



National
Qualifications

Design and Manufacture Assignment General assessment information

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

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

Valid from session 2014/15 and until further notice

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Introduction

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

This assignment is worth 70 marks out of a total of 140 marks. The marks contribute 50% 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 assignment 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 Support Notes*.

What this assessment covers

This assessment contributes 50% of the total marks for the Course.

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

- ◆ applying skills, knowledge and understanding to solve a design task in a given context
- ◆ generating, exploring and refining ideas and applying modelling skills in presenting/producing a potential solution

Assessment

Purpose

The purpose of this assessment is to generate evidence for the added value of this Course by means of an assignment.

Assessment overview

The assignment is a meaningful and appropriately challenging task, which allows the candidate to demonstrate application of knowledge and skills, at an appropriate level, from both the *Design* and *Materials and Manufacturing Units* (as defined in the 'Further mandatory information on Course coverage' section of the *Course Assessment Specification*).

The assignment 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 assignment is set by SQA. A bank of tasks will be provided and centres may select from the bank.

In this assignment marks will be awarded for designing and presenting a design proposal.

For applying design skills and knowledge and understanding, 70 marks will be available and will be allocated in six areas, according to the candidate's ability to:

- ◆ generate ideas
- ◆ explore and refine ideas
- ◆ apply graphic techniques
- ◆ apply modelling techniques
- ◆ apply knowledge and understanding of materials and processes
- ◆ apply knowledge and understanding of design issues

The assignment 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.

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 undertake the assessment at an appropriate point in the Course. This will normally be when they have completed most of the work on the other Units in the Course.

This assessment requires time for preparation of materials, setting up of equipment, and researching and gathering information which is likely to happen as part of learning and teaching for the Course assessment.

There are no restrictions on the resources to which candidates may have access.

Candidates must undertake the assessment independently. However, reasonable assistance may be provided prior to the formal assessment process taking place. The term 'reasonable assistance' is used to try to balance the need for support with the need to avoid giving too much assistance. If any candidates require more than what is deemed to be 'reasonable assistance', they may not be ready for assessment or it may be that they have been entered for the wrong level of qualification.

Although candidates are expected to work independently when undertaking assessment, reasonable assistance may be given to them throughout the process. The requirements of the assessment should be made clear to candidates at the outset. Assessors may also provide reasonable assistance in clarifying the requirements of the assessment but should not direct candidates to any specific response. For example, assessors should not provide specific advice on how to improve responses or provide model answers.

Assessor input and advice on the selection of a task is appropriate before the candidate starts the task.

Candidates may seek clarification regarding the wording of a task or instructions for the assessment, if they find them unclear.

Assessors should put in place mechanisms to authenticate candidate evidence.

Once the assignment has been completed and submitted, it should not be returned to the candidate for further work to improve their mark.

Evidence to be gathered

The following candidate evidence is required for the assessment:

- ◆ A design folio – not exceeding 8 x A3-sized pages, hard copy (paper-based) candidate evidence. This will include photographs of models used during the design process, where appropriate.

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 candidates for Course assessment.

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

All marking will be quality assured by SQA.

General Marking Principles for the assignment

This information is provided to help you understand the general principles you must apply when marking candidate responses to this assignment. 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 assignment

In this assignment 70 marks will be awarded for design skills and application of knowledge and understanding from across the Course. Marks will be allocated in six areas, according to the candidate's ability to:

- ◆ generate ideas (10 marks)
- ◆ explore and refine ideas (12 marks)
- ◆ apply graphic techniques (12 marks)
- ◆ apply modelling techniques (12 marks)
- ◆ apply knowledge and understanding of materials and processes (12 marks)
- ◆ apply knowledge and understanding of design issues (12 marks)

Assessors should allocate a mark in each of the assignment areas, by following the instructions given below, and record this mark on a candidate assessment record, with a comment 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 areas, the assessor should select the band descriptor, which most closely describes the evidence gathered. Once the best fit has been selected, follow this guidance:

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

Note:

- ◆ If the evidence completely matches the highest level band descriptor for the stage, and has been produced by the candidate working independently, then the highest mark should be awarded.
- ◆ Where the candidate's work does not meet the lowest level band descriptor, or where no evidence is provided, then zero (0) marks should be awarded.

