



GCE  
AS/A  
LEVEL

APPROVAL CRITERIA

# GCE AS/A level Digital Technology

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## Introduction

This document sets out the approval criteria for GCE Digital Technology. These have been developed through stakeholder engagement and include the requirements that an awarding body must meet when developing the specification and assessment materials for GCE AS and A levels in this subject.

The approval criteria in this document will come into effect from 24 May 2021.

Qualifications Wales will only approve a qualification that meets all of the requirements set out in this document together with those set out in all relevant regulatory documents in our [Regulatory Documents List](#), including the *Approval Criteria for GCE AS and A Level Qualifications*, our *Standard Conditions of Recognition*, our *Additional Standard Conditions of Recognition for GCSE/GCE Qualifications*, our *Requirements for setting specified levels of attainment for GCE and GCSE qualifications* and *Resit Rules for GCE AS and A level qualifications*. An awarding body must comply with all relevant regulatory documents on an ongoing basis. In developing qualifications to meet these requirements an awarding body must have due regard to all relevant guidance produced by us, including, for example, [Fair Access by Design](#) and [Mark Schemes in Knowledge-based Qualifications](#).

Where the requirements set out in this document differ from those prescribed in the *Approval Criteria for GCE AS and A Level Qualifications*, the *Standard Conditions of Recognition* and the *Additional Standard Conditions of Recognition for GCSE/GCE Qualifications*, the requirements in this document will take precedence.

The rationale required within this document is in addition to the rationale required in the *Approval Criteria for GCE AS and A Level Qualifications*.

The qualification will be available for first teaching from September 2022.

This document is available in Welsh.

## **Purpose**

GCE AS/A level Digital Technology advances learners' understanding of the digital technologies that are used by individuals and organisations across the world, including how they have developed and how they continue to change. The qualification enables learners to develop a deep understanding of how innovations in digital technology, and the increasing levels of connectivity between them, impact the lives of those who use them and wider society.

Learners will also develop practical skills in developing both creative digital products and digital solutions to problems faced by organisations, supporting their progression into employment in a career that utilises digital technologies or onto a programme of higher education involving digital technologies.

***RR1 – Rationale requirement:*** *on submitting the GCE qualification, an awarding body will need to provide a rationale of how the qualification fulfils the purpose of the qualification.*

## **Subject aims and objectives**

1. GCE Digital Technology specifications must enable learners to develop:
  - 1.1. An understanding of significant past, current and emerging digital technologies;
  - 1.2. An understanding of the integrated and connected nature of digital technologies used by individuals and organisations;
  - 1.3. Skills in researching and exploring issues before finding and implementing effective solutions to them;
  - 1.4. Skills in planning, designing and creating innovative web-based and multimedia content that meets the needs of specific audiences;
  - 1.5. An understanding of legal, social, ethical and professional dimensions, and environmental impacts, of digital technologies on individuals and wider society;
  - 1.6. A knowledge of the systems development life cycle and its iterative and cyclical nature.

## **Subject content**

2. The subject content of GCE Digital Technology specifications must meet the subject aims and objectives and include the content required for each unit in paragraph 3.
  
3. The subject content must be split into the following units of study at AS:
  - 3.1. **Unit 1:** Innovation in Digital Technology;
  
  - 3.2. **Unit 2:** Creative Digital Practices;  
and at A2:
  
  - 3.3. **Unit 3:** Connected Systems;
  
  - 3.4. **Unit 4:** Digital Solutions.

### **Unit 1 – Innovation in Digital Technology**

4. In Unit 1, GCE Digital Technology specifications must require learners to develop knowledge and understanding of:
  - 4.1. Connected digital systems and smart devices, including the principles and uses of the internet of things, including in domestic settings, the built environment and manufacturing;
  - 4.2. The development of artificial intelligence (including machine learning) and robotics over time, and applications, functions and potential uses of such systems;
  - 4.3. Digital technology development life cycles, including in the design of digital systems and relevant approaches and methodologies;
  - 4.4. User-centred design, user experience and human-computer interaction in digital systems development;
  - 4.5. Functions, purposes and uses of social media by individuals and organisations.
  
