



## External Assessment Report 2012

Subject(s)	Mechatronics
Level(s)	Higher

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

This year saw another good performance, with almost every candidate achieving a passing grade. As mentioned in past reports, this Course — unlike most Highers — stands alone at this level; as such, the content is almost entirely new to the candidates and there is very little prior learning that is directly applicable. Even with this initial position, it was pleasing to see that the candidates were able to assimilate a great deal of knowledge from the Course and apply this to the Question Paper, resulting in a large proportion of them who were able to achieve a grade A pass.

Once again, there was a good demonstration of learning, knowledge and application in Mechatronics. Mechatronics as an applied subject cannot be taught by examples, but requires elements of new situations and applications which candidates may never have seen before. The top candidates showed an extremely well-developed skill in responding to such scenarios, whereas the less able were less successful, though still showing considerable capability. The poorest candidates tended to answer scattered elements of a question.

Although the candidate group is fairly small, the entry numbers are stable and the grade distributions this year are similar to those of previous years.

## Areas in which candidates performed well

The Question Paper was, generally, well answered throughout and, as such, well-prepared candidates scored very highly.

The multiple-choice section (Question 10) covered a broad range of content and was answered very well.

## Areas which candidates found demanding

Although the Question Paper was answered well by the majority of candidates, issues were noted with regards to the quality of sketches/ diagrams when these were asked for — for example Qs 4(b), 5(b) and (c), 6(a) and (b), and 13(e).

Additionally, Question 9 proved to be demanding for a lot of candidates. In this question, candidates were able to identify a sensor but often failed to select one that was suitable for or relevant to the context of the question.

## Advice to centres for preparation of future candidates

As indicated by the candidate results, centres should be commended for presenting well-prepared, capable candidates for the Course.

In many other examined subjects, candidates may have a considerable base of knowledge of the topics or previous foundation teaching regarding the topic areas. However, this isn't the case in Mechatronics as much of Mechatronics would be largely unknown to candidates when they begin the Course.

The high level of achievement demonstrated by the candidate group shows that much has been learned and applied by candidates during the delivery of the Course.

Centres should continue to ensure all aspects of the Course (as defined in the Arrangements document) are taught.

Centres should also ensure candidates are well prepared for the examination in terms of exam technique. Attention to specific wording and marks available for parts of questions should be emphasised — recognising that the mark allocation and the command word (such as state, describe, sketch, calculate) are specific indicators of what is required in terms of both length and comprehensiveness will be to the benefit of the candidates.

## Statistical information: update on Courses

Number of resulted entries in 2011	26
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Number of resulted entries in 2012	30
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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 100				
A	60.0%	60.0%	18	70
B	16.7%	76.7%	5	60
C	20.0%	96.7%	6	50
D	3.3%	100.0%	1	45
No award	0.0%	100.0%	0	-

## 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.