HM Government

T-LEVELS

T Level Technical Qualification in Design and Development for Engineering and Manufacturing

Employer-Set Project (8714-033)

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 meet 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 (e.g. 1.1, 1.2 etc.) 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 materials 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, ie, 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 material 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) **planning and preparation** e.g. interpret and confirm project requirements; plan and scope project (e.g. timescales, requirements, resources, cost); develop project plans ii) **communication** e.g. interpret, use and produce engineering representations and drawings (including graphical language or conventions), interpret and use relevant technical information in a range of formats and media, communicate appropriately with technical and non-technical audiences (using appropriate technology, as appropriate) iii) **develop and manufacture** e.g. design or devise a proposal to meet the brief, develop, model and revise concept(s) iv) **evaluation** e.g. carry out appropriate tests, evaluation and analysis (at relevant stages), confirm appropriate model for final realisation, testing for suitability, evaluate how well the final product meets the brief (e.g. quality, time, resources, cost).
AO3	Select relevant techniques and resources to meet the brief.
AO4	Use maths, English and digital skills as appropriate:
• AO4a	○ maths
• AO4b	○ English
• AO4c	○ Digital.
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 the brief was 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. Design	3	6	6	3	3	3	24				
3. Plan	3	6	6	3	0	0	18				
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:

- technical brief
- research notes
- list of references/sources.

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
Task 1	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**AO1 (3)** **AO2a (3)** **AO3 (3)**	**9**
Research **(Planning, core knowledge, selecting techniques and resource)**	**Indicative Content – Sample version** **AO1** - The candidate has planned their research. This may be evidenced in the coherence of structure of the technical brief and research notes and also in their details of research approach and how they planned their research. The consistency of coverage of the technical brief in relation to required aspects of the task. Clarity of section references to sources of guidance and industry standards. **AO2a** - The candidate's confidence and appropriateness of use of terminology within the technical brief. The accuracy of the brief content in relation to sources. Evidence of the candidate narrowing and refining the bollard product design specification given in task 1. Extent to which the candidate has selected and defined the properties of a sustainable material for the bollard casing and a further material for the internal structure. Definition of properties may involve specifying the thickness of the material, the yield strength or the ductility. The candidate's determination of a light source for the bollard and how well it meets the required lux level for illumination. The choice of technology for counting the people who pass by the bollard, the level of detail it is specified to and how appropriate the method of power supply is. The candidate's comments on the acceptable fixing of the bollard to the ground and any further developed guidance on the overall shape and aesthetics. **AO3** - The candidate's selected techniques and resources to meet the brief and their relevance. This will be evidenced by the selection of sustainable materials, people counting, power, lighting, foundation and base connection solutions for the bollard. The clarity of solutions and how closely and clearly they are derived from industry guidance and manufacturer proprietary literature e.g. PAS 68:2010 and PAS 69:2006.										

	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)	The application of core knowledge is referenced consistently for example in relation to technology, selection of bollard materials and development of initial ideas. (AO2a)	Core knowledge applied in all areas of the brief requirements including - technology, construction materials, and idea summation. (AO2a)		
	Research techniques and resources detailed 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="4">Research

(Core skills)</td><td colspan="6">Indicative Content – Sample version
AO2b - The candidate’s demonstration of judgement and reasoning in relation to the refinement of the product design specification given in task 1. The level of synergy of initial ideas for the bollard into a written evaluation covering required elements - the aesthetics, sustainable materials, people counting technology, method of lighting, power supply and foundation fixing for the bollard. The candidate’s effectiveness of communication of refined technical requirements for the bollard – clarity and conciseness of delivery. Expression of ideas in written evaluation and level to which they are supported e.g. through inclusion of images and level of referencing to sources. Evidence of a planning in technical brief in terms of consistency and balance of response (time spent consistently on 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 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. Design

Guidance for markers

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

- sketches/drawings
- associated calculations
- notes detailing how the design meets the brief requirements.