5. In Unit 1, specifications must also require learners to explore a range of legal, social, ethical and professional dimensions. These must be relevant to, and integrated with, the content required in paragraph 4.

**RR2 – Rationale requirement:** on submission of the qualification an awarding body will be required to explain the reason(s) for including in Unit 1 any additional content that is not required above.

## **Unit 2 – Creative Digital Practices**

6. In Unit 2, GCE Digital Technology specifications must require learners to develop knowledge and understanding of, and skills in, creative digital practices.
7. Specifications must require each learner to develop a video game and must require each learner to undertake planning, design, creation, development and review stages when developing the product.
8. Specifications must require each learner to:
  - 8.1. Demonstrate informed design decisions that meet the needs of audiences or users;
  - 8.2. Incorporate advanced features;
  - 8.3. Test the developed product;
  - 8.4. Refine and review the product following audience or user feedback.
9. Specifications must also require each learner to develop knowledge and understanding of, and skills in, planning and delivering a project by producing supporting evidence, including action plans and development logs throughout the development of each product.

**RR3 – Rationale requirement:** on submission of the qualification, an awarding body will be required to explain the reason(s) for including in Unit 2 any content that is not required above.

**RR4 – Rationale requirement:** on submission of the qualification, an awarding body will be required to explain how the advanced features required in this unit are aligned with the assessment arrangements for the practical task.

**RR5 – Rationale requirement:** on submission of the qualification, an awarding body will be required to demonstrate that the content for Unit 2 allows for appropriate progression for all learners that have completed GCSE Digital Technology.

### **Unit 3 – Connected Systems**

10. In Unit 3, GCE Digital Technology specifications must require learners to develop knowledge and understanding of:
  - 10.1. Contemporary practices involved in collecting, storing, analysing and using data;
  - 10.2. Cyber security, including threats and vulnerabilities, resilience controls and social engineering;
  - 10.3. Digital technology networks (including cloud environments), their roles in communications and data transmission, and mobile technologies.
  
11. In Unit 3, specifications must also require learners to explore a range of legal, social, ethical and professional dimensions. These must be relevant to, and integrated with, the content required in paragraph 9.
  
12. In Unit 3, GCE Digital Technology specifications must require learners to develop skills in communicating, evaluating and analysing digital technology concepts, including through extended responses.

***RR6 – Rationale requirement:*** on submission of the qualification, an awarding body will be required to explain the reason(s) for including in Unit 3 any additional content that is not required above.

## Unit 4 – Digital Solutions

13. GCE Digital Technology specifications must require learners to develop knowledge and understanding of, and skills in, developing a digital solution to a realistic challenge or problem which could be faced by an organisation by:

- 13.1. Investigating a realistic systems problem which could be faced by an organisation to understand data and system requirements;
- 13.2. Identifying the requirements for a digital solution to the problem and success criteria for creating the solution;
- 13.3. Designing, planning and developing a database system to host the data;
- 13.4. Creating a web interface that can connect to the database solution in order to insert, read, write, amend and delete data;
- 13.5. Populating the database to facilitate testing and refinement of the solution;
- 13.6. Reviewing the suitability of the overall solution in meeting the success criteria and future development.

14. Specifications must also require each learner to develop knowledge and understanding of, and skills in, iterative approaches to digital product development and suitable project management tools.

**RR7 – Rationale requirement:** *on submission of the qualification, an awarding body will be required to explain the reason(s) for including in Unit 4 any additional content that is not required above.*

## Assessment objectives

15. The assessment of the knowledge, understanding and skills required in GCE Digital Technology specifications must target the following assessment objectives and specifications must identify the exact weighting of each assessment objective, at AS and at A2, which must be within the ranges indicated below.

