



National
Qualifications

Design and Manufacture Project

General assessment information

This pack contains general assessment information for centres preparing candidates for the project Component of Advanced Higher Design and Manufacture Course assessment.

It must be read in conjunction with the specific assessment task for this Component of Course assessment, which may only be downloaded from SQA's designated secure website by authorised personnel.

Valid from session 2015/16 and until further notice

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Introduction

This is the general assessment information for the Advanced Higher Design and Manufacture project.

This project is worth 120 marks out of a total of 200 marks. This is 60% of the overall marks for the Course assessment. The Course will be graded A-D.

Marks for all Course Components are added up to give a total Course assessment mark which is then used as the basis for grading decisions.

This is one of two Components of Course assessment. The other Component is a question paper.

This document describes the general requirements for the assessment of the project Component for this Course. It gives general information and instructions for assessors.

It must be read in conjunction with the assessment task for this Component of Course assessment.

Equality and inclusion

This Course assessment has been designed to ensure that there are no unnecessary barriers to assessment. Assessments have been designed to promote equal opportunities while maintaining the integrity of the qualification.

For guidance on assessment arrangements for disabled candidates and/or those with additional support needs, please follow the link to the assessment arrangements web page: www.sqa.org.uk/sqa/14977.html

Guidance on inclusive approaches to delivery and assessment in this Course is provided in the *Course/Unit Support Notes*.

What this assessment covers

This assessment contributes 60% of the total marks for the Course.

The assessment will assess the skills, knowledge and understanding specified for the project in the *Course Assessment Specification*. These are:

- ◆ to apply skills, knowledge and understanding to solve a design and manufacture task in a given context

It assesses the candidate's ability to communicate, generate and refine ideas and apply practical modelling skills in communicating a potential solution.

Assessment

Purpose

The purpose of this assessment is to generate evidence for the Added Value of this Course by means of a project.

Assessment overview

The project is a meaningful and appropriately challenging task which should clearly demonstrate application of knowledge and/or skills, at an appropriate level from the Course (as defined in the 'Further mandatory information on Course coverage' section of the *Course Assessment Specification*).

In this project, marks will be awarded for creating a design proposal in response to a design opportunity.

The project is designed to allow candidates to demonstrate their ability to work independently, as they are required to do in the other Component of the Course assessment, the question paper.

The project is set by centres within SQA guidelines. Candidates may choose the topic for their project in discussion with centre staff.

Marks will be awarded for:

- ◆ Defining a design opportunity – analysis and research
- ◆ Project planning
- ◆ Generating and developing ideas towards a design proposal
- ◆ Applying graphic techniques to inform and communicate design decisions
- ◆ Applying modelling techniques to inform and communicate design decisions
- ◆ Analysing and evaluating to inform design decisions
- ◆ Applying knowledge and understanding of materials and manufacturing processes
- ◆ Applying knowledge and understanding of design issues

The project will be internally marked by centre staff, in line with the Marking Instructions provided in this document.

Full instructions for candidates are contained within each assessment task. Suitable design and manufacture contexts could include, but are not limited to:

- | | |
|--------------------------------------------|-------------------------------|
| ◆ retailing and promotional | ◆ the built environment |
| ◆ school/college and learning environments | ◆ environment /sustainability |
| ◆ products (not an aesthetic redesign) | ◆ leisure |
| ◆ community areas or buildings | ◆ transport |
| ◆ health and wellbeing | ◆ sports and leisure |

It is important for teachers/lecturers/assessors to discuss potential project ideas with their candidates to ensure that they present sufficient level challenge and complexity appropriate for Advanced Higher, but are also achievable within the constraints of time, and available expertise and resources.

Assessment conditions

Assessors must exercise their professional responsibility in ensuring that evidence submitted by a candidate is the candidate's own work.

This assessment will be carried out over a period of time. Candidates should start at an appropriate point in the Course. This will normally be after they have completed work on the Units in the Course.

