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Version control

Version	Updates made
V1.0	Version used for marking

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 Declaration of Authenticity e.g. regarding level of support recorded and the band descriptors.
 Evidence contained on Declaration of Authenticity 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; ie 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
- Maker 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.

Worked Example (1)

Grid 1 AOs: AO1, AO2a, AO3, Relevant Evidence: research notes, list of references/sources

Гask 1	Band 1				Band 2		Band 3		
	1	2	3	4	5	6	7	8	9
	Indicative	Content	- Sample	version					
	structure of	of the resea	arch notes	, and in the	sources/res	sources liste	ridenced in the ed. The consist to required a	stency of co	verage of
Planning, ore nowledge, electing	problem a details on to similar part safety cor AO3 – The relevance	nd consider research coroblems, siderations e candidate. The mate	ering the jig of materials similar solu s and risk a e's selecte hing of res	g requireme s, standard utions or on assessment d research cources and	nts meet the parts and rest that related the requirement techniques information	e specification elevant specification to the variation of the variation of the variation to the variation of the variation to the variation of	s and refining on given. Car cifications. Re ded brief. Deta ces to meet th ous parts of th natch the deta	ndidates pro search on r ail of health he brief and he research	ovided esponses and their
echniques .nd	Band 1			Band 2			Band 3		
esource)	1	2	3	4	5	6	7	8	9
	Some evidence of a planned approach to research. (AO1)		collation of planning a (AO1)	to research of information and consiste	on shows ency.	Brief require considered throughout tinformation evidence of thorough ap and informa	consistently he research collation – c methodical proach to re tion gatheri	n and clear and esearch ng. (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) Evidence of a range of		Core knowledge applied in all areas of the brief requirements. (AO2a) Evidence of comprehensive		ements.	
	Research techniques and resources clear as part of evidence submission. (AO3)			technique			research ted		

consistently. (AO3)

Marker familiarises themselves with the marking grid, identifying:

- What candidate evidence is relevant.
- What aspects of the relevant evidence is to be considered from the indicative content.
- How performance is differentiated across the marking bands.



Marker scans the relevant evidence and makes an initial judgement on the level of performance.

Marker allocates the marking band that the candidate's performance best aligns to. E.g. Band 2.





If the candidate's performance is partially meeting the descriptors within the band, the marker will check the descriptor of the level below.

If the candidate's performance is **largely** meeting the descriptors within the band, with only a few concerns and is not aligning with the higher (B3) or lower (B1) bands, the appropriate mark is likely to be in the middle range.

If the candidate's performance is securely meeting the descriptors in the band, the marker will also check the descriptor for the band above. (e.g. Band 3).



Marker decides to award Band 2 = 5 marks.



Marker will decide on a suitable mark either:

- at the bottom of the original band (B2) as some characteristics shown, i.e. 4 marks, or
 - top of the lower band (B1) if it better describes the characteristics being shown i.e. 3 marks

Marker will decide on suitable mark either:

- at the bottom of the higher band (B3) as some characteristics are shown, i.e.
 7 marks, or
- revert to the original band, (B2) selecting a mark at the higher end of that mark range i.e 6 marks.

Worked Example (2)

Grid 2 AOs: AO2b, Relevant Evidence: research notes, list of references/sources

Task 1	Band 1		Bar	nd 2	Band 3			
	1	2	3	4	5	6		
Research	Indicative Co	Indicative Content - Sample version						
(Core skills)	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).							
	Bar	nd 1	Bar	nd 2	Bar	nd 3		
	1	2	3	4	5	6		
	Some basic elements of core skills drawn on and evidenced within task response - limited use of skills in relation to brief requirements. (AO2b)		A range of core skills applied and evidenced consistently in task response in relation to different elements of the project brief. (AO2b)		Core skills applied consistently and comprehensively throughout task completion with - full range of core skills evidenced. (AO2b)			

Marker familiarises themselves with the marking grid, identifying:

• What candidate evidence is relevant.

- What aspects of the relevant evidence is to be considered from the indicative content.
- How performance is differentiated across the marking bands.



Marker scans the relevant evidence and makes an initial judgement on the level of performance.

Marker allocates the marking band that the candidate's performance best aligns to. E.g., Band 3.



If the candidate's performance is **largely or partially** meeting the descriptor of the band, the marker will also check the descriptor of the level below.



If the candidate's performance is **securely** meeting the descriptors in the band, marker selects a mark at the higher end of that mark range.



Marker decides to award Band 3 = 6 marks.

If there is **no or little** alignment with the descriptor, the marker will reassess the starting band, and begin again. E.g. begin at band 2, with consideration made to band 1.