		<b>AS</b>	<b>A2</b>	<b>A level</b>
<b>AO1</b>	Demonstrate knowledge and understanding of digital technology systems, including how they are used by, and impact on, individuals, organisations and society.	25-30%	20-25%	22-27%
<b>AO2</b>	Apply knowledge and understanding to investigate, analyse and evaluate digital technology products and systems, approaches to their development, and their impact on individuals, organisations and society.	25-30%	35-40%	31-36%
<b>AO3</b>	Plan, design, create, and develop digital products.	40-45%	35-40%	37-42%

## Scheme of assessment

16. GCE Digital Technology specifications must include the following assessment arrangements:

<b>Unit</b>	<b>Arrangements</b>
<b>Unit 1</b> Innovation in Digital Technology	<ul style="list-style-type: none"> <li>• Must be assessed by examination.</li> <li>• Must be set and marked by the awarding body.</li> <li>• Must only use on-screen assessment.</li> </ul>
<b>Unit 2</b> Creative Digital Practices	<ul style="list-style-type: none"> <li>• Must be assessed through non-examination assessment.</li> <li>• Must be set by the awarding body.</li> <li>• Must ensure that internally assessed evidence is externally moderated by the awarding body.</li> <li>• Must require learners to undertake a practical project in which a video game is produced.</li> </ul>

	<ul style="list-style-type: none"> <li>• Must require learners to produce suitable evidence to support the planning and delivery of the practical project.</li> <li>• Must require learners to include evidence of the design, creation, development and review stages of the project.</li> <li>• Must require learners to submit their digital products in a format in which the technical skills that have been used can be clearly evidenced.</li> </ul>
<b>Unit 3</b> Connected Systems	<ul style="list-style-type: none"> <li>• Must be assessed by examination.</li> <li>• Must be set and marked by the awarding body.</li> <li>• Must only use on-screen assessment.</li> </ul>
<b>Unit 4</b>	<ul style="list-style-type: none"> <li>• Must be assessed through non-examination assessment.</li> <li>• Must be set by the awarding body.</li> <li>• Must ensure that internally assessed evidence is externally moderated by the awarding body.</li> <li>• Must require learners to undertake an investigation into a systems problem which could be faced by an organisation.</li> <li>• Must require learners to plan, design, develop, test and review a database solution to the problem.</li> <li>• Must require learners to create a web interface that connects to the database solution.</li> <li>• Must require learners to submit their digital products in a format in which the technical skills that have been used can be clearly evidenced.</li> </ul>

**RR8 – Rationale requirement:** on submission of the qualification, an awarding body will be required to explain its approach to content coverage over time in the assessment of this qualification.

**RR9 – Rationale requirement:** on submission of the qualification, an awarding body will be required to explain how the assessments for Unit 1 and Unit 3 can be accessed:

- by learners requiring reasonable adjustments;
- in the event of technical issues leading to the failure of the on-screen assessment.

**RR10 – Rationale requirement:** on submission of the qualification, an awarding body will be required to explain the ways in which the scheme of assessment balances the considerations of manageability, engagement, reliability and validity, including how:

- the assessment arrangements are manageable for both centres and learners;

- *the assessment arrangements are sufficiently engaging for learners and promote learners' interest in the subject area;*
- *the assessment arrangements are a valid form of assessment for the skills, knowledge and understanding being assessed;*
- *the assessment arrangements will ensure the reliability of assessment outcomes, at centre and national level and over time, for example by identifying and describing:*
  - *the controls which will be applied to candidates and centres during non-examination assessment;*
  - *the means of ensuring that centres carry out varied non-examination assessment tasks year on year;*
  - *the forms of presentation which may be used by candidates when undertaking non-examination assessment;*
  - *the way in which marking criteria will be set for use by teachers, lecturers and examiners;*
  - *how examination assessments will be conducted.*

**RR11 – Rationale requirement:** *on submission of the qualification, an awarding body will be required to explain how it intends to keep the content and assessment arrangements of the qualification under review to ensure currency and fitness for purpose. The explanation must:*

- *include the proposed process and timescales and must consider the timing of the application of any changes, having due regard to the required lead-in time and communication with centres. Please note, Qualifications Wales will require an update on the review undertaken on an annual basis and an approval amendment request where required.*

17. GCE A level Digital Technology specifications must ascribe 20% weighting to Unit 1 – Innovation in Digital Technology (and 50% at AS level).

18. GCE A level Digital Technology specifications must ascribe 20% weighting to Unit 2 – Creative Digital Practices (and 50% at AS level).

19. GCE A level Digital Technology specifications must ascribe 30% weighting to Unit 3 – Connected Systems.

20. GCE A level Digital Technology specifications must ascribe 30% weighting to Unit 4 – Digital Solutions.