Rewarding Learning

Summer 2021
Alternative Arrangements: AS and A level
Digital Technology Subject Guidance

Version 1.0

Introduction

On 6 January 2021, the Minister of Education, Peter Weir MLA, cancelled all CCEA GCSE, AS and A2 examinations scheduled for January, February, May and June 2021. Instead, the approach to awarding grades in Summer 2021 will be based on teacher professional judgements, with moderation. CCEA has published *GCSE, AS and A Level Awarding Summer 2021 Alternative Arrangements – Process for Heads of Centre* to support teachers and school leaders in determining the appropriate Centre Determined Grades for each student.

In 2021, centres are asked to use a range of evidence to arrive at a professional and academic judgement of the standard at which each student is performing in the context of the specification for which they are entered and from this provide a grade to CCEA. This is different from 2020, when centres were asked to supply a centre assessment grade based on their judgement of the grade a student would likely have achieved if they had been able to complete examinations. It will require centres and CCEA to develop and use different processes from those used last year.

This document follows on from CCEA's *GCSE, AS and A Level Awarding Summer 2021 Alternative Arrangements – Process for Heads of Centre* and aims to provide further guidance to support teachers and Heads of Department in determining the appropriate Centre Determined Grade for each student entered for GCE AS or A level Digital Technology.

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1. Overview

Each Centre Determined Grade is a judgement of the final grade for a qualification. It must be based on a holistic review of a student's performance as indicated by assessment evidence, gathered and retained at centre level. In the interests of fairness within and across centres, each Centre Determined Grade must be a realistic, evidence-based judgement of the standard at which a student is performing, i.e. their demonstrated knowledge, understanding and skills in the content of the specification they have covered. This means students **do not** need to have completed a specified amount of content, or demonstrate skills, knowledge and understanding across every area of the specification, as they would normally. In this way, disruption to teaching and learning can be taken into account.

We must also acknowledge the decision taken in December 2020 by the Education Minister in respect of reducing the assessment burden in GCE AS and A level qualifications. The details in the table below will still be applicable in forming a Centre Determined Grade in Summer 2021. For example, teachers can consider evidence for either AS Units 1 and 2 or both units.

Subject	Current Arrangements	Unit For Omission	Specification Adaptations
GCE AS Digital Technology	**AS 1:** External assessment (50% of AS) **AS 2:** External assessment (50% of AS)	**AS** Students could choose to sit Unit 1 (20%) **or** Unit 2 (20%)	N/A
GCE A Level Digital Technology	**A2 1:** External assessment (40% of A Level) **A2 2:** Internal assessment (20% of A Level)	**A2** Students could choose to sit Unit 1 (40%) **or** Unit 2 (20%)	N/A

2. Preliminary Considerations

In arriving at a Centre Determined Grade for a student, it is not necessary to assess every aspect of the specification exhaustively. A selection of key tasks or assessments carried out under appropriate conditions and with a suitable level of demand, which allows you to authenticate the work as the student's own, will give a good indication of the standard at which the student is performing in the qualification.

To make accurate judgements, you must have a clear understanding of:

- the range of skills, knowledge and understanding covered by the specification;
- the assessment requirements and the structure of the specification;
- the grade descriptions at key grades (see Section 5 and Appendix 1 and 2 in this document);

- the level of demand of the qualification assessments; and
- the weighting of each component/unit and the type of assessment.

For GCE Digital Technology, information on these aspects can be found in the specification and further illustrated in the specimen assessment materials, past papers[1] and coursework assessment tasks which are available on the CCEA website at **www.ccea.org.uk**

A piece of evidence has high validity and reliability if a student who performs well in the task would reasonably be expected to perform equally well in the qualification as a whole. Some considerations that may impact on evidence are noted below.

- **Specification Coverage**
  A piece of evidence that covers a greater breadth of the specification content, knowledge, understanding and skills from a unit (or units) with a higher weighting may give a better indication of a student's standard of performance than a piece with lesser breadth or with a lower weighting. Evidence does not need to cover the entire specification content.