Band descriptors

In all cases, where the candidate's work does not meet the lowest range statement, or where no evidence is provided, then zero marks should be awarded.

| Candidate's ability to: | Activity | Max mark | TOTAL: 10 marks are allocated to the candidate's ability to generate alternative ideas. Judgements should be made on the candidate's provision of a range of alternative ideas, creativity and the relevance of the ideas in addressing the needs of the problem or situation. | | | |
|--|--|-----------|--|--|---|---|
| | | | 1-2 marks | 3-5 marks | 6-8 marks | 9-10 marks |
| Generate ideas | Generating a range of alternative ideas throughout the design process that demonstrate creativity and address the needs of the problem or situation. | 10 | Alternative ideas are generated which have significant similarities. | Alternative ideas are generated which have some similarities. | Alternative ideas are generated with some clear differences. | Alternative ideas are generated which are diverse. |
| | | | Alternative ideas are generated, however they are not creative. | Alternative ideas are generated and they have some creative elements. | Alternative ideas are generated and they are generally creative. | Alternative ideas are generated and they are very creative. |
| | | | The detail provided does not enable informed decision making. | The detail provided to enable informed decision making is superficial. | The detail provided to enable informed decision making is adequate and generally appropriate. | The detail provided to enable informed decision making is full and appropriate. |
| Further information for assessing – 'Generate ideas' | | | | | | |
| Evidence should be drawn from across the design work and at various stages. Candidates' genuine creativity should be recognised and their ability to generate diverse ideas rather than iterations of the same idea. | | | | | | |
| Ideas should address the needs of the problem or situation and this should be obvious in the candidate's work. This can be in the form of annotation, labelling, details, comments, etc, as well as the representation of the idea itself. | | | | | | |
| New ideas can appear throughout the design work and at different stages to support thinking and decision making. There should be sufficient and appropriate details provided by the ideas to allow design decisions to be made. | | | | | | |
| 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. | | | | | | |

| Candidate's ability to: | Activity | Max mark | TOTAL: 12 marks are allocated to exploring and refining of ideas. Judgements should be made on the candidate's thoroughness in exploration and refinement of ideas, and in addressing the needs of the problem or situation. | | | |
|--|--|----------|--|---|--|---|
| | | | 1-3 marks | 4-6 marks | 7-9 marks | 10-12 marks |
| Explore and refine ideas | Exploring and refining ideas in order to produce a design proposal that addresses the needs of the problem or situation. | 12 | There has been little or no exploration of ideas. | Exploration of ideas is superficial. | Exploration of ideas is adequate. | Exploration of ideas is thorough. |
| | | | There has been little or no refinement of ideas. | Refinement of ideas is superficial. | Refinement of ideas is adequate. | Refinement of ideas is thorough. |
| | | | The design proposal lacks detail and generally does not meet the needs of the problem or situation. | The design proposal provides some of the detail required to meet some of the needs of the problem or situation. | The design proposal provides most of the detail required to address most of the needs of the problem or situation. | The design proposal provides all of the detail required to fully address the needs of the problem or situation. |
| Further information for assessing – 'Explore and refine ideas' | | | | | | |
| Candidates are expected to be thorough in the exploration and refinement of their ideas as they progress towards, and in arriving at, a final design proposal. | | | | | | |
| There will be clear links or pathways from ideas (or some of them) to the final proposal. | | | | | | |
| There will be sufficient development to indicate that the exploration and refinement of ideas has not been superficial. | | | | | | |
| 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. | | | | | | |