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
Task 2	**1**	**2**	**3**	**4**	**5**	**6**	**AO1 (3)** **AO3 (3)**	**6**
Design **(Planned approach, selecting techniques)**	**Indicative Content – Sample version** **AO1** - The candidate will have planned their sketches, CAD drawings and design calculations. This will be evidenced in the layout of sketches and CAD drawings for the bollard, into plans, elevations, sections and details. Sketches and CAD drawings will include anticipated elements of task 2 (e.g. connection detail, materials, lighting details etc) Efficiency of planning in the consistency and balance of coverage of points. Also, level of detail provided of any assumptions related to the safe working horizontal impact force for the bollard. How clearly the candidate has planned and fitted the different elements of the client brief together to produce a believable and realistic bollard design. The balance to the level/amount of detail included in sketches/drawings and content/detail and the use of layout, space etc in the submitted evidence. **AO3** - CAD drawings and sketches required for the bollard in Task 2 their presentation convention and annotations, clarity, quality and accuracy. Use of a drawing frame for drawings and inclusion of titling block. Aspects of the CAD drawings and sketches present, how they relate to industry practices/best practice and use of adopted scale. Presentation and format of calculations prepared by the candidate for the safe working horizontal impact force on the bollard, e.g. use of engineering calculation sheet; inclusion of references and results.							

	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 design task, response may lack detail and calculation information. (AO1)	Approach to design and calculations information is planned, organised and complete. (AO1)	Approach to design and calculations fully comprehensive and in line with standard industry practices/best practice. (AO1)		
	Some relevant techniques used in the preparation and presentation of drawings/sketches and associated calculations. (AO3)	Relevant techniques and industry drawing conventions used throughout the preparation and presentation of drawings/sketches and associated calculations. (AO3)	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)		

	Band 1 descriptor		Band 2 descriptor		Band 3 descriptor		AOs (marks)	Total marks available
Task 2	**1**	**2**	**3**	**4**	**5**	**6**	**AO2a (6)**	**6**
Design (Core knowledge)	**Indicative Content – Sample version** **AO2a** - The candidate will apply core knowledge to the preparation of CAD drawings, sketches and calculations. This will be evidenced by the choice of language used in any text on the sketches and CAD drawing, its technical level and consistency with the intended audience. The solutions proposed for the design of the bollards on the sketches and CAD drawing will also be developed, how well they meet industry guidance, have the potential to be implemented and their technical sense. Approach to calculations, methods used and level of consideration of safety factors.							
	Marking descriptors – All versions							
	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)		Knowledge from across the core applied and evident in relation to different elements of project brief. (AO2a)		Core knowledge applied consistently throughout response with minimal technical inaccuracies. (AO2a)			
	Some links to the application of core knowledge to support judgements, but connections are not always clear and accurate. (AO2a)		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)		Connections between elements of core knowledge exploited to strengthen arguments and demonstrate understanding. (AO2a)			

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<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">AO2b (6)</td><td rowspan="5">6</td></tr>
<tr><td rowspan="5">Design

(Core skills)</td><td colspan="6">Indicative Content – Sample version
AO2b – How well the aesthetics, shape and ergonomic features of the bollard respond to the proposed location within a public realm space outside a station. The candidate’s incorporation of the required aspects in the design – use of logical and synergised approach, consideration of aesthetics of end product bollard design. Use of proportion within bollard drawings – use of dimension and annotations on CAD drawings. How well sketches, CAD drawings and associated annotations communicate the materials from which the bollard is to be constructed and technology that is to be used to light, power and count people passing the bollard.</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 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">Design has limited logic and shows superficial coherence between different aspects of the brief. Representations lack proportionally, dimension, and annotation. (AO2b)</td><td colspan="2">Design is logical and shows some coherence between different aspects of the brief. Representations are mostly proportional and correctly dimensioned with significant annotation. (AO2b)</td><td colspan="2">Design is logical and demonstrates detailed coherence between different aspects of the design brief. Representations are proportional, have detailed dimensions and annotation. (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 2</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)</td><td colspan="6">Indicative Content – Sample version
AO5a - The effectiveness of the prepared bollard solution and to what extent it meets the requirements of the given product design specification. Evidence of how ‘fit for purpose’ the bollard design is and how ‘believable’ the solution is to meet client requirements. The feasibility of the bollard solution presented, and level of amendments required.

AO5b – Evidence of evaluation and review of requirements of the product design specification – indications on how these have been met with proposed bollard design. How clearly selection of a bollard design option from the prepared sketches is evidenced, clarity on which has been taken forward and drawn up as a fully annotated and dimensioned CAD drawings. Depth and detail of notes on the CAD drawings and evaluation of how the final bollard design has met the client requirements given in the product design specification. Evaluation on ideas relating to how earlier tasks could be built on and indications of reasons why this happened.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Task 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">Task 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">Task response fully addresses all aspects of the task requirements. (AO5a)

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

3. Plan

Guidance for markers

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

- programme of work
- supporting statement.