- **Similarity to Actual Qualification Assessments**
  Evidence that is similar to a CCEA assessment for the qualification will be more useful in determining a student's grade than evidence that is considerably different from the qualification assessment in terms of question structure, content and/or assessment arrangements.

- **Controls**
  If evidence is generated under less controlled conditions than a qualification assessment, its value may be less than a piece generated under conditions that are similar. Centres should keep a record of the conditions under which an assessment was completed, i.e. high, medium or limited levels of control – see **Appendix 3** for definitions.

  However, CCEA understands the difficult public health context in which schools have been working since March 2020, which has included two extended periods of remote learning. Schools may, therefore, need to utilise evidence generated within more limited levels of control, where they can authenticate this as the student's own.

- **Level of Demand**
  The evidence you gather must be set at an appropriate level of demand for it to be a good indicator of a student's standard of performance.

- **When Evidence Is Generated**
  It should be borne in mind that a student's knowledge, understanding and skills may develop over the period of a course of study; you should consider when any piece of evidence was generated and ensure, if possible, that evidence generated recently is taken into account.

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[1] Past papers and mark schemes will be available for all CCEA GCSE, AS and A level qualifications subject to copyright clearance.

3. Evidence to Inform Centre Determined Grades

This section provides guidance on the information that centres should use in confirming Centre Determined Grades.

You should consider all the key evidence you have for each student and reflect on how much it tells you about the student's standard of performance, as measured against the requirements of the relevant specification. For example, this could be, but is not limited to:

- the consistency of a student's practical or performance evidence;
- their depth or breadth of knowledge and understanding in relation to questions on key topics;
- their degree of analytical or evaluative skills demonstrated on key topics; and/or
- quality of student responses to discriminating questions or tasks.

Centres should be clear in their Centre Determined Grades policy what types of evidence will be used in determining the grade. Centres should also be clear with students the evidence that will be used to determine their grades. Where possible, centres should aim to use consistent sources of evidence for a qualification cohort. Some examples of evidence suitable for GCE AS and A level Digital Technology you may choose to use are included in the following table:

Evidence
Performance in the internally assessed unit, A2 2: Application Development (Case Study) – This can be even if this has not been fully completed.
CCEA assessment resources for Unit AS 1, Unit AS 2 and Unit A2 1– When taken under high control conditions, where the public health situation allows, these assessments will be a good indicator of the standard of student performance as they are fully aligned to specification content and the level of demand of past papers. See Section 4 for more details.
Performance in any mock examinations taken – These are likely to be a good indicator of performance, particularly if they are taken under high control conditions and assess the skills, knowledge and understanding required by the CCEA specification or are similar to CCEA question papers.
Performance in CCEA past paper questions and mark schemes – These assessments are in the public domain and can be readily accessed by students. Therefore, in their entirety, they do not form strong evidence. However, elements of these can be incorporated into mock exams or class tests. You may wish to access grade boundaries and/or Chief Examiner's reports which relate to these papers, available at www.ccea.org.uk. If the examinations in the qualifications you deliver are marked online, you can also avail of the data held in the CCEA Analytics application. Further information can be obtained by contacting CCEA at CCEA.Analytics@ccea.org.uk
Performance in class tests – If class tests only assess specific content, you should use a series of marked class tests. A series of such assessments, done under high control conditions and sampling the key aspects of the specification, should provide good evidence of student performance. Many class tests will be recorded as a mark or percentage, and centres should ensure there is a consistent approach in mapping these to a grade.
Records of each student's performance throughout their study – This includes, for example, progress review/tracking data, classwork or bookwork.
Performance in any class assessments taken throughout their study of the GCE Digital Technology specification – This may consist of a variety of evidence types, produced under different conditions. Evidence of this kind is unlikely to form a strong evidence base on its own, but it may supplement other evidence types.
For resitting students, prioritise evidence generated during the 2020/21 academic year.

