Level 2 Award

Qualification
Specification

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About NCC Education

NCC Education is a UK awarding body, active in the UK and internationally. Originally part of the UK National Computing Centre, NCC Education started offering IT qualifications in 1976 and from 1997 developed its portfolio to include Business qualifications, IT qualifications for school children and a range of Foundation qualifications.

With Centres around the world, NCC Education aims to employ the latest technologies for learning, assessment and support. NCC Education is regulated by Ofqual (the Office of Qualifications and Examinations Regulation, see www.ofqual.gov.uk) in England and Northern Ireland.

Why choose this qualification?

The NCC Education Level 2 Award in Computing:

- is suitable for candidates at **Key Stage 4** of the English national curriculum (ages 14–16) as well as older (including adult) learners

- builds on students' understanding of **programming, computational thinking and data manipulation** while also allowing them further opportunities to explore Internet safety, collaboration and communication software, accessibility issues and the integral components of a modern computer system

- prepares candidates to be the **next generation of digital innovators** – the NCC Education Level 2 Award in Computing prepares students for further study in the areas of Computing and Programming – for example the NCC Education Level 3 Diploma in Computing (QCF) - and also greatly improves their understanding of fundamental computing concepts

- provides teachers with a **fresh and innovative syllabus** containing all the concepts, activities and resources to be able to deliver with confidence the new programming elements of the English national curriculum

- is a **regulated qualification**, placed in the UK National Qualifications Framework (NQF) at Level 2

- is **quality assured** by a UK awarding body with considerable expertise in providing high-quality IT/Computing qualifications and teaching programmes

- sits within NCC Education's well-established suite of Computing and Business qualifications, which are **recognised and valued** by employers and universities worldwide

Structure and Assessment for the Qualification

The NCC Education Level 2 Award in Computing comprises one unit, **Fundamentals of Computing and Digital Literacy**.

Candidates are assessed on this unit via one examination and one controlled assignment. All Learning Outcomes are assessed through the combination of these two assessments.

Learning Outcomes for the Fundamentals of Computing and Digital Literacy unit are:

Learning Outcomes: The Learner will:	Assessment Criteria: The Learner can:
1. Understand the components of a computer system and its input devices	1.1 Describe the operation of the Central Processor Unit 1.2 Identify different components of a computer system 1.3 Explain the function of main computer system components 1.4 Describe the accessibility issues associated with different types of input devices
2. Use principles of computational thinking to solve problems	2.1 Use algorithms to solve simple problems 2.2 Explain how one algorithm is more efficient or generalisable than another 2.3 Demonstrate how to manipulate and translate data representations
3. Be able to collaborate and communicate online	3.1 Explain how to set up an online collaboration for example a wiki 3.2 Explain how to contribute to an online collaboration 3.3 Describe the benefits of using collaborative software 3.4 Identify security issues when using collaborative software 3.5 Describe cloud computing
4. Know how to minimise risk to privacy and security when using the Internet	4.1 Identify risks to privacy when using the Internet 4.2 Explain how to minimise risk to privacy when using the Internet 4.3 Explain how to minimise risk to privacy when using social media
5. Be able to structure, manipulate and represent data	5.1 Explain what a data structure is 5.2 Use different data types 5.3 Make use of appropriate data structures in code 5.4 Explain the benefits of a modular computer program
6. Be able to develop, test and debug program code	6.1 Write code which includes iteration 6.2 Write code which includes selection 6.3 Write a sequential computer program 6.4 Describe the processes through which high level code is converted so that it can be processed by the CPU 6.5 Create a test plan 6.6 Carry out testing on program code

Assessment Objective and Review Arrangements

Assessment for the qualification is intended to allow candidates to demonstrate that they have met the relevant Learning Outcomes. NCC Education's assessment is appropriate to the assessment criteria as stated in this specification and is regularly reviewed to ensure it remains consistent with the specification. The qualification is assessed through Examination (Part One) and Controlled Assignment (Part Two).

Examination (Part 1)

The examination is a time-constrained assessment that will take place on a specified date at an NCC Education Approved Centre.

