# Computing Science

# Assignment

# General assessment information

This pack contains general assessment information for centres preparing candidates for the assignment Component of National 5 Computing Science Course assessment.

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

# Contents

# Introduction

This is the general assessment information for National 5 Computing Science assignment.

This assignment is worth 60 marks out of the total of 150 marks. This is 40% 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 and Unit Support Notes*.

# What this assessment covers

This assessment contributes 40% 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:

♦ practical application of knowledge and skills from across the Course to develop a solution to an appropriately challenging, practical computing science problem
♦ skills in analysing a problem, designing a solution to the problem, implementing a solution to the problem, and testing and reporting on that 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 should clearly demonstrate application of knowledge and skills, at an appropriate level, from both the *Software Design and Development* (National 5) and the *Information System Design and Development* (National 5) Units (as defined in 'Further mandatory information on Course coverage' in 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.

Guidelines for the assignment will include a list of questions/tasks/prompts which will lead candidates through the assignment in clear stages.

Marks will be awarded for:

♦ Analysing the problem
♦ Building a solution
♦ Reporting on the solution

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 is a single assessment event. 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 Units in the Course.

This is an open-book 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.

Reasonable assistance may be given on a generic basis to a class or group of candidates, for example, advice on how to develop a project plan. It may also be given to candidates on an individual basis. When reasonable assistance is given on a one-to-one basis in the context of something the candidate has already produced or demonstrated, there is a danger that it becomes support for assessment. Assessors need to be aware that this may be going beyond reasonable assistance.

Clarification may be sought by candidates regarding the wording of a task or specification or instructions for the assessment if they find them unclear. In this case, the clarification should normally be given to the whole class.

Assessor input and advice on the candidate's analysis and initial design and development is acceptable in order to allow the candidate to progress to the next stages of the assessment. The assistance provided must be recorded so that the candidate's own analysis and design work can be marked/judged fairly.

As this assignment is a summative assessment, support and guidance during the build (development, testing, refinement) and the reporting stages should be limited to minimal prompts and questioning, referring the candidate to the instructions provided in the assessment task.

The assignment will be conducted under some supervision and control. 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, groupwork is not appropriate once formal work on assessment has started.

**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 this assessment:

♦ Completed digital solution(s) observed by assessor (hardcopy printouts (including program listings, screenshots, web page source files, data files or similar as appropriate).
♦ A record of progress through the assignment (see below) including all items of evidence specified within the assessment task — hard copy (paper-based) candidate evidence.
♦ A short report on the solution (in written, electronic and/or oral form) — hard copy (paper-based) evidence, or where report is given orally, detailed assessor observation notes.
♦ Evidence of candidate's degree of independence (detailed assessor observation notes).

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 and externally verified by SQA, 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 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

Marks for the assignment will be awarded in three stages:

♦ Stage 1: Analysing the problem                                    (10 marks)
♦ Stage 2: Building a solution                                         (40 marks)
♦ Stage 3: Reporting on the solution                              (10 marks)

Stages 1 and 3 should be marked holistically for the assignment.

Stage 2, Building a solution, has two sub-stages: the information system and the program. All of these are likely to involve an iterative process of design, implementation and testing.

Assessors should allocate a mark out of 10 for each of the six stages, applying the instructions given below, and record this mark on a candidate mark record, **with a comment justifying why each mark was awarded**. It is important to note whether candidates were given support to complete the stage.

Marks for internally assessed Components must be submitted to SQA by your 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 stages, the assessor should select the band descriptor which most closely describes the evidence gathered.

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 the mark from the middle of the range should be awarded.

Notes:

♦ If the evidence completely matches the highest level band descriptor for any stage and has been produced by the candidate working independently, highest marks should be awarded for that stage.
♦ Zero (0) marks should be awarded for any stage where the candidate's work does not meet the lowest level band descriptor or where no evidence has been produced by the candidate.

# Band descriptors

The band descriptors outlined below are general to all assignments but each assignment has detailed Marking Instructions within the documentation.