Assessment Objectives

Assessment objectives are the skills that are normally assessed through the completion of examinations or internally assessed tasks. They are the foundations on which a specification is developed, and a weighting is applied to each individual assessment objective to show the weighting of assessment associated with it. They may also prove to be a useful indicator of the level of demand of a task or assessment. As such, you should consider the assessment objectives that will be assessed when selecting evidence to form a holistic judgement of a student's performance. This information will be recorded in the Departmental Assessment Evidence Grid which is set out in Appendix 6 of CCEA's *GCSE, AS and A Level Awarding Summer 2021 Alternative Arrangements – Process for Heads of Centre.*

The assessment objectives for GCE Digital Technology are:

AO1	demonstrate knowledge and understanding of the concepts, characteristics, components and functions of digital technology
AO2	apply knowledge and understanding of digital technology to investigate and analyse problems and propose solutions
AO3	design, develop and evaluate digital technology solutions to solve problems, making reasoned judgements and presenting conclusions

Further information on assessment objectives, including weightings associated with individual units, can be found in Section 4: Scheme of Assessment in the subject specification.

When considered alongside the assessment objectives set out above, the following sources and/or types of evidence may be of greatest value in supporting a holistic review of a student's attainment.

Assessment Objective 1
- Work or responses that require the candidate to recall, select and communicate their knowledge and understanding of the concepts, characteristics, components and functions of digital technology
- Evidenced in shorter questions in the CCEA assessment resources or mock examinations, past paper questions or class tests in units AS 1, AS 2 and A2 1.
- Also evidenced in the Analysis section of the A2 2 coursework.

Assessment Objective 2
- Work or responses that require the candidate to apply skills, knowledge and understanding of digital technology to investigate and analyse problems and propose solutions
- Evidenced in longer response questions in the CCEA assessment resources or mock examinations, past paper questions or class tests in units AS 1, AS 2 and A2 1. These questions will involve interpretation or application of knowledge.
- Also evidenced in the Design section of the A2 2 coursework.

Assessment Objective 3
- Work or responses that require the candidate to analyse and evaluate digital technology solutions to solve problems, make reasoned judgements and present conclusions.
- Evidenced in the Evaluation section of the A2 2 coursework along with the development of the solution itself.
- Also evidenced in extended writing questions in the CCEA assessment resource or mock examinations, past paper questions or class tests where candidates are asked to propose solutions and evaluate outcomes.

Please note that where a unit omission has impacted on an assessment objective, it is *not necessary* to consider evidence for this objective; however, where reliable evidence exists, centres may still wish to consider it in forming a holistic judgement.

Using AS Evidence at A Level

For A level, AS evidence may be considered alongside A2 evidence; however, the differences between AS and A2 should be borne in mind. For example, the AS qualification is weighted at 40% of the overall A level and has different grade descriptions. There is also no A* grade at AS. If AS evidence is used, it must be assessed against the grade descriptions at A2 (see Appendix 2 for more details). If you do decide to use AS evidence to support judgements at A2, this should be reflected in the Centre Determined Grades policy for your centre and in the Candidate Assessment Record, and it should be included in evidence submitted to CCEA for sampling in the CCEA review stage.

4. Support

A range of subject-specific support is available on the CCEA website and can assist teachers in arriving at a fair and consistent judgement for students.

CCEA 2021 Assessment Resources

In 2020, many students seeking a GCSE or GCE qualification grade had been awarded notional unit grades or uniform mark scores in previous examination series, to use as evidence in determining centre assessment grades; however, this is not the case in 2021. In the absence of this information, CCEA will supply assessment resources to your centre. These will be quality assured question papers and mark schemes for **all** units that normally have examinations. They will contain new questions and tasks not previously released to centres and must therefore be stored securely. These materials are not to be seen as high stakes assessments but rather viewed as materials which could form part of the evidence used to inform Centre Determined Grades. The CCEA assessment resources are optional. If a centre chooses to use an assessment resource, we would encourage them to be used under high control conditions, where it is safe to do so, to ensure they have the greatest value.