This is an open-book assessment. There are no restrictions on the resources to which candidates may have access.

Independent working and 'reasonable assistance'

Candidates must undertake the assessment independently. However, reasonable assistance may be provided prior to and during the formal assessment process, as described below.

Reasonable assistance should be limited to constructive comment and/or questioning. Assessors should **not** adopt a directive role or provide specific advice on how to re-phrase, improve responses or provide model answers as this would constitute support for assessment and assessors need to be aware that this would be going **beyond** reasonable assistance.

Preparing candidates for assessment

In addition to providing learning activities to develop candidates' subject knowledge and skills, assessors may give advice on generic skills such as how to produce a project plan or conduct research. This would normally be given to a class or group of candidates.

Advising candidates on choice of topic/problem

Candidates are not assessed on choosing a suitable problem for their project, so assessor input and advice on the candidate's choice of a problem should be given, to ensure that the chosen problem is suitably complex and challenging, but is achievable.

Additional support and guidance to candidates during the project

Candidates should work independently once the formal assessment process has started, with assessor input limited to constructive comment and/or questioning, as described above.

However, it may be necessary to provide more significant assessor input and advice for some candidates in the early stages of the project – defining a design opportunity and project planning – to allow them to continue to later stages of the project. Any significant advice and guidance, over and above reasonable assistance, given to a candidate should be recorded by the assessor and be reflected in the marks awarded for those aspects. This would generally mean a mark from the lower bands for these aspects.

Supervision

The project will be conducted under some supervision and control. This means that although candidates may complete part of the work outside the learning and teaching setting, assessors should put in place processes for monitoring progress and ensuring that the work is the candidate's own and that plagiarism has not taken place.

For example:

- ◆ regular checkpoint/progress meetings with candidates
- ◆ short spot-check personal interviews
- ◆ checklists, which record activity/progress
- ◆ photographs, film or audio evidence

Group work approaches, as part of the preparation for assessment, can be helpful to simulate real-life situations, share tasks and promote team working skills. However, group work is not appropriate once formal work on assessment has started.

Once the project has been completed and all evidence submitted, it must not be returned to the candidate for further work to improve their mark.

Evidence to be gathered

The following candidate evidence is required for this assessment:

- ◆ approved project proposal
- ◆ a project plan
- ◆ a design folio of a maximum of 20 A3 pages including evidence of modelling in the form of photographs
- ◆ evidence of the candidate's reflection and decision-making – this can be in the form of notes/annotations within the candidate's folio work and/or in a separate 'record of progress' /folder
- ◆ detailed assessor observation notes, providing evidence of candidate's degree of independence

There is no prescribed order in relation to activities, or number of pages per design aspect.

If the design folio page count exceeds the maximum by 10%, a penalty will be applied.

This evidence must be retained for quality assurance purposes.

General Marking Instructions

In line with SQA's normal practice, the following general Marking Instructions are addressed to the marker. They will also be helpful for those preparing learners for Course assessment.

The assessment task will be set by centres within SQA guidelines, and conducted, marked and internally verified in centres under conditions specified by SQA.

All marking will be quality assured by SQA.

General Marking Principles for the project

This information is provided to help you understand the general principles you must apply when marking candidate responses to this project. These principles must be read in conjunction with the detailed Marking Instructions, which identify the key features required in candidate responses.

- (a) Marks for each candidate response must always be assigned in line with these General Marking Principles and the detailed Marking Instructions for this assessment.
- (b) Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of errors or omissions.

Detailed Marking Instructions for the project

Marks will be awarded for the following aspects:

	Marks available
Defining a design opportunity – analysis and research	10
Project planning	10
Generating and developing ideas towards a design proposal	30
Applying graphic techniques to inform and communicate design decisions	10
Applying modelling techniques to inform and communicate design decisions	10
Analysing and evaluating to inform design decisions	15
Applying knowledge and understanding of materials and manufacturing processes	15
Applying knowledge and understanding of design issues	20

Assessors should allocate a mark in each of these aspects, by following the instructions given below, and record this mark on a candidate assessment record, **with detailed comments justifying why each mark was awarded.**

Marks for internally-assessed Components must be submitted to SQA by the centre. Evidence for this assessment should be retained in the centre for SQA quality assurance purposes. Further information on this will be provided by SQA.