If the quality of the response **fully** aligns with the performance described by the descriptor in the band below (B2), the marker will assign a mark at top of this band.

If the quality of the response **exceeds** with the performance described in the lower band (B2), then the marker should revert to the initially allocated band (B3) and assign a low to medium mark within the band.



Marker decides to award Band 2 = 4 marks. Marker decides to award Band 3 = 5 marks.

Use of ChatGPT (or any other Artificial Intelligence)

What isn't permitted

All misuse is where a student uses an All tool in an assessment or fails to appropriately reference it in an assessment where internet use is permitted. Examples include the following:

- Failing to reference use of AI tools when they have been used as a source of information;
- Incomplete or poor referencing of AI tools;
- Copying sections of Al-generated content so that the work is no longer the student's own:
- Copying whole responses of Al-generated content;
- Submitting work with intentionally incomplete or misleading references or bibliographies.

Al misuse constitutes malpractice as defined in the JCQ Suspected Malpractice: Policies and Procedures (https://www.jcq.org.uk/exams-office/malpractice/). We encourage markers to read and reference this guidance if they feel the need to flag potential malpractice related to ChatGPT. The malpractice sanctions available for the offences of 'making a false declaration of authenticity' and 'plagiarism' include disqualification and debarment from taking qualifications for a number of years.

What is permitted

Al may have been used by the candidate as a source within their research task (Task 1 only). Where students use AI, they must acknowledge its use and show clearly how they have used it. However, how candidates have decided to use it will impact on the overall mark they are allocated.

The use of AI as a research technique will impact Grid 1. Below details how they will be impacted and what needs to be considered:

Grid 1

- AO1: Planning (Approach to research and information gathering)
 - o Has the candidate validated the information given to them by the Al solution?
- AO2a: Application of Core Knowledge
 - Does the candidate's evidence demonstrate how they have taken the research provided by the AI and used this, alongside their own knowledge in response to the brief?
- AO3: Selecting Techniques and Resources
 - Has the candidate considered other approaches to research, or have they just deferred to AI?
 - o Is the use of AI appropriate referenced?

Worked Example

Candidate A has referenced ChatGPT along with one other web-address, which has barely been used or referred to within their evidence. They have considered the majority of the prompt given in the brief but not all.

The way the evidence is presented, it's difficult to determine what information is taken directly from the source and what is the learner's interpretation of this information. On this occasion, the learner is likely to be contained to marks within Band 1 because:

- There is some evidence that they carried out some planning they've considered the majority of the prompts within the brief.
- It's difficult to determine how the candidate has interpreted the information from the research and applied their own knowledge within the evidence given the way it's presented.
- They have used ChatGPT as a primary source and have only followed up with one
 other website, and the reference to this is limited, therefore, minimal techniques have
 been used. To add to this the candidate has not made it clear within their reference
 what is the output from ChatGPT and what is their own work.

What to do if you believe you've identified potential misuse of Al

Any concerns around AI misuse must be treated as potential malpractice. You must flag this by putting the candidate on HOLD in myMarkis. Further guidance relating to this can be found in Section 12 (Page 6) of the 'myMarkis Checklist for Marking' document.

What to do if you're unsure

Your marking supervisor is there to support you through the process, as are the City & Guilds Assessment team. If you have a specific candidate you'd like to talk through in more detail please reach out to them.

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	o core knowledge
• AO2b	 core skills i) Planning and preparation eg interpret and confirm project requirements; plan and scope project (eg timescales, requirements, resources, cost); develop project plans. ii) Communication eg interpret, use and produce engineering representations and drawings (including graphical language/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 eg design or devise a proposal to meet the brief, develop, model and revise concept/s. iv) Evaluation eg 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 (eg quality, time, resources, cost).
AO3	Select relevant techniques and resources to meet the brief
AO4	Use maths, English and digital skills as appropriate
• AO4a	o maths
• AO4b	o English
• AO4c	o 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	o 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								
2. Design	3	6	6	3	3	3	24								
3. Plan	3	6	6	3	0	0	18	3	3	3					
4. Present	3	6	6	3	3	3	24								
Total	12	21	24	12	6	6	81	9		90					
AO marks	12	4	5	12	1	2	-	9			90				
AO %	13.3%	50)%	13.3%	13.	3%	-		10%		100%				

NB - AO2 collectively must be at least 50% (ie 45 marks)

