

Internal Assessment Objective 1

TOTAL MARKS 4

Identification of a Need or Opportunity leading to a Design Brief	Level of Response	Mark Range
<p>Candidates will need to:</p> <ul style="list-style-type: none"> • provide a description of the design need using various means of communication; • identify the range of users and the market for which the product is intended; • develop a design brief for a marketable product. 	A statement of what is to be made.	0-1
	Some consideration of the design need or the intended user/users leading to a design brief.	2
	Consideration of both the design need and the intended user/users leading to a clear design brief of a marketable product	3
	Detailed description of both the design need and user/users leading to a clear and precise design brief of a marketable product.	4
Total	4	

Internal Assessment Objective 2

TOTAL MARKS 12

Research into the Design Brief which Results in a Specification	Level of Response		Mark Range	
<p>Candidates will need to:</p> <ul style="list-style-type: none"> examine the intended purpose, form and function of the product; undertake appropriate surveys, identifying and evaluating how existing products fulfill the needs of their intended users; identify and collect data relevant to the product(s) and its users; develop a detailed specification and criteria that includes the capability for batch production. 	<p>Limited research of intended use. Some recognition of existing products. A specification identifying some basic requirements.</p>	<p>[1] [1] [1]</p>	<p>0-3</p>	
	<p>Intended use of product examined with some data identified or collected.</p> <p>Existing products identified with some evaluation.</p> <p>A specification identifying some key features including a suggestion of how more than one could be made.</p>	<p>[2] [2] [2]</p>	<p>4-6</p>	
	<p>Intended use of product examined with data identified and collected.</p> <p>Existing products identified and evaluated considering some of the needs of the intended user/users.</p> <p>A detailed specification containing some reference to a system required to manufacture in batches.</p>	<p>[3] [3] [3]</p>	<p>7-9</p>	
	<p>Intended use of product fully examined with relevant data identified and collected.</p> <p>Existing products identified and fully evaluated against the needs of the intended user/users.</p> <p>Analysis of the research and information sources leading to a detailed design specification that would provide a system to ensure control over the production of the product in batches.</p>	<p>[4] [4] [4]</p>	<p>10-12</p>	
	Total			12

Internal Assessment Objective 3

TOTAL MARKS 12

Generation of Design Proposals	Level of Response		Mark Range	
<p>Candidates will need to:</p> <ul style="list-style-type: none"> generate a range of design proposals; check design proposals against design specification and review and modify them if necessary; identify chosen design proposal for product development; present design solutions using a range of graphic techniques and ICT including computer-aided design (CAD), to generate, develop, model and communicate design proposals. 	<p>One or more solutions proposed.</p> <p>Little or no evaluation.</p> <p>The work displays a low standard of communication techniques.</p>	<p>[1]</p> <p>[1]</p> <p>[1]</p>	<p>0-3</p>	
	<p>Several solutions proposed</p> <p>A cursory evaluation. Unsupported choice of design proposal.</p> <p>Communication will be of a reasonable standard using a limited number of techniques.</p>	<p>[2]</p> <p>[2]</p> <p>[2]</p>	<p>4-6</p>	
	<p>A range of appropriate solutions proposed.</p> <p>Design proposal chosen, supported by clear evaluation.</p> <p>Communication will be of a good standard, using a range of appropriate techniques.</p>	<p>[3]</p> <p>[3]</p> <p>[3]</p>	<p>7-9</p>	
	<p>A wide range of appropriate solutions proposed.</p> <p>Design proposal chosen as a result of detailed evaluation and consideration of the need and fitness for purpose.</p> <p>Communication will be of a high quality, using a wide range of appropriate techniques.</p>	<p>[4]</p> <p>[4]</p> <p>[4]</p>	<p>10-12</p>	
	Total			12