We appreciate that decisions were taken in December 2020 in respect of unit omissions in AS and A level qualifications. We also acknowledge disruption to teaching and learning may mean that even in the context of these omissions, certain content may not have been covered. In such cases, the assessment resources may be adapted

accordingly. In this way, it can be taken into account that some students have suffered more disruption to their learning than others. For example:

A centre decided to omit Unit 1 in line with the Education Minister's announcement in December 2020. Therefore, Centre Determined Grades may be based on evidence for Unit 2 only.

- *Student A has missed a significant amount of learning due to COVID self-isolation and disruptions and has not covered all of the content for Unit 2.*
- *Student A's Centre Determined Grade should be based on assessment of only the content he has covered.*

Assessments adapted/Evidence gathered and reviewed based on AS Unit 2 Digital Technology Content	
All Students	**Student A**
- Data representation - Bits and bytes - Binary and decimal - Data and information - Data, information and knowledge - Data validation and verification - Hardware and software - Architecture - The user interface - Data compression - System software - Application software - Processing systems - Web technology and multimedia - Web applications - Website development	- Data and information - Data, information and knowledge - Data validation and verification - Hardware and software - The user interface - Data compression - System software - Application software - Processing systems - Web technology and multimedia - Web applications

CCEA will provide mark schemes to centres. To support a standardised approach in the use of the assessment resources, we will provide guidance to accompany the mark scheme.

Summer 2021 Support Webinar

We will produce subject-specific support webinars for teachers to accompany this guidance document. These will include an overview of arriving at a Centre Determined Grade and additional guidance in using the CCEA assessment resources and existing support materials. Subject-specific webinars will be uploaded to the CCEA website from 26 March 2021.

Specimen Assessment Materials and Past Papers

Specimen assessment materials and past papers are available in the Support section of the qualification web page and are provided to give centres guidance on the structure and character of CCEA examination papers and assessments. Please note that if a past paper or mark scheme does not appear in this section, it is for copyright reasons.

You may also wish to create a question paper that is of a similar standard to a CCEA GCE question paper. In doing so, you should refer to the specimen question paper and mark schemes, and the past papers and mark schemes, available on the CCEA qualification web page. These illustrate the standard, structure and requirements of the question paper.

You can generate the most valid evidence by using assessments that replicate, as far as possible, the standard, duration, format and security of CCEA question papers.

Exemplification of Examination Performance (EEP)

EEP booklets are available in the Support section of the qualification web page and include exam questions from the Summer 2017 and 2018 papers, exemplar answers by students and a senior examiner commentary on the answers.

Agreement Trial Materials

The agreement trial for Summer 2021 is available at https://training.ccea.org.uk/course/view.php?id=131. Please note these agreement trials were produced before the cancellation of examinations for 2021. However, they will still be useful in providing guidance on the requirements of internally assessed units and the CCEA standard to be applied in marking them.

Chief Examiner/Principal Moderator Reports

The reports for 2017–2019 Summer series are available in the Reports section of the qualification web page and outline the performance of students in all aspects of this qualification.

CCEA Grade Boundaries

Raw to uniform mark boundaries for past Summer series are available in the Support section of the qualification web page and may provide a reference point to support Centre Determined Grades.

CCEA Analytics

You can also avail of the data held in the CCEA Analytics application. Further information can be obtained by contacting CCEA at CCEA.Analytics@ccea.org.uk

5. Making Decisions about Centre Determined Grades

Before deciding Centre Determined Grades you should agree as a department the evidence you will review (see Section 3 for some examples). Once the decision has been made, this should be set out in your centre's Centre Determined Grades policy and be included in the Departmental Assessment Evidence Grid, referenced in Section 3, that will form part of the evidence base.

When making decisions, take into consideration the amount of specification coverage and if this applies to all students. Adapt as necessary for individual students the evidence you will review, to account for those students who may have encountered more significant disruption. Evidence does not have to be in the same format for every

student, but teachers should be satisfied that the evidence is reliable to make an informed holistic judgement of that student's attainment.

Internal Standardisation

In subjects where there is more than one teacher and/or class in the department, it is a requirement to carry out internal standardisation. The purpose of internal standardisation is to provide teachers with confidence in the Centre Determined Grades they have assigned, to ensure fairness and objectivity of decisions, and to ensure consistency in the application of assessment criteria and standards.