1. Research

Grid 1: AO1, A	O2a, AO3 Research (Planning, core knowledge, selecting techniques and resource)		
Guidance for	Only the following evidence must be used to assess performance against this marking grid:		
markers	Technical brief including an evaluation of potential buoy materials, technology and aesthetic	c design featu	res, key
	requirements for a suitable buoy and your initial concept ideas for the buoy based on the clie	nt's design sp	ecification.
	Any supporting documentation such as research notes.		
	AO1 – Plan their approach to meeting the project brief	AOs	Total
	The candidate's:	(marks)	marks
	Approach to investigating potential solutions.	(marko)	available
	structure of the technical brief and research notes.	AO1 (3)	9
	consideration of the different aspects of the task specifically:	701(0)	
	 suitable and sustainable materials options for the buoy(corrosion/rust-resistant) 	AO2a (3)	
	o suitable technology for:	71024 (0)	
	 alert system 	AO3 (3)	
	tracking system	(0)	
Indicative Content	 renewable power source (12 V) that is secure, easily accessible and watertight within the buoy. 		
	 ergonomic and aesthetic design and standard buoy fixings to seabed. 		
Version C	clarity of references to sources of guidance and industry standards.		
	AO2a – Apply core knowledge		
	The candidate's:		
	confidence and appropriateness of use of terminology.		
	accuracy of the technical brief contents in relation to sources.		
	extent to which the candidate has selected and defined the properties of a sustainable		
	material for the buoy casing and a further material for the internal structure.		
	definition of properties may involve specifying the corrosion/rust resistance of the material.		
	choice of technology of an alert system, tracking system and renewable power source for the buoy and how well it meets the required power requirements through the year.		

Grid 1: AO1, AO2a, AO3 Research (Planning, core knowledge, selecting techniques and resource)

- comments on the acceptable fixing of the buoy to current sea-bed fixings and any further developed guidance on the overall shape and aesthetics.
- evaluation of different options and reasoning for refining/selecting solutions, how this links back to the specifics of the design specification and brief from client.

AO3 - Select relevant techniques and resources to meet the brief

The candidate's:

- range of techniques and resources used to carry out research (such as the number of websites, and types of websites).
- consideration of the relevance and reliability of the sources used during the research.
- ability to apply the findings from the research into their initial proposal.
- clarity of solutions and how closely and how clearly they are derived from industry guidance and manufacturer proprietary literature e.g. Marine standards electrical standards for low voltage IEC/IEEE DIS 80005-3.
- clarity of references to sources of guidance and industry standards.
- Use of pictures, drawings, schematics, specifications and sketches alongside prose to communicate their initial design concepts.

Marking descriptors - All versions

Band 1 descriptor			E	Band 2 descriptor			Band 3 descriptor			
1	2	3	4	5	6	7	8	9		
Some evidence of a planned approach to research. (AO1)			esearch and colla ows planning and		consistently the information comethodical an	nents are considents are consident of the reputation of the consideration of the consideratio	search and vidence of oach to			

Grid 1: AO1, AO2a, AO3 Research	(Planning, core knowledge,	selecting techniques and resource)
	(

Some elements of core knowledge referenced but focus may be imbalanced and more focused on one area than another. (AO2a)

Research techniques and resources detailed as part of evidence submission. (AO3)

The application of core knowledge is referenced consistently for example in relation to technology, selection of materials and development of initial ideas. (AO2a)

Evidence of a range of techniques and resources used and referenced, with different source types considered. (AO3)

Core knowledge applied in all areas of the brief requirements including - technology, construction materials, and idea summation. (AO2a)

Evidence of comprehensive research techniques, use of resources, and full range of sources. All sources fully detailed and presented fully and consistently. (AO3)

Grid 2: AO2b R	esearch (Core Skills)					
Guidance for	Only the following evidence must be used to assess performance against this marking grid:					
markers	Technical brief including an evaluation of potential buoy materials, technology and aesthetic design features, key requirements for a suitable buoy and your initial concept ideas for the buoy based on the client's design specification.					
	Any supporting documentation such as research notes.					
	AO2b – Application of core skills	AOs	Total marks			
	Core skills being assessed:	(marks)	available			
	Communication:	(IIIai K5)				
Indicative	 effectiveness of communication of refined technical requirements for the buoy- clarity and conciseness of delivery. 	AO2b (6)	6			
Content	- use of industry conventions and technical language	(0)				
Version C	 use of methods to communicate ideas (drawings, sketches, diagrams, schematics, written format). 					
	- clarity and conciseness of expressions of ideas.					
	Developing proposals and concepts:					
	 judgement and reasoning in relation to the refinement of the product design specification. level of synergy of initial ideas for the buoy. 					

