacks structure where outcome is partially understandable. Communication style is generally appropriate to the outcome but has some inconsistencies across tasks. (AO4b)	Evidence within task responses uses conventional structure which is understandable. Communication style is appropriate to the outcome across most tasks. (AO4b)	Evidence within task responses uses a structure which makes it easy to fully understand. Communication style is appropriate to the outcome across all tasks. (AO4b)		
	Meaning is clear, but the language is not always fluent. Grammar and/or spelling contain errors or inconsistencies. Audibility of oral presentation is inconsistent. (AO4b)	Meaning is clear, language is fluent, although the response may contain colloquialisms or jargon etc. Grammar and spelling are mainly accurate. Audibility of oral presentation is good. (AO4b)	Meaning is clear, language is fluent and consistent across tasks. Grammar and spelling are consistently accurate across tasks. Deploys a range of grammatical constructions. Audibility of oral presentation is excellent. (AO4b)		

Digital

Guidance for markers

The following evidence must be used to assess performance against this assessment objective:

- list of references/sources
- assembly drawings (where CAD used)
- presentation materials (slides, handouts, notes etc.)
- video recording of presentation.

Note: where there is insufficient evidence to award a mark, a zero mark may be given.

<table>
<tr><th></th><th>Band 1 descriptor</th><th>Band 2 descriptor</th><th>Band 3 descriptor</th><th>AOs (marks)</th><th>Total marks available</th></tr>
<tr><td>Tasks 1 – 4</td><td>1</td><td>2</td><td>3</td><td rowspan="4">AO4c (3)</td><td rowspan="4">3</td></tr>
<tr><td>Digital</td><td colspan="3">Indicative Content – Sample version
AO4c – The candidate’s use of appropriate digital resources to meet task requirements (e.g. presentation, internet research). The application of features available within digital resources where appropriate (e.g. formatting, layout, presentation modes, animations/transitions in presentation etc). The delivery of the presentation for task four using appropriate software. The range of digital options used across tasks, the extent to which they have been used to add value and their effectiveness of use. Use of current digital techniques, resources and sources in adherence with industry practice, convention and trends.</td></tr>
<tr><td></td><td colspan="3">Marking descriptors – All versions</td></tr>
<tr><td></td><td>Digital technology attempted as part of task responses. (AO4c)</td><td>Consideration and use of basic digital options/features to strengthen task responses throughout project across tasks. (AO4c)</td><td>Digital options applied effectively in line with industry practices, demonstrating use of range of technology features. Digital techniques used effectively to add value to task responses. (AO4c)</td></tr>
</table>

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