## Stage 1: Analysing the problem

### Band descriptors for stage 1: Analysing the problem

| Specification of solution to meet problem description | Total marks 10 |
|---|---|
| Complete specification for both information system and program, produced by the candidate working independently. | 9-10 |
| Almost complete specification, meeting the majority of the requirements.<br>**OR**<br>Complete specification, but candidate requiring minor advice and guidance. | 6-8 |
| Partially complete specification, meeting only a few of the requirements.<br>**OR**<br>Complete or partially complete specification, but candidate requiring some significant advice and guidance. | 3-5 |
| Minimal or no specification.<br>**OR**<br>Specification only attempted with extensive advice and guidance. | 0-2 |

## Stage 2: Building a solution (information system design)

**Band descriptors for stage 2: Building a solution (information system design)**

| Designing information system | Total marks 10 |
|---|---|
| Complete design of information system, meeting all requirements, produced by the candidate working independently. | 9-10 |
| Almost complete design, meeting the majority of the requirements.<br>**OR**<br>Complete design, but candidate requiring minor advice and guidance. | 6-8 |
| Partially complete design, meeting only a few of the requirements<br>**OR**<br>Complete or partially complete design, but candidate requiring some significant advice and guidance. | 3-5 |
| Minimal or no design of information system.<br>**OR**<br>Design of information system only attempted with extensive advice and guidance. | 0-2 |

# Stage 2: Building a solution
## (information system development)

**Band descriptors for stage 2: Information system development**

| Developing information system to meet specification | Total marks 10 |
|---|---|
| Completed development of information system, meeting all requirements, produced by candidate working independently. | 9-10 |
| Almost complete development of information system, meeting the majority of the requirements.<br>**OR**<br>Complete development of information system, but candidate requiring minor advice and guidance. | 6-8 |
| Partially complete development of information system, meeting only a few of the requirements.<br>**OR**<br>Complete or partially complete development of information system, but candidate requiring some significant advice and guidance. | 3-5 |
| Minimal or no development of information system.<br>**OR**<br>Final solution only attempted with extensive advice and guidance. | 0-2 |

## Stage 2: Building a solution (program design)

**Band descriptors for stage 2: Building a solution (program design)**

| Designing program structure and user interface | Total marks 10 |
|---|---|
| Fully detailed design of program structure and user interface, meeting all requirements, produced by candidate working independently. | 9-10 |
| Almost complete design of program structure and user interface, meeting the majority of the requirements.<br>**OR**<br>Complete design, but candidate requiring minor advice and guidance. | 6-8 |
| Partially complete design of program structure and user interface, meeting only a few of the requirements.<br>**OR**<br>Complete or partially complete design, but candidate requiring some significant advice and guidance. | 3-5 |
| Minimal or no design of program structure and user interface.<br>**OR**<br>Design only attempted with extensive advice and guidance. | 0-2 |

## Stage 2: Building a solution (program development)

**Band descriptors for stage 2: Building a solution (program development)**

| Creating and testing program, refining it to match design and meet specification | Total marks 10 |
|---|---|
| Program matches design and meets specification, testing correctly completed and produced by candidate working independently. | 9-10 |
| Almost completed program and testing, meeting the majority of the requirements.<br>**OR**<br>Complete program and testing, but candidate requiring minor advice and guidance. | 6-8 |
| Partially completed program and testing, meeting only a few of the requirements.<br>**OR**<br>Complete program and testing, but candidate requiring some significant advice and guidance. | 3-5 |
| Minimal or no program or testing.<br>**OR**<br>Program only attempted with extensive advice and guidance. | 0-2 |

## Stage 3: Reporting on the solution

**Band descriptors for stage 3: Reporting on the solution**

| Keeping a record of progress and evaluation | Total marks 10 |
|---|---|
| Report on the solution is complete, all produced by candidate working independently. | 9-10 |
| Almost completed report on the solution, meeting the majority of the requirements.<br>**OR**<br>Complete report on the solution, but candidate requiring minor advice and guidance. | 6-8 |
| Partially completed report on the solution, meeting only a few of the requirements.<br>**OR**<br>Complete report on the solution, but candidate requiring some significant advice and guidance. | 3-5 |
| Minimal or no report on the solution.<br>**OR**<br>All aspects of reporting only attempted with extensive advice and guidance. | 0-2 |

# Administrative information

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## History of changes

| Version | Description of change | Authorised by | Date |
|---------|----------------------|---------------|------|
| 1.1 | Clarifications and additions to 'Evidence to be gathered'. | Qualifications Development Manager | July 2013 |
| 1.2 | Clearer guidance provided for marking. Reduction in evidence required for stage 3. | Qualifications Manager | September 2014 |
| 2.0 | Initial build of the information system moved to the development stage, rather than the design stage. Changes to band descriptors, for clarification. | Qualifications Manager | October 2015 |
| 2.1 | Slight alterations made to the Marking Instructions and clarification of the band descriptors. | Qualifications Manager | September 2016 |

# Security and confidentiality

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