

**Scottish Group Award Specifications**

SGA in:	<b>Computing and Information Technology</b>		
Level:	<b>Higher</b>	Code:	<b>G5A6 12</b>



## Summary of requirements

### SGA in Computing and Information Technology at Higher

#### National Courses and Units required\*

*2 mandatory National Courses (8 credits) at Higher:*  
Computing  
Information Systems

*Details in specific section*

**plus**

*1 National Course (4 credits) at Higher from:*  
Graphic Communication  
Mechatronics  
Media Studies  
Technological Studies

*Details in specific section*

**plus**

*8 credits at minimum of Intermediate 2*

*Details in open section*

**Total 20 credits**

#### Core skills required\*

*The above must include or cover:*  
3 core skills at Intermediate 2  
2 core skills at Higher

*Details in specific section*

\*See Important Note on page 4.

# Rules for credit contribution for specific and open sections

## Important Note\* Achievement above the minimum requirements

The specification shows the **minimum** requirements for this SGA. Where possible, centres may wish to encourage candidates to exceed this minimum. Candidates achieving above the minimum specification will have this achievement recorded on their Scottish Qualifications Certificate. For example the following can be achieved above the minimum requirement:

- Core Skills at levels above those specified
- more National Courses and Units at Higher instead of the credits at Intermediate 2
- National Course grades, eg grade A or B instead of grade C
- more than the required three National Courses, in which case each additional course completed counts as four credits in the open section of the specification

## Hierarchies

- courses and units can be substituted by those with the same title at a higher level, eg Computer Systems (H) can be substituted by Computer Systems (AH). Numeracy (Int 2) can be substituted by Numeracy (H) (See Appendix 2)

## Double counting

- courses and units with the same title at different levels cannot both contribute credits to the SGA, eg **either** Graphic Communication (Int 2) **or** Graphic Communication (H)
- courses at the same level in the same subject cannot both contribute credits to the SGA, eg **either** the National Course in Computing at Higher **or** the SCE Higher Grade Computing Studies (See Section F)
- same course with different grades cannot both contribute credits to the SGA, eg **either** Higher Computing at Grade A **or** Higher Computing at Grade C
- same course or unit cannot contribute credit to both the specific and open sections of an SGA

## Specific section

A

This section specifies: mandatory courses, mandatory units, mandatory combinations of courses and/or units, mandatory core skill requirements and optional courses and units.

Course/unit no.	Course/unit title	Credits
<b>Course/unit no.</b>		
C206 12	Computing (H)	4
C054 12	Information Systems (H)	4
<b>plus one National Course from:</b>		
C033 12	Graphic Communication (H)	4
C028 12	Mechatronics (H)	4
C210 12	Media Studies (H)	4
C036 12	Technological Studies (H)	4

**Total credits required: 12**

### \*\* Core skills requirement

Communication at Intermediate 2  
Numeracy at Intermediate 2  
Information Technology at Higher  
Problem Solving at Higher  
Working with Others at Intermediate 2

\*\* See Section D for core skills details.

Note: Candidates may substitute designated SCE Highers for National Courses at Higher in this section. (See Section F)



## Open section

**B**

**8 credits at minimum of Intermediate 2** are required to complete this SGA. These can be chosen from either one or both of the following sections:

- Open section (any qualification listed below)
- Specific section (units and courses not already chosen)

The 8 credits may be made up from any of the following. Each has a fixed credit value for the purposes of this SGA.

Qualifications	Credit
National Units at Intermediate 2 or above	each typically 1
National Courses at Intermediate 2 or above	each 4
Standard Grades at Credit Level contribute credits at <i>Intermediate 2</i> *	each 4
SCE Highers contribute credits at <i>Higher</i> *	each 4
Free-standing core skills units (if required to complete the core skills requirement)	each 1
Relevant SVQs at Level 2 in the following occupational areas contribute credits at <i>Intermediate 2</i> : 009 (Providing Business Services) 010 (Communicating and Entertaining)	max 8
Relevant SVQs at Level 3 in the following occupational areas contribute credits at <i>Higher</i> : 009 (Providing Business Services) 010 (Communicating and Entertaining)	max 8

\*If achieved prior to 1994 please contact SQA Helpdesk ☎ 0141 242 2214.