Marking descriptors - All versions

Band 1 d	lescriptor	Band 2 d	lescriptor	Band 3 descriptor		
1	2	3	4	5	6	
Some basic elements of and evidenced within tall use of skills in relation to (AO2b)	sk response - limited	A range of core skills ap consistently in task resp different elements of pro	onse in relation to	Core skills applied cons comprehensively throug with - full range of core (AO2b)	hout task completion	

2. Design

Guidance for	Only the following evidence must be used to assess performance against this marking grid:								
markers	 Annotated sketches of at least two potential designs which illustrate buoy base and anch from which the buoy is to be constructed, shape and ergonomic features of the buoy, full dim system used, renewable energy technology to be used along with battery and anti-rust and c Renewable energy calculations Notes on how the potential designs meet the brief requirements. Dimensioned and scaled CAD drawing(s) of preferred chosen buoy design. 	ensions, GF	S and tracking						
	AO1 – Plan their approach to meeting the project brief	AOs	Total marks						
	The candidate'slayout of sketches and CAD drawings for the buoy, into plans, elevations, sections and details.	(marks)	available						
	 coverage of the requested elements of the task: fully-annotated sketches 	AO1 (3)	6						
	with supporting notesworking calculations	AO3 (3)							
Indicative	o a final fully dimensioned CAD drawing								
Content	coherence of structure and clarity of task 2								
Version C	AO3 – Select relevant techniques and resources to meet the brief The candidate's								
	 presentation of sketches and CAD drawings, adherence to convention and annotations, clarity, quality and accuracy. 								
	use of a drawing frame for drawings, and inclusion of title block.								
	 consideration of industry practices and use of adopted scale when creating the sketches and drawings. 								
	 presentation and format of calculations prepared by the candidate for power needs of renewable energy produced against the standard that is required to maintain the electrical systems of the alert system and tracking system. 								

Grid 3: AO1, AO3 Design (Planned approach, selecting techniques)

Marking descriptors - All versions

Band 1 d	Band 1 descriptor		Band 2 descriptor		lescriptor		
1	1 2		3 4		6		
Some evidence of a planned approach to design task, response may lack detail and calculation information. (AO1)		information is planned, organised and		information is planned, organised and		Approach to design and calculations fully comprehensive and in line with standard industry practices / best practice (AO1)	
preparation and preser	Relevant techniques used in the tion and presentation of s/sketches and associated ions. (AO3) Relevant techniques and induction conventions used throughout and presentation of drawings/sassociated calculations. (AO3)		ughout the preparation awings/sketches and	Preparation and preser drawings/sketches and calculations is fully in lindrawing conventions shours techniques. (AC	associated ne with industry nowing the use of all		

Guidance for	Only the following evidence must be used to assess performance against this marking grid:					
markers	Annotated sketches of at least two potential designs which illustrate buoy base and anchor from which the buoy is to be constructed, shape and ergonomic features of the buoy, full dime tracking system used, renewable energy technology to be used along with battery and anti-rust.	ensions, GPS	and			
	Renewable energy calculations					
	Notes on how the potential designs meet the brief requirements.					
	 Dimensioned and scaled CAD drawing(s) of preferred chosen buoy design. 					
	AO2a – Apply core knowledge	AOs	Total			
	 The candidate's choice of language used in any text on the sketches and CAD drawings, its technical levels and consistency with the intended audience. 	(marks)	marks available			
Indicative	 proposed solutions for the design of the buoy, how well they meet industry guidance, have the potential to be implemented and their technical sense. 	AO2a (6)	6			
Content	material used: rust and corrosion resistant.					
	renewable power source for electrical systems.					
Version C	accuracy of technical principles applied throughout the design.					
	 ability to make links between general knowledge and understanding of engineering principles and apply this to the given scenario. 					
	 approach to perform calculations, selected method used to determine this and level of consideration of safety factors. 					

Marking descriptors – All versions

Band 1 descriptor		Band 2 descriptor		Band 3 descriptor	
1	2	3	4	5	6

Grid 4: AO2a Design (Core Knowledge)		
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)

Grid 5: AO2b I	Design (Core skills)		
Guidance for	Only the following evidence must be used to assess performance against this marking grid:		
markers	 Annotated sketches of at least two potential designs which illustrate buoy base and anchor mechanism, material from which the buoy is to be constructed, shape and ergonomic features of the buoy, full dimensions, GPS and tracking system used, renewable energy technology to be used along with battery and anti-rust and corrosion feature 		
	Renewable energy calculations		
	Notes on how the potential designs meet the brief requirements.		
	Dimensioned and scaled CAD drawing(s) of preferred chosen buoy design.		
	AO2b – Application of core skills	AOs	Total
	Core skills being assessed: Communication	(marks)	marks available
	effectiveness in communicating idea/information through sketches, CAD drawings and associated annotations so the key features of the buoy can be interpreted e.g. the materials from which the buoy is to be constructed and technology that is to be used. This being renewable power source for alert and tracking system.	AO2b (6)	6
Indicative Content	 use of proportion within sketches for the buoy, use of dimension and annotations on CAD drawings. 		
	Developing proposals and concepts		
Version C	 demonstration of judgement and reasoning in relation to the preparation of the solution, considering the original product design specification for the buoy. 		
	selection of shape, material finish & colour, functionality, key components and preventative collision measures for the buoy.		
	incorporation of the required aspects in the design- use of logical and synergised approach and consideration of aesthetics of the buoy design.		
	Planning and preparation		
	demonstrate reasoned judgement in the preparation of the solution.		
	 incorporation of the required aspects in the design – use of logical and synergised approach. designs meet the client's design specification and the demands of the task. 		