For each of the aspects, the assessor should select **the band descriptor which most closely describes** the evidence gathered. Note that this means that, in some cases, the evidence does not match exactly all the elements listed for any of the band descriptors, and an element of judgment will be required by the assessor.

Once the best fit has been selected, follow this guidance:

- ◆ If the evidence almost matches the level above, the highest available mark from the range should be awarded.
- ◆ If the candidate's work just meets the standard described, the lowest mark from the range should be awarded.
- ◆ If neither of the above is appropriate, then a mark from the middle of the range should be awarded.

Notes:

- ◆ If the evidence completely matches the highest level band descriptor for any aspect, and has been produced by the candidate working independently, full marks should be awarded for that aspect.
- ◆ Zero (0) marks should be awarded for any aspect where no appropriate evidence has been produced by the candidate.

Producing a project proposal and outline plan

This initial part of the project allows the candidate to consider and produce a project proposal and outline plan. The purpose of this is to ensure that the project the candidate proposes is suitable in terms of being appropriate for Advanced Higher project study and is feasible in terms of the time and resources available to the candidate – nothing more.

Both the proposal and the outline plan should be completed prior to beginning the project and should be formally approved by the assessor, although no marks will be awarded for this part of the process.

Band for defining a design opportunity — analysis and research

Defining a design opportunity — analysis and research	10 marks available
<ul style="list-style-type: none"> ◆ the analysis identifies all of the main project issues to be considered and/or researched, and the candidate has explained their relevance in detail ◆ all of the conclusions drawn from initial analysis and research are valid and evidence-based ◆ complete and detailed requirements for the solution are provided and are based on valid conclusions 	8-10
<ul style="list-style-type: none"> ◆ the analysis identifies most of the main project issues to be considered and/or researched and the candidate has explained their relevance ◆ most of the conclusions drawn from initial analysis and research are valid and evidence-based ◆ complete requirements for the solution are provided and are based on valid conclusions 	5-7
<ul style="list-style-type: none"> ◆ the analysis identifies some of the main project issues to be considered and/or researched, and the candidate has explained their relevance to a limited extent ◆ some of the conclusions drawn from initial analysis and research are valid and evidence-based ◆ some of the requirements for the solution are provided and are based on valid research conclusions 	3-4
<ul style="list-style-type: none"> ◆ the analysis identifies a limited number of the main project issues to be considered and/or researched and the candidate has explained their relevance to a limited extent ◆ a limited number of valid conclusions have been drawn and they provide a poor basis from which to determine the requirements of a solution 	1-2
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0

Information

This aspect of the project assesses the candidate's analysis of the problem or situation, the identification of the main issues, and the subsequent research carried out in connection with them. Assessors should look across the candidate's full project submission to source evidence for this activity. It should not be limited to any specific stage in the process. For example, whilst much of the evidence is likely to be generated at the early stages of the design activity, further evidence of analysis and research may be generated when and if the candidate revisits the problem in order to clarify specific issues.

Candidates should have presented results of research, which may be supported by:

- ◆ *photos, sketches, video clips, charts, tables and graphs*
- ◆ *analysis of surveys and questionnaires*

The requirements of a solution will be based on:

- ◆ *conclusions drawn from research, most likely to be presented in the form of a specification*

Evidence may include the candidate's reflective commentaries within their design work or 'record of progress'.

Important note for assessors

This is a critical stage in the project and serious omissions or errors at this stage may possibly hinder the candidate's project progress significantly.

It may be that a candidate is unable to produce a minimum specification which will allow them to progress the project in a meaningful way. Where this is the case, it should not be seen as a barrier to progressing from this stage. The assessor can assist the candidate in producing a minimum specification.