| Candidate's ability to: | Activity | Max mark | TOTAL: 12 marks are allocated to the candidate's application of graphic techniques. Judgements should be made on the types of graphics used and their suitability to a purpose, the consistency with which the techniques are applied, the production quality appropriate to the design stage, and their clarity and /or purpose in terms of the information they communicate. | | | |
|--|--|----------|--|---|--|--|
| | | | 1-3 marks | 4-6 marks | 7-9 marks | 10-12 marks |
| Apply graphic techniques | Applying different graphic techniques appropriate to a design stage to communicate information with consistency, quality, clarity and purpose. | 12 | The graphic types used are generally not suited to the purpose. | One or two different graphic types are used and they are suited to the purpose. | A minimum of three different graphic types are used, at least one of which is rendered, and they are suited to the purpose. | A minimum of five different graphic types are used, at least one of which is rendered, and they are suited to the purpose. |
| | | | The quality of the graphics is poor and is generally inappropriate to the design stage and/or the information that is required to be communicated. | The quality of the graphics is adequate and is generally appropriate to the design stage and/or the information that requires to be communicated. | The quality of the graphics is good and generally appropriate to the design stage and/or the information that requires to be communicated. | The quality of the graphics is very good and consistently appropriate to the design stage and/or the information that requires to be communicated. |
| | | | Graphic techniques communicate very little of the required information and lack clarity and purpose. | Graphic techniques communicate some of the required information with clarity and purpose. | Graphic techniques generally communicate the required information with clarity and purpose. | Graphic techniques consistently communicate the required information with clarity and purpose. |
| Further information for assessing – 'Apply graphic techniques' | | | | | | |
| Candidates using specific graphic types should do so for a purpose. To gain higher marks, candidates must render at least one of the graphics appropriately. Consistency in application of skills is to be considered, as is the quality of production. | | | | | | |
| Crucial to awarding marks is the candidate's ability to apply techniques and knowledge of where to apply these, to a standard appropriate to the stage in the design process, eg a presentation quality graphic should not be used during the initial ideas stage. Such considerations should also be made in terms of the information the graphic is required to communicate. | | | | | | |

| Candidate's ability to: | Activity | Max mark | TOTAL: 12 marks are allocated to the candidate's application of modelling techniques. Judgements should be made on the effectiveness and appropriateness of the modelling techniques used to inform and communicate design decisions. | | | |
|--|---|----------|---|--|---|--|
| | | | 1-3 marks | 4-6 marks | 7-9 marks | 10-12 marks |
| Apply modelling techniques | Applying modelling techniques to inform and communicate design decisions. | 12 | Modelling techniques are applied but they are not used effectively to inform design decisions. | Modelling techniques are applied and they are used effectively, to some extent, to inform design decisions. | Modelling techniques are applied and they are generally used effectively to inform design decisions. | Modelling techniques are applied and they are consistently used effectively to inform design decisions. |
| | | | Modelling techniques are applied but they are not used effectively to communicate design decisions. | Modelling techniques are applied and they are used effectively, to some extent, to communicate design decisions. | Modelling techniques are applied and they are generally used effectively to communicate design decisions. | Modelling techniques are applied and they are consistently used effectively to communicate design decisions. |
| | | | Very few of the modelling techniques used are appropriate to their purpose. | Some of the modelling techniques used are appropriate to their purpose. | Most of the modelling techniques used are appropriate to their purpose. | All of the modelling techniques used are appropriate to their purpose. |
| Further information for assessing – 'Apply modelling skills' | | | | | | |
| <p>Candidates applying specific modelling techniques should do so for a purpose.</p> <p>Crucial to awarding marks is the candidate's ability to apply modelling techniques and knowledge of where to apply these, to a standard appropriate to the stage in the design process, eg a presentation quality model should not be used during the initial ideas stage, where sketch modelling would be more appropriate. Such considerations should also be made in terms of the information the model is required to communicate.</p> <p>Modelling can be in the form of computer-generated and/or physical models, according to the design factors being explored or decisions being communicated.</p> <p>It is likely that a candidate will use a range of models in their design work which may include physical models and computer-generated models.</p> | | | | | | |