The examination (70% of the overall mark) comprises two theoretical and one practical component. The theoretical and practical components of the examination can be delivered independently to enable more flexible delivery (for ease of timetabling) and to provide candidates with the opportunity to engage with the examination in two shorter sessions, to aid their concentration. The examination comprises multiple-choice questions (Part A, theoretical), a number of more specialised multi-part questions (Part B, theoretical) and one or more 'at computer' tasks (Part C, practical).

The examination mark is calculated by combining marks awarded to candidates in the theoretical and practical components of the examination. In the examination half of the marks are awarded for the theoretical components and half of the marks are awarded for the practical component.

Controlled Assignment (Part 2)

The controlled assignment (30% of the overall mark) is a single practical task which candidates will complete and submit individually. Candidates will complete the task during supervised (classroom) time as defined by NCC Education.

The Examination and Controlled Assignment will allow candidates to demonstrate they have met the qualification's Learning Outcomes – in other words, evidence that they can successfully demonstrate their knowledge and comprehension of the subject matter.

Overview of Assessment

The Level 2 Award in Computing will be achieved following the successful completion the unit Fundamentals of Computing and Digital Literacy.

Unit	Part 1		Part 2	
	Examination: Theoretical Component (Parts A and B)	**Examination: Practical Component (Part C)**	**Controlled Assignment**	**Minimum Guided Learning Hours**
Fundamentals of Computing and Digital Literacy	45 minutes	45 minutes	Approximately 8 hours' classroom time	60 hours

NCC Education Centres will be provided with a specimen examination paper and marking scheme as well as specimen controlled assignment tasks.

Marking and Moderation Arrangements

NCC Education marks and moderates all theoretical components and all practical components of the single examination done on a computer where candidate answers are written in the examination answer paper. Following the examination all completed candidates' answer papers must be sent to NCC Education's UK Head Office by the deadline given in the NCC Education *Activity Schedule.*

For any examination practical components which require candidates to produce a digital artefact, Centre staff are required to record marks for candidates' work according to the marking scheme guidance issued by NCC Education and to save candidates' work electronically so that it may be submitted to NCC Education for moderation.

Controlled assignment tasks will be set by NCC Education and marked locally by Centres according to the marking scheme guidance issued by NCC Education. NCC Education moderates controlled assignment work. All Controlled assignment work must therefore be saved electronically by the Centre so that it may be submitted to NCC Education for moderation.

Controlled assignment work is moderated by reviewing a sample of candidates' work sent (by post or electronically) from the Centre to NCC Education's UK Head Office. All moderation is carried out by a Moderator appointed by NCC Education.

Centre marks must be sent to NCC Education's UK Head Office by the deadline given in NCC Education's *Activity Schedule*. Centres entering fewer candidates than the minimum sample size should send the work of all their candidates to NCC Education.

Centres entering larger numbers of candidates will be notified by NCC Education of the correct moderation sample (how many candidates and which candidates' work) to submit, following submission by the centre of their candidates' marks.

Moderator's marks are compared with the Centre's marks to check whether any changes are needed to bring the Centre's marking in line with NCC Education's standards. In some cases the moderator may request additional candidates' work to moderate. To meet this request, Centres must keep the controlled assignment and practical examination work, together with marking records for every candidate entered for assessment, under secure conditions for the duration as specified in the Activity Schedule. Centres must be prepared to send this work to NCC Education (by post or electronically) when it is requested.

Accessibility of Assessment

We review our guidelines on assessment practices to ensure compliance with equality law and to confirm assessment for our components is fit for purpose.

Reasonable Adjustments and Special Consideration

NCC Education is committed to providing reasonable adjustments and special consideration to ensure disabled candidates, or those facing exceptional circumstances, are not disadvantaged in demonstrating their knowledge, skills and understanding.

Further information on NCC Education's arrangements for giving reasonable adjustments and special consideration can be found in the NCC Education *Special Considerations Policy*.

Supervision and Authentication of Assessment

NCC Education Centres are required to organise all assessment activity for this specification according to NCC Education's Policies and Advice.