*In such cases, the candidate should be marked on the work produced independently, with **appropriate assessor comments** made against this section in the candidate's marking record to support the mark awarded.*

Band descriptors for project planning

Project planning	10 marks available
<ul style="list-style-type: none"> ◆ project plan with full details for key activities, resource requirements, time management proposals and intermediate target setting ◆ evidence of ongoing refinements to plan with detailed explanations for changes 	8-10
<ul style="list-style-type: none"> ◆ project plan with only minor omissions in terms of details for key activities, resource requirements, time management proposals and intermediate target setting ◆ evidence of some changes or refinements to plan with some explanations for changes 	5-7
<ul style="list-style-type: none"> ◆ project plan with some major omissions in terms of details for key activities, resource requirements, time management proposals and intermediate target setting ◆ minimal evidence of changes or refinements to plan 	3-4
<ul style="list-style-type: none"> ◆ project plan which contains a significant number of major omissions in terms of key activities, resource requirements, time management proposals and intermediate target setting ◆ no ongoing updates and refinements to plan throughout the project 	1-2
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0

Information

Project planning could make use of a project management tool, eg a Gantt chart or similar.

Important note for assessors

This aspect of the project should be revisited and updated as required throughout, as the candidate makes alterations in light of decisions and changes to their design proposal. Bearing in mind this iterative process, the planning stage should not be marked until after project completion.

The intention of the plan is to assist the candidate throughout the project. For example they will have to consider what activities they will have to carry out and when, what resources will be needed, any special resources to be acquired or booked, meetings, interviews, working with external partners or business if required, interim and final deadlines. It will also assist them in reflecting on their successes and any scheduling challenges faced within the project.

Updates and refinement to the project plan should be dated to show the frequency and regularity of review. Review does not always need to result in changes – where this is the case, this should be noted.

The plan could be in the form of a Gantt chart which shows revisions in the form of versions over the period of the project, eg project plan version 1.0, 1.1, 1.2 etc.

It may be that some candidates are unable to produce a logical or useful project plan which will allow them to progress the project in a meaningful way. Where this is the case, it should not be seen a barrier to progressing. The assessor can choose to assist the candidate in producing a minimum project plan.

*In such cases, the candidate should be marked on the work produced independently, with **appropriate assessor comments** made against this section in the candidate's marking record to support the mark awarded.*

Band descriptors for generating and developing ideas towards a design proposal

A total of 30 marks are awarded in this section, split into two areas:

- ◆ generating and exploring ideas (maximum 10 marks)
- ◆ refining ideas (maximum 20 marks)

Generating and exploring ideas	10 marks available
<ul style="list-style-type: none"> ◆ most ideas generated are very creative in the ways they attempt to meet the requirements or specification ◆ there is detailed exploration of ideas 	8-10
<ul style="list-style-type: none"> ◆ some ideas generated are creative in the ways they attempt to meet the requirements or specification ◆ there is some detailed exploration of ideas 	5-7
<ul style="list-style-type: none"> ◆ very few of the ideas generated are creative in the ways they attempt to meet the requirements or specification ◆ there is some exploration of ideas 	3-4
<ul style="list-style-type: none"> ◆ none of the ideas generated are creative in the ways they attempt to meet the requirements or specification ◆ there is little or no exploration of ideas 	1-2
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0
<p>Information</p> <p><i>New ideas may appear throughout the design work and at different stages to support thinking and decision-making. There should be sufficient and appropriate detail provided by the ideas to allow design decisions to be made. Additional supporting evidence can be sourced from the candidate's reflective commentaries in their design work and/or their 'record of progress'.</i></p> <p><i>In some cases candidates, rather than generating a range of ideas, may have explored one concept and produced a significant range of diverse ideas for major features or components. This is acceptable.</i></p> <p><i>Idea generation techniques should be used where appropriate and useful. It is unlikely that all ideas will be creative in the ways in which they attempt to meet the requirements or specification — instead the assessor should look generally at the level of creativity demonstrated.</i></p> <p><i>Candidates are expected to be thorough in the exploration of their ideas as they progress towards a design proposal.</i></p> <p><i>Exploration should consider all appropriate design issues and materials and manufacturing requirements.</i></p>	

