



Course report 2022

Subject	Practical Electronics
Level	National 5

This report provides information on candidates' performance. Teachers, lecturers and assessors may find it useful when preparing candidates for future assessment. The report 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 assessment documents and marking instructions.

The statistics used in this report have been compiled before the completion of any appeals.

Grade boundary and statistical information:

Statistical information: update on courses

Number of resulted entries in 2022	565
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Statistical information: performance of candidates

Distribution of course awards including grade boundaries

A	Percentage	40.0	Cumulative percentage	40.0	Number of candidates	225	Minimum mark required	49
B	Percentage	22.7	Cumulative percentage	62.7	Number of candidates	130	Minimum mark required	42
C	Percentage	19.1	Cumulative percentage	81.8	Number of candidates	105	Minimum mark required	35
D	Percentage	7.9	Cumulative percentage	89.7	Number of candidates	45	Minimum mark required	28
No award	Percentage	10.3	Cumulative percentage	N/A	Number of candidates	60	Minimum mark required	N/A

You can read the general commentary on grade boundaries in appendix 1 of this report.

In this report:

- ◆ 'most' means greater than 70%
- ◆ 'many' means 50% to 69%
- ◆ 'some' means 25% to 49%
- ◆ 'a few' means less than 25%

You can find more statistical reports on the statistics page of [SQA's website](#).

Section 1: comments on the assessment

Question paper

The requirement to complete the question paper was removed for session 2021–22.

Practical activity

The practical activity performed as expected across all sections for the range of briefs available.

Most centres used the bicycle lights brief, although some centres selected other briefs deemed relevant to their candidates.

The marking guidance provided is precise in detail, and centres should use this to shape delivery of the practical activity with confidence, ensuring consistency of marking across the range of projects available.

Section 2: comments on candidate performance

Practical activity

Candidates mainly performed well in the more practical aspects of the task. These consisted of circuit construction, wiring and assembly as well as circuit simulation. This accounts for 51 marks of the available 70. By the time candidates come to this practical activity, they should be suitably experienced in these elements.

The initial analysis of the given problem was more demanding and accounted for 7 marks. Candidates who analysed the task correctly achieved the maximum 7 marks, whereas others were guided and marked accordingly in order to proceed with the rest of the practical activity.

Achieving the final 12 marks was demanding for candidates. This consisted of 7 marks for testing the solution and 5 marks for reporting and evaluation. The key to gaining these marks is the candidate's ability to keep clear and accurate project logbooks detailing the main stages in the task and the ability to evaluate their actual completed circuit test results against the simulation test results and the given task specification.

Section 3: preparing candidates for future assessment

Practical activity

Teachers, lecturers and assessors should be confident with the practical areas of electronics and not just the theoretical aspects. This will enable them to provide suitable guidance to candidates so that they can achieve as many marks as possible from the practical tasks such as circuit construction, wiring and assembly as well as circuit simulation.

Candidates should also have access to a suitable range of appropriate and properly maintained tools and equipment, so they can gain experience of using them as well as the simulation software. Not only will this give candidates every opportunity to access all marks, but it is also essential for safe working practices.

Good circuit simulation should also include a range of circuit performance results. This will assist candidates when testing the actual practical solution that they will build in order to compare actual test results with the simulation results. This will also assist candidates in achieving marks in the construction section by giving candidates a steer as to where to include test points in their circuits which should also assist with the reporting section.

There are various websites that will assist assessors with the conventions used in the practical application of electronics, such as circuit layout, test points, labelling components, as well as giving practical advice on how to develop good soldering skills.

The more demanding tasks of design, testing and reporting are dependent upon assessors guiding candidates to determine the key inputs and outputs of each circuit process, and to include a range of circuit performance results from their simulation. This will assist them when testing the actual solution built in order to compare actual test results with the simulation test results and the given task specification. These higher order skills can prove demanding for candidates.

Centres should encourage candidates to make sure that they update their record of progress after each key stage (key milestone) of the practical activity to ensure they gain marks. A pro forma could be issued to candidates for this.

Centres are encouraged to make use of the Understanding Standards videos which are available on SQA's secure site for the practical activity.

Appendix 1: general commentary on grade boundaries

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

For most National Courses, SQA aims to set examinations and other external assessments and create marking instructions that allow:

- ◆ a competent candidate to score a minimum of 50% of the available marks (the notional grade C boundary)
- ◆ a well-prepared, very competent candidate to score at least 70% of the available marks (the notional grade A boundary)

It is very challenging to get the standard on target every year, in every subject at every level. Therefore, SQA holds a grade boundary meeting for each course to bring together all the information available (statistical and qualitative) and to make final decisions on grade boundaries based on this information. Members of SQA's Executive Management Team normally chair these meetings.

Principal assessors utilise their subject expertise to evaluate the performance of the assessment and propose suitable grade boundaries based on the full range of evidence. SQA can adjust the grade boundaries as a result of the discussion at these meetings. This allows the pass rate to be unaffected in circumstances where there is evidence that the question paper or other assessment has been more, or less, difficult than usual.

- ◆ The grade boundaries can be adjusted downwards if there is evidence that the question paper or other assessment has been more difficult than usual.
- ◆ The grade boundaries can be adjusted upwards if there is evidence that the question paper or other assessment has been less difficult than usual.
- ◆ Where levels of difficulty are comparable to previous years, similar grade boundaries are maintained.

Grade boundaries from question papers in the same subject at the same level tend to be marginally different year on year. This is because the specific questions, and the mix of questions, are different and this has an impact on candidate performance.

This year, a package of support measures including assessment modifications and revision support, was introduced to support candidates as they returned to formal national exams and other forms of external assessment. This was designed to address the ongoing disruption to learning and teaching that young people have experienced as a result of the COVID-19 pandemic. In addition, SQA adopted a more generous approach to grading for National 5, Higher and Advanced Higher courses than it would do in a normal exam year, to help ensure fairness for candidates while maintaining standards. This is in recognition of the fact that those preparing for and sitting exams have done so in very different circumstances from those who sat exams in 2019.

The key difference this year is that decisions about where the grade boundaries have been set have also been influenced, where necessary and where appropriate, by the unique circumstances in 2022. On a course-by-course basis, SQA has determined grade boundaries in a way that is fair to candidates, taking into account how the assessment (exams and coursework) has functioned and the impact of assessment modifications and revision support.

The grade boundaries used in 2022 relate to the specific experience of this year's cohort and should not be used by centres if these assessments are used in the future for exam preparation.

For full details of the approach please refer to the [National Qualifications 2022 Awarding—Methodology Report](#).