Note: There are many ways in which the 8 credits at Intermediate 2 can be achieved and the following sections are provided for your information.

*Open section:* Qualifications which can contribute credits to this group award.

*Programme advice:* Guidance on possible combinations of units and courses which candidates might choose in order to gain the required credits.

Centres and candidates should agree the most appropriate way of gaining the required credits to meet each candidate's individual needs.

# Rules for credit contribution for specific and open sections

## Important Note\* Achievement above the minimum requirements

The specification shows the **minimum** requirements for this SGA. Where possible, centres may wish to encourage candidates to exceed this minimum. Candidates achieving above the minimum specification will have this achievement recorded on their Scottish Qualifications Certificate. For example the following can be achieved above the minimum requirement:

- Core Skills at levels above those specified
- more National Courses and Units at Higher instead of the credits at Intermediate 2
- National Course grades, eg grade A or B instead of grade C
- more than the required three National Courses, in which case each additional course completed counts as four credits in the open section of the specification

## Hierarchies

- courses and units can be substituted by those with the same title at a higher level, eg Computer Systems (H) can be substituted by Computer Systems (AH). Numeracy (Int 2) can be substituted by Numeracy (H) (See Appendix 2)

## Double counting

- courses and units with the same title at different levels cannot both contribute credits to the SGA, eg **either** Graphic Communication (Int 2) **or** Graphic Communication (H)
- courses at the same level in the same subject cannot both contribute credits to the SGA, eg **either** the National Course in Computing at Higher **or** the SCE Higher Grade Computing Studies (See Section F)
- same course with different grades cannot both contribute credits to the SGA, eg **either** Higher Computing at Grade A **or** Higher Computing at Grade C
- same course or unit cannot contribute credit to both the specific and open sections of an SGA

Note: Advice on making up programmes of credit from the open section follows in Section C.



## Programme Advice

C

Candidates having met the requirements of the specific section need to achieve a further 8 credits at a minimum of Intermediate 2. The general rules are defined in Section B.

A wide choice is available to meet the 8 credits. Centres should consider individual candidate needs, eg for further specialist work within the title area of the SGA or for broadening beyond the SGA title area.

Advice has been developed in the following section on possible groupings of units and courses. This might be useful in the selection of programmes to meet individual candidates' career and progression needs in computing and information technology. The groupings are not exhaustive. Centres and candidates can choose other provision from SQA's range of qualifications to build up a coherent programme.

Candidates can make up the 8 credits by selecting courses and/or units from a range of these groupings or by selecting courses and/or units from an individual grouping according to their needs.

Please note the rules on hierarchical substitution and double-counting listed in Section B when finalising individual candidate SGA programmes.

\*Mandatory unit of a course. †Optional unit of a course. All other units are free-standing National Units.  
[ ] Bracketed numbers indicate the former coding for these unrevised National Units.

Course/unit no	Course/unit title	Credits
<b>Computing Applications</b>		
Component unit of Interviewing, Writing and Publishing course:		
D976 12	*Desk-top Publishing (H)	1
Free-standing National Units:		
D971 12	Computer Graphics (H)	1
D969 11	Computer Applications – Design (Int 2)	1
<b>Information Systems</b>		
Free-standing National Unit:		
D01N 12	The Internet (H)	1
<b>Knowledge Based Systems</b>		
Free-standing National Units:		
D979 13	Natural Language Processing (AH)	1
D981 11	PROLOG (Int 2)	1
D982 12	Search-based Problem Solving (H)	1
<b>Microelectronics</b>		
Free-standing National Units:		
D977 12	Interfacing and Control (H)	1
D980 12	Programmable Systems (H)	1
D984 12	Sequential Logic (H)	1