Refining ideas	20 marks available
<ul style="list-style-type: none"> ◆ refinement of ideas is detailed ◆ the proposal satisfies all of the requirements or specification with little or no further development or refinement required ◆ refinement makes highly effective use of research and/or design decisions which relate to materials and manufacturing ◆ refinement makes highly effective use of research and/or design decisions which relate to design issues 	18-20
<ul style="list-style-type: none"> ◆ refinement of ideas is detailed ◆ the proposal satisfies most of the major requirements or specification with minor development or refinement still required ◆ refinement makes effective use of ongoing research and/or decisions which relates to materials and manufacturing ◆ refinement makes effective use of ongoing research and/or decisions which relate to design issues 	14-17
<ul style="list-style-type: none"> ◆ some refinement of ideas ◆ the proposal satisfies some of the major requirements or specification with some further development or refinement required ◆ refinement makes some use of research and/or design decisions which relates to materials and manufacturing ◆ refinement makes some use of research and/or design decisions which relate to design issues 	10-13
<ul style="list-style-type: none"> ◆ refinement of ideas is limited ◆ the proposal satisfies only part of the requirements with some significant further development or refinement required ◆ refinement makes limited use of research and/or design decisions which relate to materials and manufacturing ◆ refinement makes limited use of ongoing research and/or decisions which relate to design issues 	5-9
<ul style="list-style-type: none"> ◆ little or no refinement of ideas ◆ the proposal does not generally satisfy the requirements or specification and major reworking is required ◆ refinement makes little or no use of research and/or design decisions which relate to materials and manufacturing ◆ refinement makes little or no use of ongoing research and/or decisions which relate to design issues 	1-4
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0

Information

Candidates are expected to be detailed in the refinement of their ideas as they progress towards a design proposal.

Refinement should consider all appropriate design issues and materials and manufacturing requirements. Candidates should make use of ongoing or early research to confirm their refinement decisions.

Changes from the ideas to the final design proposal will have been made for valid reasons and these reasons should be clearly communicated by the candidate. Evidence may be sourced from reflective commentaries on the candidate's design work and/or their 'record of progress'.

The design proposal should address the specification and be detailed enough to allow commercial manufacture.

Band descriptors for applying graphic techniques to inform and communicate design decisions

Applying graphic techniques	10 marks available
<ul style="list-style-type: none"> ◆ graphic techniques are used appropriately and effectively on all occasions to communicate during idea generation, exploration and refinement ◆ an appropriate range (or type) of graphic techniques is applied to communicate the final details of the design proposal and they are highly effective ◆ consistent application of recognised conventions 	8-10
<ul style="list-style-type: none"> ◆ graphic techniques are used appropriately and effectively on most occasions to communicate during idea generation, exploration and refinement ◆ an appropriate range (or type) of graphic is applied to communicate the final details of the design proposal and they are generally effective ◆ consistent application of recognised conventions with few minor errors 	5-7
<ul style="list-style-type: none"> ◆ graphic techniques are used appropriately and effectively on some occasions to communicate during idea generation, exploration and refinement ◆ a range (or type) of graphic techniques is applied to communicate the final details of the design proposal some of which are effective ◆ application of recognised conventions with some errors or omissions 	3-4
<ul style="list-style-type: none"> ◆ graphic techniques are occasionally used appropriately and effectively to communicate during idea generation, exploration and refinement ◆ a limited number (or type) of graphic techniques are applied to communicate the final details of the design proposal they may be largely inappropriate or ineffective ◆ limited application of recognised conventions with major errors and omissions 	1-2
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0

Information

Candidates are required to use appropriate graphic techniques to communicate:

- ◆ *the development of the design proposal, eg the range of ideas, exploration and refinement of ideas*
- ◆ *the final details of the proposal, eg the manufacturing details, dimensions, assembly and aesthetics*

The quality of the graphic should reflect its purpose.

