

Unit R116 – Process control systems

Developing test plans

Instructions and answers for teachers

These instructions should accompany the OCR resource ‘Developing test plans’ activity which supports OCR Cambridge Nationals in Engineering.

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Developing test plans

Task 1

When designing any software-based system it is vital to test that the system performs as intended. Designers and developers often develop a functional test plan in order to do this.

The test plan normally includes a test number, which part of the system is being tested, what test is being performed, the test data (or input), expected, expected result, actual result and if this is a pass or a fail.

For Task 1 you are going to write a simple test plan for a remote control system used on a television (shown below).

Reproduce the table and add further functional tests for the remote control. The first two tests have been done for you – and include a pass and a fail.

Test No.	Part of System	What is being tested	Test data or input	Expected result	Actual result	Pass or Fail
1	Volume	Volume up	Press volume up button	Volume on TV increases	Volume did increase	✓
2	Change channel	Channel 1 button	Press channel 1 button	TV changes to channel 1	TV changed to channel 3	✗

The Activity:

This resource comprises of 2 tasks.



This activity offers an opportunity for English skills development.

Associated materials:

‘Developing test plans’ activity sheet

Suggested timings:

Tasks 1 and 2: 1 hour

Task 1

For this activity learners are tasked to devise a test plan for testing of a remote control system used to operate a television. The teacher might substitute this with a different system.

Learners have been presented with a basic test table with two example tests included – one for a pass and one a fail. Learners should complete the table with further functional tests for the remote control.

The test plan table includes a test number, which part of the system is being tested, what test is being performed, the test data (or input) entered, expected result, actual result and if this is a pass or a fail.

The following website describes software-based system testing in more detail, and might be useful:

http://www.teach-ict.com/as_a2_ict_new/ocr/A2_G063/331_systems_cycle/testing/miniweb/index.htm

Learners might use this as an introduction to writing their own test plan for a system that they have design and programmed.

Task 2

There are many strategies for testing the correct and functional operation of software-based system. Two of the most common are Alpha and Beta Testing. Learners are tasked to investigate these and their importance.

Learners may use suitable reference sources, although web-based sources might prove useful.

Alpha and Beta Testing are summarised below:

Alpha testing	Alpha testing is simulated or actual operational testing by potential users/customers or an independent test team at a developers' site. It must be noted that the testing is usually carried out by someone independent of the person who actually developed the system or its software.
Beta testing	<p>Beta testing comes after alpha testing and is undertaken externally. It is a form of acceptance testing (meaning that the product or software conforms to client design requirements).</p> <p>Versions of the products or software, known as beta versions, are released to a limited audience outside of the design or programming team. Beta versions are released to groups of people so that further testing can ensure the product has few faults or bugs.</p> <p>Sometimes, beta versions are made available to the open public to increase the feedback from a large number of potential future users. This feedback sometimes results in design changes or modifications before release of the final version.</p>

What is important to note is that testing is done to ensure that the product and software performs as expected – even with an unexpected series or combination of inputs.

Testing is usually carried out by a group of people who are independent of the person or team who designed and programmed the product in order that they thoroughly test the system (which the designer or design team might not do as they know what inputs and outputs they are expecting so might not include random or unexpected combinations).

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