Course/unit no	Course/unit title	Credits
<b>Others</b>		
Course:		
C002 12	Administration (H)	4
Component units of course:		
D011 12	*Administrative Services (H)	1
D012 12	*Information Technology for Management (H)	2
Course:		
C033 11	Graphic Communication (Int 2)	4
Component units of course:		
D173 11	*Computer Graphics (Int 2)	1
D171 11	*Technical Graphics 1 (Int 2)	1
D172 11	*Technical Graphics 2 (Int 2)	1
Course:		
C210 11	Media Studies (Int 2)	4
Component units of course:		
DF14 11	Media Analysis: Fiction (Int 2)	1
DF15 11	Media Analysis: Non-fiction (Int 2)	1
DF16 11	Media Production	1
Course:		
C036 11	Technological Studies (Int 2)	4
Component units of course:		
D186 11	*Applied Electronics (Int 2)	1
D185 11	*Energy (Int 2)	0.5
D188 11	*Mechanical Systems (Int 2)	0.5
D187 11	*Systems and Control (Int 2)	1
Component unit of Mathematics course:		
D325 12	†Statistics (H)	1
Component units of Physics course:		
D380 12	*Electricity and Electronics (H)	
Free-standing National Units:		
D10C 12	Classification Cataloguing and Indexing (H) [7130011]	1
D10E 12	Library and Information Work Routines: Design and Equipment (H) [7130031]	1
D10F 12	Library and Information Work Routines: Services (H) [7130041]	1
D10G 12	Library and Information Work Routines: Stock (H) [7130051]	1
D10J 12	Sources of Information: Bibliographic (H) [7130071]	1
D10K 12	Sources of Information: Quick Reference (H) [7130081]	1
D10L 12	User Services in Library and Information Units (H) [7130091]	1
<b>Systems Analysis and Design</b>		
Free-standing National Unit:		
D983 13	System Analysis and Design – Project (AH)	1

Course/unit no	Course/unit title	Credits
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**Technical Support**

Free-standing National Units:

D972 12	Computer Hardware (H)	1
D975 12	Computer Software (H)	1
D973 11	Computer Networks (Int 2)	1
D04T 11	Microcomputer Hardware (Int 2)	1

**Core Skills**

Free-standing National Units:

D01B 11	Communication (Int 2)	1
D01C 11	Numeracy (Int 2)	1
D01D 12	Information Technology (H)	1
D01F 11	Working with Others (Int 2)	1

Candidates who have not achieved these core skills in other ways must select the required core skills units. See Section D for further information.

In this SGA the Problem Solving core skill is automatically certificated through courses and units in the specific section. The corresponding core skill unit in the open section cannot be counted towards the SGA.

Other core skills may be automatically certificated through courses and units in the specific section. Where this is the case, the corresponding core skill unit in the open section cannot be counted towards the SGA.



## Core skills

D

To achieve this SGA, all candidates **must achieve** the following core skills:

Core skill	Level
Communication	Intermediate 2
Numeracy	Intermediate 2
Information Technology	Higher
Problem Solving	Higher
Working with Others	Intermediate 2

Candidates can achieve core skills:

- through Standard Grades or other units which give automatic certification of core skills, eg a candidate who has completed Standard Grade English at Credit level is given automatic certification of Communication at Intermediate 2
- by selecting from the group award units and courses which give automatic certification of core skills, eg the mandatory Higher course in Computing and Information Technology gives automatic certification of Information Technology and Problem Solving at Higher
- by selecting dedicated core skills units in the open section of the SGA

Candidates' current level of achievement in core skills is shown on the Scottish Qualifications Certificate in the form of a profile. This shows achievement against each of the core skills *components*. Where a core skill has more than one component, the candidate needs to achieve each component at the level specified for the SGA. For example, if an SGA requires Communication at Intermediate 2, a candidate whose profile shows Written Communication at Intermediate 2 and Oral Communication at Intermediate 1 would not meet the requirement and would have to improve in Oral Communication.

Details of all courses which give automatic certification of core skills is published in the *Catalogue of Core Skills in National Qualifications* (SQA, 2001/2002).



# Hierarchical sequences

E

The SQA numbering system for qualifications consists of a 4 + 2 reference code.