| Candidate's ability to: | Activity | Max mark | TOTAL: 12 marks are allocated to the candidate's application of knowledge and understanding of materials and processes. Judgements should be made on their considerations and justifications of materials and processes for their design proposal. | | | |
|---|---|----------|--|--|--|--|
| | | | 1-3 marks | 4-6 marks | 7-9 marks | 10-12 marks |
| Apply knowledge and understanding of materials and processes | Applying knowledge and understanding of materials and processes during the development of the proposal. | 12 | There is superficial knowledge and understanding of materials ^{*1} | There is adequate knowledge and understanding of materials ^{*1} | There is good knowledge and understanding of materials ^{*1} | There is strong knowledge and understanding of materials ^{*1} |
| | | | There is superficial knowledge and understanding of processes ^{*2} | There is adequate knowledge and understanding of processes ^{*2} | There is good knowledge and understanding of processes ^{*2} | There is strong knowledge and understanding of processes ^{*2} |
| | | | There is superficial justification of the materials, processes and construction methods selected. | There is adequate justification of the materials, processes and construction methods selected. | There is good justification of the materials, processes and construction methods selected. | There is strong justification of the materials, processes and construction methods selected. |
| Further information for assessing – 'Apply knowledge and understanding of materials and processes' | | | | | | |
| <p>*1 in terms of function, performance, conditions of use, economics, manufacturing processes, assembly methods, life span and environmental issues in the selection of materials during the development of a design proposal.</p> <p>*2 in terms of function, performance, conditions of use, economics, materials, assembly methods, life span and environmental issues in the selection of processes during the development of a design proposal.</p> <p>Evidence can be in the form of candidate annotations, comments, diagrams, tables, justification and through evaluations.</p> <p>To gain higher marks, candidates must demonstrate application of detailed and appropriate knowledge and understanding of materials and processes to be used in the development of their design proposal.</p> | | | | | | |

| Candidate's ability to: | Activity | Max mark | TOTAL: 12 marks are allocated to the candidate's application of knowledge and understanding of design issues. Judgements should be made on the strength of knowledge displayed in developing their proposal. | | | |
|--|---|----------|--|--|--|--|
| | | | 1-3 marks | 4-6 marks | 7-9 marks | 10-12 marks |
| Apply knowledge and understanding of design issues | Applying knowledge and understanding of design issues during the development of the proposal. | 12 | The design issues considered have little relevance. | The design issues considered have some relevance. | The design issues considered are generally relevant. | The design issues considered are fully relevant. |
| | | | Superficial knowledge and understanding of design issues has been used in the development of the design proposal. | Adequate knowledge and understanding of design issues has been used in the development of the design proposal. | Good knowledge and understanding of design issues has been used in the development of the design proposal. | Strong knowledge and understanding of design issues has been used in the development of the design proposal. |
| | | | There is superficial justification for design decisions based on knowledge and understanding of design factors. | There is adequate justification for design decisions based on knowledge and understanding of design factors. | There is good justification for design decisions based on knowledge and understanding of design factors. | There is strong justification for design decisions based on knowledge and understanding of design factors. |
| Further information for assessing – 'Apply knowledge and understanding of design issues' | | | | | | |
| Design issues that the candidate has selected should be relevant to the task, problem or situation. | | | | | | |
| Design issues are likely to be drawn appropriately and as required from aspects of: function, performance, market, aesthetics and ergonomics. | | | | | | |
| To gain higher marks, candidates must demonstrate application of detailed and appropriate knowledge and understanding of design issues used in the development of their design proposal. | | | | | | |

Administrative information

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History of changes

| Version | Description of change | Authorised by | Date |
|---------|---|------------------------------------|-------------|
| 1.1 | Minor re-arrangement of text in 'further information for assessing' 'applying graphic techniques' and 'applying modelling techniques'. Marking instruction for generating ideas – single word change in 9-10 mark range 'sufficient' changed to 'full' relating to the detail provided. | Qualifications Development Manager | August 2014 |
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