Where more than one teacher is involved in marking the assessment, the application of the mark scheme must be agreed before marking begins.

When marking is complete, internal standardisation must be conducted to ensure all markers have applied the mark scheme consistently and accurately.

Internal standardisation should include cross-marking samples of work across the full range of attainment and include students' work from each class **to ensure a common standard within a department is applied.**

Grade Descriptions

Grade descriptions set out the characteristics of performance at key grades in the grade range for a qualification, in terms of both content covered and the skills developed (assessment objectives) over the course of study. These should be used to form the basis of your decisions on the Centre Determined Grades that will be awarded to your students in Summer 2021.

Grade descriptions are provided at Grades **A** and **E** in the GCE specification for both AS and A2 level, to give a general indication of the standards of achievement likely to have been shown by students awarded these grades. To support teachers in Summer 2021, we are providing an additional grade description at Grade C. Teachers should refer to these descriptions to support their judgements when arriving at their Centre Determined Grades for students**.**

Please note that shortcomings in some aspects of students' performance in assessments may be balanced by better performances in others.

Please see Appendices 1 and 2 for the Grade Descriptions at A, C and E for both AS and A level. These also include the type of assessment objective evidence you may wish to use and the key features associated with each grade.

Practical Application of Grade Descriptions

To select the most appropriate grade for a student, teachers may use the following approach:

1. Familiarise yourself with the grade descriptions for the subject.

2. Consider support materials such as those set out in Section 4 of this document.

3. Before you arrive at a holistic grade for a student's performance, review the evidence available. At this stage you may wish to make notes to record the qualities that are being looked for.

4. Consider the positive features of the evidence, based on the key features described in the Appendix.

5. Using the descriptions for Grades A, C and E, based on the principle of 'best fit', select the grade you believe comes closest to encapsulating the overall achievement of the student as demonstrated by the evidence. Using this grade as a benchmark, work **either up or down** using the table below to find the final grade.

   For example:

   a) *if you are of the view that the candidate's evidence meets the description for grade C, consider this first; if the supporting evidence is strong, you may then wish to go up to the grade above and decide if the evidence meets this, and so on, until you have a best fit between the grade description and the student's work; or*

   b) *if you are of the view that the candidate's evidence <u>does not</u> meet the description for grade C, then go down to the grade below and decide if it meets this, and so on, until you have a best fit between the grade description and the student's work.*

The table below summarises this approach:

Grade	Description/Advice
A* *(A2 only)*	Candidates at grade A* clearly demonstrate all of the features associated with performance at 'A' but in many areas elements of the evidence presented are exceptional, i.e. beyond that which would reasonably be expected of a candidate working at grade 'A'.
A	See Grade A Description.
B	Candidates at grade 'B' may demonstrate some elements of grade 'A' performance in the evidence presented but, because of limitations in other aspects of their work, not to the extent that an assessor could confidently award a grade 'A'.
C	See Grade C Description.
D	Candidates at grade 'D' may demonstrate some elements of grade 'C' performance in the evidence presented but, because of limitations in other aspects of their work, not to the extent that an assessor could confidently award a grade 'C'.
E	See Grade E Description.

6. Further Advice and Information

Summer 2021 presents us with significant challenges, particularly teachers and students, and we hope the information set out in this document supports you through the process of awarding Centre Determined Grades this year. The information in this document will be supplemented with a webinar, which amongst other things will provide additional guidance on how to apply grade descriptions to the process of arriving at Centre Determined Grades for each of your students.