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
Task 3	**1**	**2**	**3**	**4**	**5**	**6**	**AO1 (3)**	**6**
Plan **(Plan approach, select techniques/ resources)**	**Indicative Content – Sample version** **AO1** - The candidate's planning of the programme of work plan required to complete the design, development and manufacture of the bollard. The achievability and realism of the overall duration of the program. Inclusion of dependencies between the different activities, clarity and accuracy of connections. **AO3 -** The candidate's demonstration of judgements in the selection of the resources that will be required to construct the bollard e.g. moulding or milling machine, and level of reasoning provided. The choice of resources, manufacturing methods and materials and how appropriate they are in relation to the proposed bollard design. Use of technical terminology with the supporting statement its consistency and appropriateness for intended audience. Inclusion of techniques deployed to minimise waste during manufacture and clarity and depth of justifications provided within the supporting statement.						**AO3 (3)**	

	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	AOs (marks)	Total marks available
	Marking descriptors – All versions				
	Limited approach to planning, response contains evidence of some of the required elements. (AO1)	Response contains required elements in logical order with consideration of deadline and layout. (AO1)	Logical and clear approach used with evidence of a detailed plan and methodology in line with standard engineering industry practices/best practice and effective prioritisation. (AO1)		
	There is limited justification for the selection of techniques, resources (e.g. equipment, contractors), methods, and materials (including disposal) to be used. The choices made are not always the most effective or appropriate for the prescribed project brief. (AO3)	Techniques and/or resources (e.g. equipment, contractors), methods, and materials (including disposal) selected from those available to respond to the brief requirements. The choices made are mostly accurate and appropriate for the prescribed project brief. (AO3)	There is a detailed and justified approach to the selection of resources (e.g. equipment, contractors), methods and materials (including disposal). The choices made are accurate and appropriate for the prescribed project brief. (AO3)		

	Band 1 descriptor		Band 2 descriptor		Band 3 descriptor		AOs (marks)	Total marks available
Task 3	**1**	**2**	**3**	**4**	**5**	**6**	**AO2a (6)**	**6**
Plan **(Apply core knowledge)**	**Indicative Content – Sample version** **AO2a** - The candidate's application of core knowledge to the preparation of the programme of work plan and supporting statement. Choice of language used in any text on the programme of work plan and within the supporting statement, its technical level and consistency with the intended audience. Assumptions made relating to the in-house manufacture of the bollard, the fullness of their explanation in the supporting statement, their validity and alignment to accepted best practice in industry. The candidate's level of detail within explanation of the manufacturing standards applicable to the bollard and level of detail of current health and safety requirements that should be considered during the manufacturing process. The clarity of processes implemented to minimise waste during the manufacture of the bollard. Evidence of collation of appropriate activities (e.g. cutting or moulding the material for the casing) and the logic in the sequence in which they are presented.							
	Marking descriptors – All versions							
	Some elements of core knowledge referenced within plan - limited comprehension of knowledge and skills in relation to brief requirements. (AO2a)		Elements of core knowledge directly highlighted in brief referenced within plan – knowledge evidenced may have gaps or show some misunderstanding. (AO2a)		Knowledge from across the core applied and evident in plan in relation to different elements of project brief. (AO2a)			
	Supporting information details some links to the application of core knowledge to support judgements, but connections are not always clear and accurate. (AO2a)		Supporting information details links to the application of core knowledge to justify and support judgements, but with some gaps or inaccuracies. (AO2a)		Connections between elements of core knowledge fully explained within the supporting information to strengthen arguments and demonstrate understanding. (AO2a)			

<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">AO2b (6)</td><td rowspan="4">6</td></tr>
<tr><td rowspan="4">Plan

(Apply core skills)</td><td colspan="6">Indicative Content – Sample version
AO2b - The professionalism of the presentation of the programme of works and to what extent it is conveyed using industry standard notation and features. Use or recognised methods of presentation for the programme (e.g. Gantt Chart) and comprehensiveness of completion (e.g. tasks, milestones, resources and identification of critical path). How comprehensively the programme covers the activities required to complete the design, development and manufacture of the bollard. The structure, logic and coherence of the supporting statement and coverage of required considerations:
health and safety including risk assessment requirements
manufacturing standards
specialist equipment
waste management
assumptions relating to in-house manufacturing capabilities and resources.</td></tr>
<tr><td colspan="6">Marking descriptors – All versions</td></tr>
<tr><td colspan="2">Some elements of each core skill applied - limited application of skills in practice in relation to brief requirements. (AO2b)</td><td colspan="2">Elements of all core skills directly highlighted in brief used efficiently and consistency throughout. (AO2b)</td><td colspan="2">All aspects of all core skills applied effectively throughout plan creation with clear focus on to required outcomes and linking of skills to task elements is fully considered. (AO2b)</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, notes etc)
- video recording of observation.