Candidates' identity and the authenticity of their work is verified by the Centre. NCC Education marks and moderates all theoretical components and all practical components of the single examination done on a computer where candidate answers are written in the examination answer paper, to ensure that the marking carried out is fair and reflects the standard achieved by candidates. Detailed guidance on this process and how candidate work must be submitted to NCC Education is given in NCC Education's *Examination Guidelines*.

Administration

Assessment Cycles

Four assessment cycles are offered throughout the year, in March, June, September and December.

Examination dates and submission deadlines are published in the NCC Education *Activity Schedule*, which is provided to Centres by NCC Education Centre Support. It is also available on *Connect,* NCC Education's candidate registration system.

The *Activity Schedule* also gives the key dates for registering candidates for assessment cycles, and the dates when Centres can expect to receive assessment documentation and the assessment results from NCC Education.

Language of Assessment

All assessment is conducted in English. Assessment cannot be completed using British or Irish Sign Language.

Candidates

NCC Education's qualifications are available to those Centre candidates who satisfy the entry requirements as stated in this specification.

Qualification and Unit Entry Requirements

Entry Requirements
The NCC Education Level 2 Award in Computing syllabus and assessment is suitable for candidates aged 14–16 (at Key Stage 4 of the English national curriculum) as well as older (including adult) learners. It is expected that candidates who are non-native English speakers are able to cope with the demands of preparing for and taking the NCC Education Level 2 Award in Computing assessment in English.

Candidate Entry

Candidates are registered by Centres for assessment via NCC Education's *Connect* system and according to the deadlines for registration provided in the *Activity Schedule*.

Further details can be found in NCC Education's *Centre Handbook*.

Syllabus

Syllabus Overview

The NCC Education Level 2 Award in Computing syllabus contains the following topics, syllabus sections and Learning Outcomes.

Syllabus content		
Topic	**Syllabus Section**	**Learning Outcomes**
Developing Problem Solving Skills	• Analysing and Solving Problems • Identification of Heuristics for Solving Puzzles	• Use principles of computational thinking to solve problems
Developing Computer Program Design Techniques	• Understanding and Evaluating Algorithms • Developing Algorithms • Developing Generalisable Algorithms	• Be able to develop, test and debug program code
Developing Computer Programs	• Sequence and Data Types • Iteration • Selection • Data Structures • Modular Programming	• Be able to develop, test and debug program code
Testing Computer Programs	• Debugging • Unit Testing	• Be able to develop, test and debug program code
Safety and Security Online	• Using Computers Safely and Securely • Protecting Your Online Presence	• Know how to minimise risk to privacy and security when using the Internet
Computer Systems	• The CPU	• Understand the components of a computer system and its input devices

	• Computer System Components	
Types of Programming Language	• Interpreters and Compilers • Programming in Assembler	• Be able to develop, test and debug program code
Searching and Sorting	• Searching • Sorting	• Be able to structure, manipulate and represent data
Computer Logic and Number Representation	• Boolean Logic Truth Table • Minimising Boolean Expression Using K-Maps • Binary and Hexadecimal Numbers	• Be able to structure, manipulate and represent data
Computer Hardware	• Input Devices • Accessibility	• Understand the components of a computer system and its input devices
Online Collaboration Software	• Wikis • Collaborative Software	• Be able to collaborate and communicate online
Cloud Computing	• Cloud Computing Uses • Cloud Computing Security	• Know how to minimise risk to privacy and security when using the Internet

Results and Certificates

An overall numerical mark – which takes into consideration the weighting of each piece of assessment – is awarded to candidates. Candidates who obtain an overall mark of 50% or above are classed as a *pass*. All candidates who obtain an overall mark of below 50% are classed as *failed* and should be considered for reassessment.

After each assessment cycle, results slips are issued (in electronic format) which detail the final mark. Certificates are then dispatched to Centres.

Further Information

For more information about any of NCC Education's products, please contact customer.service@nccedu.com or, alternatively, visit www.nccedu.com to find out more about our suite of qualifications.

Appendix 1 Qualification Documentation

The following NCC Education documentation has been referred to in this specification:

- Special Considerations Policy
- Examination Guidelines
- Activity Schedule
- Centre Handbook

All documentation, together with access to NCC Education's online resources, is available to Centres and (where applicable) candidates who have registered for assessment.