Course report 2026

National 5 Practical Electronics, SCQF level 5

We've written this report for teachers and lecturers. We recommend you read this with the published course assessment documents and marking instructions.

The report:

- provides a summary of how each course component performed
- highlights areas of the question paper and coursework where candidates performed well and areas where they did not perform well
- has advice you might find useful when preparing candidates for assessment

For information about the practical activity, you should read the verification summary 2025-26 on the National 5 Practical Electronics page of our website.

We collect and prepare the statistics in course reports before we complete the appeals process.

Statistical and grade boundary information

Course entries

Number of resulted entries in 2025: 823

Number of resulted entries in 2026: 831

Distribution of course awards (including minimum mark to achieve each grade)

Course award	Number of candidates	Percentage	Cumulative percentage	Minimum mark required
A	313	37.7	37.7	72
B	195	23.5	61.1	62
C	155	18.7	79.8	52
D	90	10.8	90.6	42
No award	78	9.4	100	Not applicable

We've not applied rounding to these statistics.

In this report:

- 'Most' means greater than or equal to 70%.
- 'Many' means 50% to 69%.
- 'Some' means 25% to 49%.
- 'Few' or 'a few' means less than 25%.

You can find statistical reports on our website.

General commentary on grade boundaries

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

For most National Courses, we aim 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's very challenging to get the standard on target every year, in every subject, at every level. Therefore, we hold a grade boundary meeting for each course to bring together all the information available (statistical and qualitative) and make final decisions on grade boundaries based on this information. Senior Qualifications Scotland staff normally chair these meetings.

Principal assessors use their subject expertise to evaluate the performance of the assessment and propose suitable grade boundaries based on the full range of evidence. We 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.

- We can adjust the grade boundaries downwards if there's evidence that the question paper or other assessment has been more difficult than usual.
- We can adjust the grade boundaries upwards if there's evidence that the question paper or other assessment has been less difficult than usual.
- If levels of difficulty are comparable to previous years, we maintain similar grade boundaries.

Every year, we evaluate the performance of our assessments in a fair way, while ensuring standards are maintained so that our qualifications remain credible. To do

this, we measure evidence of candidates' knowledge and skills against the national standard.

For full details of the approach, please refer to the Awarding and Grading for National Courses Policy.

How the course assessment performed

Question paper

The question paper was less demanding than intended and we adjusted the grade boundaries to account for this.

The question paper sampled the three mandatory areas of the course — circuit design, simulation and construction — in an appropriate balance. Questions ranged from straightforward knowledge and understanding to more demanding application and analysis, allowing candidates to demonstrate the breadth of skills expected at National 5.

The progression of demand throughout the paper provided differentiation. Early questions were accessible to most candidates, while later questions differentiated between levels of attainment.

Practical activity

The practical activity performed as intended and allowed candidates to demonstrate practical skills in circuit design, simulation, construction, testing and evaluation. The range of approved tasks provided appropriate opportunities for candidates to demonstrate their practical skills while allowing centres flexibility in task selection.

How candidates performed

Areas where candidates performed well

Question paper

Candidates performed well in the following questions:

Question 1(a)

Most candidates correctly identified common electronic components, recognised standard circuit symbols and described their functions accurately.

Question 1(b)(i)

Most candidates correctly determined the resistance of a resistor from the colour bands.

Question 1(b)(ii)

Most candidates correctly identified the resistor tolerance.

Question 1(b)(iii)

Most candidates successfully calculated the maximum and minimum resistance values using the stated tolerance.

Question 2

Most candidates identified appropriate safety precautions for using a soldering iron.

Question 3(a)(i)(ii)

Most candidates correctly calculated the total series resistance and current.

Question 3(a)(iii)

Many candidates correctly calculated the power dissipated in the resistor using an appropriate relationship.

Question 3(b)(i)(ii)

Many candidates successfully calculated the equivalent resistance of resistors connected in parallel before determining the overall circuit resistance.

Question 4(a)(ii)(iii)

Most candidates correctly identified output pins and determined logic states from the integrated circuit data sheet.

Question 4(b)

Many candidates completed the truth table accurately. If candidates made an earlier error, many candidates continued to gain marks through consistent application of logic.

Question 5(b)(i)

Most candidates correctly identified the appropriate wire colour from the stripboard layout.

Question 5(b)(ii)

Many candidates explained the purpose of the resistor in protecting the LED or limiting current.

Question 6

Many candidates correctly identified one or more errors within the simulated circuit.

Question 7(a)

Many candidates correctly calculated the voltage across the variable resistor using an appropriate method.

Question 8

Most candidates successfully identified suitable components from the supplier catalogues and completed the majority of the costing sheet accurately.

Question 9

Many candidates correctly identified the input, process and output sections of the system and selected appropriate sensors, logic gates and outputs.

Question 10

Many candidates attempted the stripboard layout question and demonstrated an understanding of component placement and stripboard construction.

Practical activity

Candidates attained most marks in the practical areas of construction, such as the soldering aspects and adhering to safety requirements.