If in the interim you require further information, please contact:

CCEA Helpline	Email: helpline@ccea.org.uk Telephone: **028 9026 1220**. The helpline is operational each day from 9am to 5pm, Monday to Friday, for centres with queries in relation to Summer 2021. All other queries should be directed to centresupport@ccea.org.uk
CCEA Entries	entriesandresults@ccea.org.uk
Subject Officer	Andrew Douglas adouglas@ccea.org.uk
Specification Support Officer	Nuala Tierney ntierney@ccea.org.uk

Appendix 1

AS Grade Descriptions and Key Features – Digital Technology

Assessment Objective	AO1		
	Candidates must demonstrate knowledge and understanding of the concepts, characteristics, components and functions of digital technology		
	A	**C**	**E**
Grade Descriptions	For AO1, candidates characteristically: • demonstrate thorough knowledge and understanding of the concepts and key features of the systems development process; • demonstrate thorough knowledge and understanding of a range of alternative approaches to systems development; • demonstrate thorough knowledge and understanding of the characteristics of data and information and key considerations when assessing its quality; and • demonstrate thorough knowledge and understanding of key components and characteristics of hardware, software and web technology.	For AO1, candidates characteristically: • demonstrate good knowledge and understanding of the concepts and key features of the systems development process; • demonstrate good knowledge and understanding of a range of alternative approaches to systems development; • demonstrate good knowledge and understanding of the characteristics of data and information and key considerations when assessing its quality; and • demonstrate good knowledge and understanding of key components and characteristics of hardware, software and web technology.	For AO1, candidates characteristically: • demonstrate basic knowledge and understanding of the concepts and key features of the systems development process; • demonstrate basic knowledge and understanding of a range of alternative approaches to systems development; • demonstrate basic knowledge and understanding of the characteristics of data and information, and a limited understanding of considerations when assessing its quality; and • demonstrate basic knowledge and understanding of key components and characteristics of hardware, software and web technology.
AO1 Evidence • CCEA Assessment Resource • Mock examinations • CCEA past paper questions • Class tests • Classwork • Bookwork	**Grade A Key Features** • The candidate can **thoroughly** recall, select and communicate their knowledge and understanding of the concepts, characteristics, components and functions of digital technology. • The candidate will use an **extensive** range of accurate and appropriate technical language.	**Grade C Key Features** • The candidate's ability to recall, select and communicate their knowledge and understanding of the concepts, characteristics, components and functions of digital technology will be **good.** • The candidate will use a **reasonable** range of accurate and appropriate technical language.	**Grade E Key Features** • The candidate's ability to recall, select and communicate their knowledge and understanding of the concepts, characteristics, components and functions of digital technology will be **limited.** • The candidate will use a **basic** range of accurate and appropriate technical language.

Assessment Objective	AO2		
	Candidates must apply knowledge and understanding of digital technology to investigate and analyse problems and propose solutions		
	A	**C**	**E**
Grade Descriptions	For AO2, candidates characteristically: • effectively apply knowledge and understanding of the concepts and key features of systems development to investigate complex problems; • effectively apply a range of approaches to analyse the problem and propose solutions; and • articulate solutions to problems using technical language appropriately and accurately.	For AO2, candidates characteristically: • apply good knowledge and understanding of the concepts and key features of systems development to investigate complex problems; • apply a range of approaches to analyse the problem and propose solutions; and • articulate solutions to problems using relevant technical language.	For AO2, candidates characteristically: • apply limited knowledge and understanding of the concepts and key features of systems development to investigate complex problems; • apply a range of approaches in a limited way to analyse the problem and propose solutions; and • suggest solutions to problems using basic technical language.
AO2 Evidence	**Grade A Key Features**	**Grade C Key Features**	**Grade E Key Features**
• CCEA Assessment Resource • Mock examinations • CCEA past paper questions • Class tests • Classwork • Bookwork	• The candidate can effectively apply skills, knowledge and understanding of digital technology to investigate and analyse problems and propose solutions • The candidate will use an **extensive** range of accurate, appropriate technical language and concepts to solve complex problems.	• The candidate can apply good skills, knowledge and understanding of digital technology to investigate and analyse problems and propose solutions • The candidate will use a **reasonable** range of accurate, appropriate technical language and concepts to solve complex problems.	• The candidate can apply limited skills, knowledge and understanding of digital technology to investigate and analyse problems and propose solutions • The candidate will use a **basic** range of accurate, appropriate technical language and concepts to solve complex problems.