Grid 5: AO2b Design (Core skills) Marking descriptors - All versions 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** 5 1 2 3 4 6 Some elements of core skills drawn on and A range of core skills applied and evident in Core skills applied consistently throughout task response in relation to different elements task completion with - full range of core skills evidenced within task response - limited use of skills in relation to brief requirements. of project brief. (AO2b) evidenced. (AO2b) (AO2b) Design has limited logic and shows superficial Design is logical and shows some coherence Design is logical and demonstrates detailed coherence between different aspects of the between different aspects of the brief. coherence between different aspects of the brief. Representations lack proportionally. Representations are mostly proportional and design brief. Representations are dimension, and annotation. (AO2b) correctly dimensioned with significant proportional, have detailed dimensions and annotation. (AO2b) annotation. (AO2b)

·	AO5b Design (Realise outcome, review outcome)		
Guidance for	Only the following evidence must be used to assess performance against this marking grid:		
markers	 Annotated sketches of at least two potential designs which illustrate buoy base and anchor from which the buoy is to be constructed, shape and ergonomic features of the buoy, full dime tracking system used, renewable energy technology to be used along with battery and anti-rus 	ensions, GPS	and
	Renewable energy calculations		
	Notes on how the potential designs meet the brief requirements.		
	 Dimensioned and scaled CAD drawing(s) of preferred chosen buoy design. 		
	AO5a - realise a project outcome – was the right outcome achieved	AOs	Total
	 Considering the candidate's preferred chosen buoy design and: the effectiveness of the solution in relation to the context given in the project brief. 	(marks)	marks available
	 the extent the solution meets the requirements of the product design specification. how 'fit for purpose' the buoy design is. 	AO5a (3)	6
	how 'believable' the solution is to meet client requirements.	AO5b (3)	
Indicative Content	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		
	The candidate's:		
Version C	 evaluation and review of requirements of the product design specification and recognition of how these have been met with proposed buoy design. 		
	 development of ideas from two potential solutions to one final solution, rationale for the selection of a buoy design option from the prepared sketches, clarity on which has been taken forward and drawn up as a fully annotated and dimensioned CAD drawing. 		
	 evaluation of how the final buoy design has met the client requirements given in the product design specification. 		
	 development of ideas throughout the task, refining, improving and building upon potential solutions as they progress. 		
	Marking descriptors – All versions		

Grid 6: AO5a, AO5b D	Grid 6: AO5a, AO5b Design (Realise outcome, review outcome)					
Band 1 d	Band 1 descriptor		escriptor	Band 3 descriptor		
1	2	3	4	5	6	
Task response partially addresses some of the task requirements. (AO5a)				Task response fully addresses all aspectable all elements of the task requirements. (A		
Evaluation and review how well the task outco	ome met the brief and	Evaluation and review a task outcome was achie		Evaluation and review are comprehensive and specifically addresses how well the tas outcome was achieved. (AO5b)		

3. Plan

Guidance for	Only the following evidence must be used to assess performance against this marking grid:		
markers	Programme of work detailing key stages of the project, technology and resources required duration and sequence of activities and identification of the critical path.	to manufac	ture the buoys
	 A supporting statement which considers health and safety requirements including risk assets key stages for manufacturing the buoy, waste management and environmental factors and a in-house manufacturing capabilities and resources. 		
	AO1 – Plan their approach to meeting the project brief	AOs	Total marks
	The candidate's • planning of activities to complete the design, development and manufacture of the buoy and	(marks)	available
	the sequence presented, including cost for each stage.	AO1 (3)	6
	 adherence to the constraints set within the brief and the achievability and realism of their plan (budget of £200,000 with a maximum timescale of 70 weeks). achievability and realism of their plan. 	AO3 (3)	
	 inclusions of relevant information to facilitate delivery of the plan. 		
Indicative Content	consideration of dependences between the different activities, clarity and accuracy of task connections shown on the critical path analysis.		
Version C	AO3 – Select relevant techniques and resources to meet the brief The candidate's		
	 choice of manufacturing methods to construct the buoy e.g. moulding or milling machine, and level of reasoning provided. 		
	• judgements and justification in the selection of technology, resources and equipment that will be required to design and develop the buoy.		
	consideration of environmental factors for a safe operation of the buoy.		
	waste management during the use of selected resources.		
	Marking descriptors – All versions		