Areas where candidates did not perform well

Question paper

Question 1(c)

Some candidates did not correctly identify the largest resistor value when presented using different resistor notations.

Question 4(a)(i)

Some candidates identified the logic gate type rather than the full integrated circuit description provided in the data sheet.

Question 5(a)

Some responses identified colour coding but did not describe a clear advantage, so did not gain the available mark.

Question 5(b)(iii)

Some candidates identified incorrect multimeter settings or test points when describing a continuity test.

Question 6

Few candidates identified all three simulation errors.

Question 7(b)

Some candidates correctly described changes in thermistor resistance but did not fully explain how the MOSFET controlled the buzzer.

Question 8

Some candidates selected information from the incorrect column of the costing sheet, using the component description instead of the supplier information.

Question 9

Some candidates completed the block diagram without clearly separating the input, process and output sections.

Question 10

Some candidates' layout diagrams did not have component labels, track breaks or appropriate stripboard connections, resulting in incomplete solutions.

Practical activity

Some candidates did not perform well in circuit construction, labelling, test points and test sections.

Preparing candidates for assessment

Question paper

You should:

- remind candidates to use the correct energy transformation for certain components
- provide fault-finding activities using simulation software to help candidates recognise common circuit errors before constructing practical circuits
- give candidates regular opportunities to interpret resistor values written in different notations, including R, K and M notation. Using manufacturer datasheets and component catalogues alongside practical activities will help candidates become familiar with the formats they may encounter in assessments.
- encourage candidates to relate safety precautions directly to the use of a soldering iron. Practical activities should reinforce safe working practices such as using a suitable stand, wearing proper eye protection and working in a well-ventilated area.
- continue to provide opportunities for candidates to complete multi-stage circuit calculations involving series and parallel circuits, current and power. Encourage candidates to show clear working so they can gain follow-on marks.
- provide regular opportunities for candidates to interpret manufacturer data sheets. Encourage candidates to use the full integrated circuit description when identifying devices rather than abbreviated gate names.
- help candidates to improve on their descriptions of how an op-amp circuit operates with reference to Vx

You should use the published marking instructions on our Electronics subject page to demonstrate the level of technical detail expected when questions ask for an advantage or purpose. Context-based questions of this type require candidates to provide a clear benefit rather than a general statement.

You should give candidates opportunities to use a range of digital multimeters during practical activities. Encourage them to recognise the different continuity symbols used by manufacturers, including the diode symbol and the continuity (sound wave)

symbol. You should also ensure candidates are familiar with the style of multimeter graphic used in Qualifications Scotland assessments.

You should give candidates the opportunity to identify commonly used electronic components from photographs, component outlines, circuit diagrams and practical circuits. This should include MOSFETs, their function within switching circuits, and the purpose of a variable resistor. Candidates should also be aware that the switching voltage for a MOSFET is greater than that of a bipolar transistor.

You should encourage candidates to use a range of equations for potential dividers. If candidates prefer to use Ohm's Law, you can remind them that 1 mark is allocated for the formula, 1 mark for both substitutions, and 1 mark for the value with the correct unit.

Encourage candidates to practise producing and interpreting component costing sheets. Activities should require candidates to identify supplier names, product codes, component descriptions and costs accurately. Using a variety of costing sheet layouts will help candidates extract the correct information during the assessment.

You could encourage candidates to produce system block diagrams that clearly separate the input, process and output sections using dashed lines. Regular modelling of the expected layout and conventions will help candidates communicate their solutions clearly and consistently.

You should give candidates regular opportunities to convert circuit diagrams into stripboard layouts and vice versa. You should reinforce correct component labelling, stripboard conventions, track breaks and practical construction techniques. Using completed examples alongside peer review can help candidates improve the accuracy and presentation of their layouts. Components soldered, for example resistors, LEDs, capacitors, with both ends along the same track must have a break in between; otherwise, the component will not operate.

General advice

Continue to develop candidates' technical vocabulary throughout the course by linking theory to practical activities. Encourage candidates to respond appropriately to command words such as state, identify, determine, describe, explain and

calculate, and use the marking instructions and Understanding Standards materials to demonstrate the level of detail expected in extended responses.

You should make full use of our existing Understanding Standards materials and newer exam commentary material, course reports and annotated exemplars. These resources will support you to understand the national standard and the level of detail expected in candidate responses.

Practical activity

You should ensure that all candidates keep a detailed and up-to-date record of progress. It is essential for candidates to record evidence at all stages of the project including test findings, issues and fixes. This will help them gain marks at later stages of the project including test planning and the evaluation report.

When candidates install test pins they can be supported by using relevant components for this function. You can give candidates the opportunity to incorporate test pin identification in their test planning, diagnosis, repair and record keeping stages.

When candidates install inter-board wiring you can support them with access to resources about production of wiring looms, for example variations on wire insulation colour, spiral wrap, heat shrink, wire labelling. This will help candidates assign marks assigned to ‘constructing the solution’.

It is good practice to include detailed candidate records of progress, wiring schedules, photographic evidence of construction stages, and assessor commentary linked directly to the marking instructions.