Graphics can be computer-generated and/or manual.

It is likely that a candidate will use a range of graphics in their design work which will include manual and computer-generated graphics.

The design work should show that the candidate is fully aware of the purpose of graphic types, and apply recognised conventions, where appropriate and practicably possible, in order to communicate ideas and information clearly and effectively.

Band descriptors for applying modelling techniques to inform and communicate design decisions

Applying modelling techniques	10 marks available
<ul style="list-style-type: none"> ◆ modelling techniques are used effectively to inform design decisions ◆ modelling techniques are used effectively to communicate design decisions ◆ modelling techniques are appropriate to purpose in terms of quality and detail 	8-10
<ul style="list-style-type: none"> ◆ modelling techniques are used to inform design decisions ◆ modelling techniques are used to communicate design decisions ◆ modelling techniques are mostly appropriate to purpose in terms of quality and detail 	5-7
<ul style="list-style-type: none"> ◆ modelling techniques are used to limited effect to inform design decisions ◆ modelling techniques are used to limited effect to communicate design decisions ◆ modelling techniques are sometimes appropriate to purpose in terms of quality and detail 	3-4
<ul style="list-style-type: none"> ◆ the techniques used and applied are not effective in communicating ideas and design decisions ◆ modelling techniques are seldom appropriate to purpose in terms of quality and detail 	1-2
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0
<p>Information Candidates should demonstrate the ability to apply appropriate modelling techniques throughout the design process. These may include:</p> <ul style="list-style-type: none"> ◆ generation, exploration and refinement of ideas ◆ aspects of testing ◆ checking ergonomics/user interface ◆ resolve conflicting issues ◆ presentation of proposal <p>The quality and detail of the modelling should always reflect its purpose. Modelling can be in the form of computer-generated and/or physical models, according to the design issues being explored or decisions being communicated. It is likely that candidates will use a range of models in their design work which will include physical models and computer-generated models.</p>	

Band descriptors for analysing and evaluating to inform design decisions

Analysing and evaluating	15 marks available
<ul style="list-style-type: none"> ◆ detailed analysis, based on personal knowledge and/or detailed research and/or evaluation techniques ◆ all decisions taken at critical points in the development of the design proposal are fully justified ◆ the evaluation of the final design proposal is effective in covering all aspects of the requirements or specification for the solution ◆ effective use of reflective commentary from design work and/or 'record of progress' relating to analysing and evaluating 	12-15
<ul style="list-style-type: none"> ◆ some detailed analysis, based on personal knowledge and/or research and/or evaluation techniques ◆ most decisions taken at critical points in the development of the design proposal are fully justified ◆ the evaluation of the final design proposal is effective in covering most aspects of the requirements or specification for the final solution ◆ some use of reflective commentary from design work and/or 'record of progress' relating to analysing and evaluating 	8-11
<ul style="list-style-type: none"> • some analysis, based on personal knowledge and/or research and/or evaluation techniques ◆ some decisions taken at critical points in the development of the design proposal are justified ◆ the evaluation of the final design proposal covers some aspects of the requirements or specification for the final solution ◆ limited use of reflective commentary from design work and/or 'record of progress' relating to analysing and evaluating 	4-7
<ul style="list-style-type: none"> ◆ little or no analysis ◆ few or no decisions taken at critical points in the development of the design proposal are justified ◆ little or no evaluation ◆ minimal or no use of reflective commentary from design work and/or 'record of progress' relating to analysing and evaluating 	1-3
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0

Information

Candidates should demonstrate the ability to identify critical points in the development of the proposal, and evaluate and justify decisions taken at these points.