The qualifications in a hierarchical sequence have the same title and are available at more than one level. They are identified by their identical alphanumeric code, D093 in the example below. The last two digits are unique to each level of qualification, eg 12 equates to Higher, 11 equates to Intermediate 2.

## Units

The following is an example of a hierarchical sequence of units:

D093 10	Computer Systems (Int 1)
D093 11	Computer Systems (Int 2)
D093 12	Computer Systems (H)
D093 13	Computer Systems (AH)

Where units which are part of hierarchical sequences are specified, candidates who achieve a unit at a higher level than the one specified can use the upper level unit to count as credit towards the group award. For example, Computer Systems (H) can be counted instead of Computer Systems (Int 2).

Candidates can only use one of these units to count as credit towards the group award.

In the case of unrevised National Certificate Modules, ie units which retain their original number, there are hierarchies where the title is the same and the number is different. In this specification, where these units appear at more than one level, the maximum number of credits which can be counted is stated in the specification. Details of these exceptions will be published in a separate document. The pattern for these hierarchies is the same as that previously established for GSVQs.

There are also some hierarchies where the titles and numbers of the units at different levels are different. In this specification, if there are two units at different levels with heavily overlapping content, only one of these units should be used to count as credit towards the group award. Details of these exceptions will be published in a separate document.

## Courses

The following is an example of a hierarchical sequence of courses:

C054 11	Information Systems (Int 2)
C054 12	Information Systems (H)
C054 13	Information Systems (AH)

In the SGA specification, where courses which belong to hierarchical sequences are specified, candidates who achieve a course at a higher level than the one specified can use the upper level course to count as credit towards the group award. For example, Information Systems (AH) can be counted instead of Information Systems (H).

Candidates can only use one of these courses to count as credit towards the group award - a maximum of 4 credits.





## SCE Highers

F

Designated SCE Highers can contribute 4 credits each to the SGA in place of National Courses in the *specific section*.

The designated Highers and their corresponding National Courses which contribute to this SGA are as follows:

<b>SCE Higher Grade*</b>	<b>National Course</b>
Computing Studies	Computing (H)
Graphic Communication	Graphic Communication (H)
Technological Studies	Technological Studies (H)

\*SCE Highers do not give automatic certification of core skills. Further information will be published about this in due course.

Note: Any SCE Higher can contribute 4 credits to the *open section*.



Relevant Scottish Vocational Qualifications (SVQs) from occupational areas 009 (Providing Business Services) and 010 (Communicating and Entertaining) can each contribute up to eight credits to the open section of the SGA.

SVQs at Level 3 contribute credits at Higher

SVQs at Level 2 contribute credits at Intermediate 2

The following are **examples** of relevant SVQs.

Code no	Relevant SVQs	Level
<b>009 Providing Business Services</b>		
G5F3 23	Developing IT Systems	3
G5F3 22	Developing IT Programs	2
G49N 23	Implement Information Technology Solution	3
G49L 23	Information Systems Analysis	3
G3KD 22	Information Systems Analysis	2
G49J 23	Information Systems Acquisition	3
G49K 23	Information Systems Design and Programming	3
G3KB 22	Install Information Technology Products	2
G5F2 23	Installing and Supporting IT Systems	3
G5F2 22	Installing and Supporting IT Systems	2
G5F5 23	Managing Information Technology for Teleworking	3
G3K9 22	Operating Information Technology	2
G5F1 23	Operating IT Systems	3
G5F1 22	Operating IT Systems	2
G3KL 23	Software Creation	2
G49G 23	Support Users of Information Technology	3
G3KA 22	Support Users of Information Technology	2
G49F 23	Use and Support of Information Technology	3
G3JY 22	Using Information Technology	2
G5F4 22	Using Information Technology for Teleworking	2
G5F0 23	Using IT	3
G5F0 22	Using IT	2
<b>010 Communicating and Entertaining</b>		
G4AK 23	Desk Top Publishing	3
G3L6 22	Desk Top Publishing	2
GHAL 23	Digital Imaging	3
G3L8 22	Digital Imaging	2
G4BI 23	Graphic Design for the Moving Image	3
G4BA 23	Information and Library Services	3
G3LM 22	Information and Library Services	2

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