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)</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). Use of a digital presentation package (e.g. PowerPoint, Prezi). 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>

	Band 1 descriptor		Band 2 descriptor		Band 3 descriptor		AOs (marks)	Total marks available
Task 4	**1**	**2**	**3**	**4**	**5**	**6**	**AO2a**	**6**
Present **(Apply core knowledge)**	**Indicative Content – Sample version** **AO2a** - 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 of the bollard design and the proposed approach to manufacture the bollard. The level to which the presentation defines the challenges interpreted from within the Trains Express Limited's design brief and explanations as to how these have been overcome in the design of the bollard presented. The presentations coverage of details of the purpose and function of the sensors and technology deployed in the bollard to monitor human presence. The candidate's explanation of measures taken to make the bollard sustainable and energy efficient. The candidate's effectiveness of presentation of the aesthetic and ergonomic features of the bollard and explanation of how these fit the station setting. The candidate's level of discussion on the approach taken to make the bollard vandal proof and explanation of the magnitude of the horizontal vehicle force the bollard can resist, and explanation of how this was assessed. The confidence and accuracy of the candidate's responses to questions presented by the assessor/manager from Trains Express Limited. The use of technical language (with consideration of target audience) and level of evidence of understanding of the factors influencing the key features of the bollard.							

	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	AOs (marks)	Total marks available
	Marking descriptors – All versions				
	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)	Engineering concepts relating to the core knowledge and core skills are coherent throughout the presentation to meet the requirements of the brief set. (AO2a)	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)		
	Terminology used may have inaccuracies and content provided may include inconsistencies and not clear to the targeted audience. (AO2a)	Terminology used is mostly accurate with minor errors. The content provided is in the most correct but does not always consider target audience or may be imbalanced or biased (e.g. to either technical or non-technical focus). (AO2a)	Terminology used is accurate and error free. The content provided is clear and easily understood by the target audience, with no bias in tone or imbalance across audience type (where appropriate). (AO2a)		

<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</td><td rowspan="4">6</td></tr>
<tr><td rowspan="4">Present

(Apply core skills)</td><td colspan="6">Indicative Content – Sample version
AO2b - How effectively the candidate’s presentation communicates the key features of the bollard design – including fluency, clarity and conciseness. Professionalism of slides/presentation methods. Clarity and 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 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>

<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="2">AO5a (3)

AO5b (3)</td><td rowspan="2">6</td></tr>
<tr><td>Present

(Realise outcome, review outcome)</td><td colspan="6">Indicative Content – Sample version
AO5a - The effectiveness of the candidate’s presentation and how fully it meets the requirements of task 4 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 or were not satisfied. Reflections on additional aspects of research or design process, rework of research/design that would improve or enhance a future project outcome or if the proposed design was to be re-worked.

AO5b - The clarity of the candidate’s evaluation and review of the challenges of the product design specification. Indications within the presentation on how these have been overcome. Clarity of explanation of how the candidate’s proposed bollard design addresses the requirements of the product design specification brief, including any features considered by the candidate to be improvements. Evaluation on ideas relating to how earlier tasks could be built on and indications of reasons why this happened.</td></tr>
</table>

	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 challenges encountered and the 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 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:

- sketches/drawings
- associated 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, through the selection and use methods to determine the safe working horizontal impact force for the bollard. The candidate's use of safe working factors and stated valid assumptions. Clarity and accuracy of calculations. The candidate's use of numeracy to provide dimensioned sketches, scaled drawings and CAD drawings. The candidate's accuracy in calculation of the duration of activities on the programme of work plan and accuracy of completion of the critical path analysis.				
	Marking descriptors – All versions				
	Some mathematical concepts and calculations applied appropriately. (AO4a)	A range of mathematical concepts and calculations applied. (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:

- technical brief
- programme of work
- supporting statement
- presentation materials (slides, handouts, notes etc).

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 text on CAD drawings or within the supporting statement for task 3. 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:

- programme of work
- presentation materials (slides, handouts, notes etc)
- video recording of observation.

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, application of CAD package features). The delivery of the presentation for task 4 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 / best practice, demonstrating use of range of technology features. Digital techniques used effectively to add value to task responses. (AO4c)</td></tr>
</table>

Get in touch

City & Guilds Technicals Quality Team

We are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

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(Monday - Friday | 08:00 - 18:00 GMT)

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