Decisions should be based on quantitative and qualitative data. Therefore, a range of evaluation techniques is likely to be required.

Decisions may be recorded in the form of annotations, notes, tables, summaries.

The requirements of the solution should be addressed in the evaluation of final proposal.

Band descriptors for applying knowledge and understanding of materials and processes

Application of knowledge of materials and manufacturing processes	15 marks available
<ul style="list-style-type: none"> ◆ knowledge of materials has been applied to good effect in developing the design proposal ◆ knowledge of processes has been applied to good effect in developing the design proposal ◆ all of the key materials and manufacturing process details for the final proposal are included 	12-15
<ul style="list-style-type: none"> ◆ knowledge of materials has been applied to some effect in developing the design proposal ◆ knowledge of processes has been applied to some effect in developing the design proposal ◆ most of the key materials and manufacturing process details for the final proposal are included 	8-11
<ul style="list-style-type: none"> ◆ knowledge of materials has been applied to limited effect in developing the design proposal ◆ knowledge of processes has been applied to limited effect in developing the design proposal ◆ some of the key materials and manufacturing process details for the final proposal are included 	4-7
<ul style="list-style-type: none"> ◆ little or no knowledge of materials has been applied in developing the design proposal ◆ little or no knowledge of processes has been applied in developing the design proposal ◆ a few of the key materials and manufacturing process details for the final proposal are included 	1-3
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0
<p>Information</p> <p><i>Candidates should apply knowledge of suitability of materials and knowledge of suitability of processes in terms of function, performance, conditions of use, economics, manufacturing processes, assembly methods, life span and environmental issues.</i></p> <p><i>Enough detail should be given to allow manufacture of the proposal.</i></p> <p><i>Candidates should carry out appropriate research into materials and processes as required.</i></p> <p><i>Candidates should provide enough detail to allow manufacture of the proposal.</i></p>	

Band descriptors for applying knowledge and understanding of design issues

Application of knowledge of design issues	20 marks available
<p>All design issues are considered and those relevant to the development of the design proposal are identified. In relation to these identified design issues:</p> <ul style="list-style-type: none"> ◆ all relevant issues are explored/researched thoroughly ◆ all valid relationships or dependencies are explained ◆ knowledge is applied to good effect ◆ all design decisions and conflicts are explained in detail 	18-20
<p>All design issues are considered and most of those relevant to the development of the design proposal are identified. In relation to these identified design issues:</p> <ul style="list-style-type: none"> ◆ all relevant issues are explored/researched thoroughly ◆ most valid relationships or dependencies are explained ◆ knowledge is applied to good effect ◆ most design decisions and conflicts are explained in detail 	14-17
<p>All design issues are considered and some of those relevant to the development of the design proposal are identified. In relation to these identified design issues:</p> <ul style="list-style-type: none"> ◆ all relevant issues are explored/researched ◆ some valid relationships or dependencies are explained ◆ knowledge is applied to some effect ◆ some design decisions are explained in detail 	10-13
<p>All design issues are considered and some of those relevant to the development of the design proposal are identified. In relation to these identified design issues:</p> <ul style="list-style-type: none"> ◆ some relevant issues are explored ◆ knowledge is applied to limited effect ◆ some design decisions are explained 	5-9
<p>Some design issues are considered and few, if any, are relevant to the development of the design proposal. In relation to these design issues:</p> <ul style="list-style-type: none"> ◆ little or no exploration of issues ◆ little or no application of knowledge ◆ little or no explanation of design decisions 	1-4
<ul style="list-style-type: none"> ◆ where no appropriate evidence is provided 	0

Information

Design issues that the candidate has selected should be relevant to the task, problem or situation.

Candidates should apply knowledge of design issues which are relevant to the task. These are likely to include aspects of function, performance, market, aesthetics, and ergonomics.

Candidates should apply enough knowledge and understanding of issues to allow clear development of the proposal.

Administrative information

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History of changes

Version	Description of change	Authorised by	Date

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