



## External Assessment Report 2012

Subject(s)	<b>Technological Studies</b>
Level(s)	<b>Advanced Higher</b>

The statistics used in this report are pre-appeal.  
This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the examination.

# Comments on candidate performance

## General comments

The overall performance of candidates in this year's external assessment was very much in line with that of previous years. This was again a committed cohort who were generally well prepared for the examination.

It was encouraging to see a modest increase in the number of candidates presented for this examination, with three new centres and three returning centres.

## Areas in which candidates performed well

Questions 1 and 2: Most candidates provided clear responses, indicating that these were well received opening questions.

Question 5 (a) and (b): This assembler-language question was generally very well answered, with candidates demonstrating a good understanding of some of the more complex programming instructions.

Question 8; Question 10 (c), (d), (e); Question 11 (c), (d): Some candidates achieved a high proportion of the marks in these structures questions, though there appeared to be some variance on a centre-by-centre basis. Some centres appear to be teaching the structures part of the Course more effectively than others. However, in general, answers to structures questions are being completed with fewer errors, and noticeably more candidates are producing error-free solutions now than in previous years.

## Areas which candidates found demanding

Question 3: Many candidates appeared unclear as to the difference between hardware and software; there was considerable confusion in the responses to this question.

Question 4 (c); Question 9 (c); Question 11 (b) (ii): Most candidates were unable to provide clear, concise descriptions of the operation of the stated systems. In many cases, responses consisted only of a description of the components involved, but no explanation was provided of the *operation* of the system. This is a perennial problem: many candidates appear to have difficulty in analysing the function and operation of elements of systems, and then have difficulty explaining their understanding clearly.

## Advice to centres for preparation of future candidates

### General

Many candidates were inconsistent in the level of accuracy: answers were rounded to one significant figure in some instances, whilst, other answers would be stated with nine or so digits. Excessive rounding at several stages of a calculation meant that some candidates achieved final answers which were materially different from that required.

**All working should be to four significant figures, with answers expressed to three significant figures.**

Centres are advised to emphasise the importance of understanding the function and operation of systems, and candidates should be encouraged to practise writing clear and concise descriptions. Whilst many candidates find this challenging, it is vital that engineers be competent in their written communication with others; questions requiring descriptive answers provide an opportunity for candidates to demonstrate their skills in technological communication.

Candidate performance in structures questions, (bending moments, method of sections etc), appears to be generally improving, and the work by centres over recent years evident. However, there is still room for further progress, and centres are encouraged to continue in their efforts to raise the level of competency in this challenging part of the Course.

There were clear indications of time-management issues in many candidate responses. Centres are encouraged to stress the importance of good time management. A possible breakdown of time allocation is shown below, as guidance:

- ◆ Read through the question paper and plan the order in which to attempt the questions: 10 minutes.
- ◆ Section A: 1 hour 40 minutes total, allocated between questions (at roughly 0.8 marks/min).
- ◆ Section B: 35 minutes per question.

## Statistical information: update on Courses

Number of resulted entries in 2011	81
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Number of resulted entries in 2012	91
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## Statistical information: performance of candidates

### Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark 200				
A	34.1%	34.1%	31	134
B	15.4%	49.5%	14	116
C	15.4%	64.8%	14	98
D	3.3%	68.1%	3	89
No award	31.9%	100.0%	29	-

## **General commentary on grade boundaries**

While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.

Each year SQA therefore holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.

The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance. The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance. Where standards are comparable to previous years, similar grade boundaries are maintained.

An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions, are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in, say, Higher Chemistry this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions.

SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as Arrangements evolve and change.