Grid 7: AO1, AO3 Plan (Planned approach, selecting techniques)

Band 1 d	escriptor	Band 2 descriptor		Band 3 descriptor		
1	2	3	4	5	6	
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 methodo in line with standard engineering industry practices / best practice and effective prioritisation. (AO1)		logical order with consideration of deadline		olan and methodology gineering industry
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 the selection of resources (e.g., equipmer contractors), methods and materials (including disposal). The choices made ar accurate and appropriate for the prescribe project brief. (AO3)		

Guidance for	Only the following evidence	must be used to assess p	erformance against this	marking grid:		
markers	 Programme of work detailing key stages of the project, technology and resources required to manufacture the buoys duration and sequence of activities and identification of the critical path. 					
	key stages for manuf	nent which considers heal acturing the buoy, waste ring capabilities and resour	management and enviror			•
	AO2a – Apply core knowle	dge			AOs	Total
	The candidate's				(marks)	marks available
	 use of technical terminol the intended audience. 	ogy with supporting staten	gy with supporting statement, its consistency and appropriateness for			
Indicative Content Version C	 justification of the key star of appropriate activities (sequence in which they are consideration and level of assumptions made relating the fullness of their explanaccepted best practice in 	 level of detail of current health and safety requirements including risk assessment. justification of the key stages for manufacturing the buoy, this can include 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. consideration and level of knowledge relating to waste management and environmental factors. assumptions made relating to the in-house manufacture of the buoy and all electrical elements, the fullness of their explanation in the supporting statement, their validity and alignment to accepted best practice in industry. breadth and depth of assumptions made in relation to the development from across the core 				
		Marking descript	ors – All versions			
Note: where th	ere is insufficient evidence to a	award a mark, a zero mark	may be given			
Е	and 1 descriptor	Band 2 d	lescriptor	Band 3 descriptor		

Grid 8: AO2a Plan (Core Knowledge)		
Some elements of core knowledge referenced within plan - limited comprehension of knowledge 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)

Guidance for	Only the following evidence must be used to assess performance against this marking grid:		
markers	Programme of work detailing key stages of the project, technology and resources required to duration and sequence of activities and identification of the critical path.	o manufactur	e the buoys,
	 A supporting statement which considers health and safety requirements including risk asset key stages for manufacturing the buoy, waste management and environmental factors and all in-house manufacturing capabilities and resources. 		
	AO2b – Application of core skills	AOs	Total
	Core skills being assessed:		marks
	Planning and preparation:	(marks)	available
	 professionalism of the presentation of the programme of works and to what extent it is conveyed using industry standard notation and features. 	AO2b (6)	6
	 use of recognised methods of presentation for the programme (e.g., Gantt Chart) and comprehensiveness of completion (e.g., tasks, milestones, resources, and critical path analysis). 		
	 coverage of the activities required to complete the design and development of the buoy and how comprehensive this is. 		
Indicative Content	Communication:		
Version C	 structure, logic and coherence of the supporting statement and coverage of the required considerations. 		
	Developing proposals and concepts:		
	 how comprehensively the programme covers the activities required to complete the design, development and manufacturing 		
	 justifying the approach taken during planning which may consider: 		
	 health and safety including risks assessment requirements 		
	 any standards relevant to the manufacturing process 		
	 specialist equipment which may be needed 		
	 waste management and environmental considerations 		
	 the manufacturing approach which has been used 		

Grid 9: AO2b Plan (Core skills) o all assumptions relating to in house manufacturing capabilities and resources. Marking descriptors - All versions 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** 3 5 1 2 4 6 Some elements of each core skill applied -Elements of most core skills directly All aspects of all core skills applied effectively limited application of skills in practice in highlighted in brief used efficiently and throughout plan creation with clear focus on to required outcomes and linking of skills to relation to brief requirements. (AO2b) consistency throughout. (AO2b) task elements is fully considered. (AO2b)