Internal Assessment Objective 4

TOTAL MARKS 12

Product Development	Level of Response		Mark Range
<p>Candidates will need to:</p> <ul style="list-style-type: none"> as a result of investigation, testing or trialling, make reasoned decisions about: <ul style="list-style-type: none"> materials; production methods; pre-manufactured standard components. consider how materials are prepared for manufacture and how pre-manufactured standard components are used; 	Some materials and production methods identified.	[1]	0-3
	Has attempted to model part of final solution.	[1]	
	Limited details given for final solution.	[1]	
<ul style="list-style-type: none"> by modelling, apply test procedures ensuring the product meets the original design brief and its fitness for purpose; consider when developing the product, the implications for quantity manufacture of: <ul style="list-style-type: none"> (i) materials and components; (ii) tools, equipment and processes; (iii) critical dimensions and tolerances. 	As a result of investigations some decisions made about materials, production methods function and pre-manufactured items.	[2]	4-6
	Has used modelling to check that the product meets the design brief.	[2]	
<ul style="list-style-type: none"> develop a control system to be used in the manufacture of their product; be flexible and adaptable in responding to changing circumstances and new opportunities; make any necessary modifications to the chosen design; give details of the final design including a final product specification; 	Some testing and trialling resulting in decisions about materials, production methods and pre-manufactured items.	[3]	7-9
	Used modelling and testing to ensure that the product meets the design brief.	[3]	
	Most details given about final product and the control system needed to produce the product in quantity.	[3]	
<ul style="list-style-type: none"> present design solutions using a range of graphic techniques and ICT including computer-aided design (CAD), to develop, model and communicate design proposals. 	Appropriate testing and trialling resulting in reasoned decisions about materials, production methods and pre-manufactured items.	[4]	10-12
	Has used modelling and test procedures to identify any necessary modifications and to ensure the product meets the design brief.	[4]	
	Full details about the final product and the control system needed to produce the product in quantity.	[4]	
Total			12

Product Planning and Realisation	Level of Response		Mark Range		
<p>Candidates will need to:</p> <ul style="list-style-type: none"> produce a plan of action which considers: materials, pre-manufactured items, equipment, processes and health and safety issues against an order of work and the need to make products that match the design specification; select and use tools, equipment and processes effectively and safely; economically prepare materials/ pre-manufactured items for production, allowing for waste and fine finish; complete a quality outcome suitable for the intended user or users, ensure that their outcome functions effectively; be prepared to adapt working procedures in response to changing circumstances; use a range of skills and techniques appropriate to the task; where appropriate apply a range of industrial techniques when working with familiar materials and processes. 	<p>Little or no planning.</p> <p>Has used a limited range of materials, tools and equipment</p> <p>With frequent prompting uses basic skills and techniques appropriate to the task. Little understanding of safe working practices.</p> <p>The product will exhibit a low standard of outcome and may not be successfully completed.</p>	<p>[3]</p> <p>[3]</p> <p>[3]</p> <p>[4]</p>	<p>0-13</p>		
	<p>Planning will have been restricted to the immediate task and will have relied on prompting.</p> <p>Has overcome problems as they arise using appropriate materials, tools and equipment.</p> <p>With some guidance has used a range of skills and techniques appropriate to the task. Reasonable understanding of safe working procedures.</p> <p>The product will exhibit a reasonable standard of outcome, be mainly complete and will satisfy the specification with a limited degree of success.</p>	<p>[6]</p> <p>[6]</p> <p>[6]</p> <p>[8]</p>		<p>14-26</p>	
	<p>Most of the realisation will have been planned in advance</p> <p>Has made economic and efficient use of materials, tools and equipment modifying the application of these if appropriate.</p> <p>With a normal level of supervision, has combined a range of skills and techniques appropriate to the task. Good understanding of safe working procedures.</p> <p>The product will exhibit a good standard of outcome, will be complete and will function as intended.</p>	<p>[9]</p> <p>[9]</p> <p>[9]</p> <p>[12]</p>			<p>27-39</p>
	<p>The realisation will have been thoroughly planned to specify an effective order for the sequence of operations.</p> <p>Resourceful and adaptable with materials, tools and equipment and to a high degree of precision.</p> <p>Has independently combined a range of skills and techniques appropriate to the task. High understanding of safe working procedures.</p> <p>The product will be completed to a high quality and will fully meet the requirements of the final product specification.</p>	<p>[12]</p> <p>[12]</p> <p>[12]</p> <p>[16]</p>			
	Total			52	

Internal Assessment Objective 6

TOTAL MARKS 8

Evaluation and Testing	Level of Response		Mark Range
<p>Candidates will need to:</p> <ul style="list-style-type: none"> evaluate their products to ensure that they are of a suitable quality for intended users; carry out testing, resulting in reasoned conclusions that suggest any necessary modifications to improve the product; review whether they have used resources appropriately e.g. time, materials, equipment and production methods; analyse the performance of their manufacturing control system in the production of the prototype. 	<p>Relevant un-supported comment with some reference to the specification.</p>	[1]	0-2
	<p>No evidence of testing</p>	[1]	
	<p>Some supported comment with reference to the specification and use of resources.</p>	[2]	3-4
	<p>Superficial testing with a conclusion.</p>	[2]	
	<p>Relevant comments with reference to the specification and use of resources.</p>	[3]	5-6
	<p>Relevant testing with few conclusions, leading to a possible modification or improvement of product and/or system designed to control manufacture.</p>	[3]	
	<p>Critical evaluation related to the specification and use of resources</p>	[4]	7-8
	<p>Detailed testing with meaningful conclusions leading to proposals for further development, modification or improvements of product and system designed to control manufacture.</p>	[4]	
Total			8