4. Present

Grid 10: AO1, AO3 Present (Planned approach, selecting techniques)								
Guidance for markers	Only the following evidence must be used to assess performance against this marking grid: • Video recording of presentation							
	Presentation materials (slides, handouts, notes etc)							
	Presentation Q&A Record (if this cannot be heard on the video)							
	Audience: Presentative of the client, a mixture of both technical and non-technical backgrounds.							
	AO1 – Plan t	heir approach to	meeting the project l	orief		AOs	Total marks	
	The candidate	e's				(marks)	available	
				g., containing an introdu		(IIIai KS)		
		•	n to what will be covere ons from the audience).	AO1 (3)	6			
Indicative								
Content	AO3 – Select relevant techniques and resources to meet the brief AO3 (3)							
\/a==:a== 0	The candidate's							
Version C	 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 positive non-verbal communication during delivery (e.g., maintaining eye contact with							
				and the level of which d	istraction behaviour			
	is display	ed (e.g. rocking, t	tapping., pausing).					
	Marking descriptors – All versions							
NI (•					
Note: where the	ere is insufficie	ent evidence to av	vard a mark, a zero mar	k may be given				
Ва	and 1 descript	tor	Band 2 d	Band 2 descriptor Band		3 descripte	or	
1		2	3	4	5		6	

Grid 10: AO1, AO3 Present (Planned approach, selecting techniques)						
The presentation lack's structure and does not always follow a logical approach due of ineffective planning. (AO1)	The presentation is structured and follows a logical approach in response to the task with evidence of planning. (AO1)	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)				
Technique used to deliver the presentation is sometimes effective. However technical information is not always complete and accurate. (AO3)	Techniques used to deliver the presentation are mostly effective. The technical information provided is accurate most of the time with valid reasoning. (AO3)	Techniques used to deliver the presentation are effective with well justified reasoning behind the information provided. (AO3)				

Guidance for markers	Only the following evidence must be used to assess performance against this marking grid:						
markers	Presentation materials (slides, handouts, notes etc)						
	Presentation Q&A Record (if this cannot be heard on the video)						
	Audience: Presentative of the client, a mixture of both technical and non-technical backgrounds.						
	AO2a – Apply core knowledge	AOs	Total				
	The candidate's	(marks)	marks available				
	 judgements in the preparation of the presentation, how well they are reasoned and cover the key features of the buoy system design and the proposed approach to manufacture the buoy system. 	AO2a (6)	6				
	 interpretation of the challenges within the Harbour Shipping Limited's design brief and explanations as to how these have been overcome in the design of the buoy system presented. 						
Indicative Content	 understanding of engineering principles which has influenced the solutions and with reasoning of why these suitably meet the design specification from the client for the following features: 						
Version C	 the purpose and function of the tracking and alert system technology deployed in the buoy to monitor drift of buoy. 						
	 explanation of measures taken to make the buoy sustainable and energy efficient. 						
	 aesthetic and ergonomic features of the buoy and explanation of how these fit the station setting. 						
	 buoy will withstand corrosion, can resist minor impacts, and explanation of how this was assessed. 						
	 confidence and accuracy when responding to question from the client (tutor/ manager from Harbours Shipping Limited). 						
	use of technical language (with consideration of the target audience)						

Grid 11: AO2a Present (Core Knowledge)

Band 1 d	escriptor	Band 2 descriptor		Band 3 descriptor		
1	2	3	4	5 6		
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 are coherent throughout the presentation to meet the requirements of the brief set. (AO2a)		Engineering concepts relating to the core knowledge 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 / may be imbalanced or biased (e.g., to either technical or non-technical focus). (AO2a) Terminology used is accurate with The content provided is understood by the target bias in tone / imbalance (where appropriate). (AO2a)		s clear and easily et audience, with no e across audience typ		

 video recording of presentation Presentation materials (slides, handouts, notes etc) Presentation Q&A Record (if this cannot be heard on the video) udience: Presentative of the client, a mixture of both technical and non-technical backgrounds. O2b – Application of core skills 	AOs	
¥	AOs	T-4-1
O2b – Application of core skills	AOs	T-1-1
	7100	Total marks
ore skills being assessed:	(marks)	available
anning and preparation:	AO2h (6)	6
professionalism of presentation resources (slides/presentation methods.)	AOZB (0)	
ommunication:		
effectiveness in communicating the key features of the buoy design – including fluency, clarity and conciseness.		
clarity and size of images and figures, inclusion of labels, font size.		
a	anning and preparation: professionalism of presentation resources (slides/presentation methods.) mmunication: effectiveness in communicating the key features of the buoy design – including fluency, clarity and conciseness.	anning and preparation: professionalism of presentation resources (slides/presentation methods.) mmunication: effectiveness in communicating the key features of the buoy design – including fluency, clarity and conciseness. clarity and size of images and figures, inclusion of labels, font size.

Marking descriptors – All versions

Band 1 d	escriptor	Band 2 descriptor		Band 3 descriptor	
1 2		3	4	5	6
Communication of engineering concepts is sometimes effective. The delivery of technical information may lack accuracy and clarity for the audience. (AO2b)		Engineering concepts effectively most of the manner for the target a minor inaccuracies in tinformation which caus some instances. (AO2)	time in an appropriate audience. There are he delivery of ses a lack of clarity in	Highly effective communication engineering concepts is target audience. Technoresented accurately a clarity. (AO2b)	s appropriate for the nical information is

Grid 13: AO5a	Grid 13: AO5a, AO5b Present (Realise outcome, review outcome)					
Guidance for markers	Only the following evidence must be used to assess performance against this marking grid: • Video recording of presentation • Presentation materials (slides, handouts, notes etc) • Presentation Q&A Record (if this cannot be heard on the video)					
	Audience: Presentative of the	client, a mixture of both technical and non-technical	nical backgrounds.			
	The candidate's	the challenges presented by the brief and how	these have been	AOs (marks)	Total marks available	
	 overcome. identification of which areas of the brief were/were not satisfied. 			AO5a (3)	6	
Indicative Content	• reflections on additional aspects of research/design process they could have done, any rework of that would improve / enhance a future project outcome. AO5b (3)					
Version C	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 The candidate's • clarity within their evaluation and review of the challenges of the product design specification, and indications within the presentation on how these have been overcome. • clarity of explanation of how the final design addresses the requirements of the product design specification brief, including any featured considered by the candidate to be improved.					
Marking descriptors – All versions Note: where there is insufficient evidence to award a mark, a zero mark may be given						
Ва	and 1 descriptor	Band 1 descriptor Band 2 descriptor Band 3 descriptor				

Grid 13: AO5a, AO5b Present (Realise outcome, review outcome)							
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 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

Guidance for markers Onl	 Iy the following evidence must be used to assess performance against this marking grid: Annotations on sketches (Task 2) 		
	 Dimensioning and scaling CAD drawing (Task 2) Electrical power requirements (Task 2) Calculation of design and manufacturing cost, timescales and critical path within the Program 	me of work	(Task 3)
Indicative Content Version C	 e candidate's: use of numeracy to provide dimensioned sketches and scaled CAD drawing(s). selection and use of mathematical methods to determine the power requirements and storage. clarity and accuracy in the calculations. accuracy in calculation of the duration of activities on the programme of work plan and accuracy of completion of the critical path analysis. 	AOs (marks) AO4a (3)	Total marks available

Marking descriptors – All versions

Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	
1	2	3	
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)	

Grid 15: AO4b	Grid 15: AO4b (English)					
Guidance for markers	 Only the following evidence must be used to assess performance against this marking grid: Technical brief (Task 1) Notes detailing how the designs meet the brief requirement (Task 2) Supporting statement for the programme of work (Task 3) 					
	 Presentation delivery (orally) and materials to support presentation (e.g. slides etc) (Task 4) 					
	The candidate's:	AOs	Total marks			
Indicative Content	 use of appropriate and accurate English clarity and articulateness of use of English to present information and ideas 	(marks)	available			
Version C	 accuracy of grammar, spelling and punctuation use of terminology, which is technical and consistent with the intended audience confidence in the use of language during verbal presentations, level of articulation and clarity in the delivery of information to summarise information/ideas. 	AO4b (3)	3			

Marking descriptors – All versions

Band 1 descriptor	Band 2 descriptor	Band 3 descriptor
1	2	3
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	Meaning is clear, language is fluent and consistent across tasks. Grammar and spelling are consistently accurate across tasks. Deploys a range of grammatical

Grid 15: AO4b (English)					
	accurate. Audibility of oral presentation is good. (AO4b)	constructions. Audibility of oral presentation is excellent. (AO4b)			

Grid 16: AO4c (Digital)				
Guidance for	Only the following evidence must be used to assess performance against this marking grid:			
markers	Types of sources used for Research (Task 1)			
	CAD Drawing (Task 2)			
	 Presentation of the programme of work (Task 3) 			
	 Presentation materials (slides, handouts, notes etc) (Task 4) 			
	The candidate's:	AOs	Total marks	
	 selection of digital resources and the effective of the resource in meeting task requirements 	(marks)	available	
Indicative Content	 application of features available within digital resources (e.g. formatting, layout, presentation modes, animations / transitions in presentation, application of CAD package features). 	AO4c (3)	3	
	 selection and use of software to support delivery of the presentation. 			
Version C	 use of a 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. 			
	 use of a digital presentation package such as PowerPoint (selecting appropriate images, videos and figures) 			

Marking descriptors – All versions

Band 1 descriptor	Band 2 descriptor	Band 3 descriptor
1	2	3
Digital technology attempted as part of task responses. (AO4c)	Consideration and use of basic digital options / features to strengthen task responses throughout project across tasks. (AO4c)	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)



Get in touch

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