Assessment Objective	AO3 Candidates must design, develop and evaluate digital technology solutions to solve problems, making reasoned judgements and presenting conclusions		
	A	**C**	**E**
Grade Descriptions	For AO3, candidates characteristically: • appreciate the value of adopting a formal approach to systems development; • evaluate the key concepts associated with the systems development process; and • comprehensively articulate and evaluate solutions to problems and justify the approach taken.	For AO3, candidates characteristically: • demonstrate a good understanding of the value of adopting a formal approach to systems development; • provide adequate discussion of the key concepts associated with the systems development process; and • provide a good solution to problems and an adequate justification of the approach taken.	For AO3, candidates characteristically: • demonstrate a basic understanding of the value of adopting a formal approach to systems development; • provide limited discussion of the key concepts associated with the systems development process; and • provide a basic solution to problems and a limited justification of the approach taken.
AO3 Evidence	**Grade A Key Features**	**Grade C Key Features**	**Grade E Key Features**
• CCEA Assessment Resource • Mock examinations • CCEA past paper questions • Class tests • Classwork • Bookwork	• The candidate can comprehensively analyse and evaluate digital technology solutions to solve problems, making reasoned judgements and present conclusions • The candidate will use an **extensive** range of accurate, appropriate technical language and concepts when **critically** analysing and evaluating solutions to problems.	• The candidate can adequately analyse and evaluate digital technology solutions to solve problems, making adequate reasoned judgements and present conclusions • The candidate will use a **reasonable** range of accurate, appropriate technical language and concepts when providing **good** analysis and evaluation for solutions.	• The candidate can provide limited analysis and evaluation to digital technology solutions to solve problems, making limited judgements and conclusions • The candidate will use a **basic** range of accurate, appropriate technical language and concepts when providing **limited** analysis and evaluation for solutions.

Appendix 2

A2 Grade Descriptions and Key Features – Digital Technology

Assessment Objective	AO1		
	Candidates must demonstrate knowledge and understanding of the concepts, characteristics, components and functions of digital technology		
	A	**C**	**E**
Grade Descriptions	For AO1, candidates characteristically: • demonstrate advanced knowledge and understanding of the concepts, components, characteristics and functions of computer networks and database systems; • demonstrate an in-depth knowledge and understanding of applications of digital technology in a variety of contexts; and • demonstrate a detailed understanding of individual, social and legal considerations that affect the use of digital technology.	For AO1, candidates characteristically: • demonstrate good knowledge and understanding of the concepts, components, characteristics and functions of computer networks and database systems; • demonstrate a good knowledge and understanding of applications of digital technology in a variety of contexts; and • demonstrate a good understanding of individual, social and legal considerations that affect the use of digital technology.	For AO1, candidates characteristically: • demonstrate a limited knowledge and understanding of the concepts, components, characteristics and functions of computer networks and database systems; • demonstrate a basic knowledge and understanding of applications of digital technology in a variety of contexts; and • demonstrate a limited understanding of individual, social and legal considerations that affect the use of digital technology.
AO1 Evidence	**Grade A Key Features**	**Grade C Key Features**	**Grade E Key Features**
Coursework: Analysis	• Comprehensive and coherent analysis on the specified problem • Highly detailed project plan, demonstrating effective use of project management tools • Full consideration to both internal and external constraints on the solution • Detailed and justified user requirements categorised as essential and non-essential requirements • High quality and fully explained data flow diagrams at both level 0 and level 1	• Detailed analysis on the specified problem. • Detailed project plan, demonstrating appropriate use of project management tools • Consideration to both internal and external constraints on the solution • Detailed user requirements categorised them into essential and non-essential requirements	• Brief analysis on the specified problem • Brief project plan, demonstrating use of at least one project management tools • Consideration to some constraints on the solution • List of user requirements in terms of inputs, process and outputs • Data flow diagrams at level 0 or at level 1 to illustrate the flow of information • Brief overview of hardware and software requirements

	• Detailed hardware and software requirements • Excellent use of technical vocabulary and SPG.	• Data flow diagrams at both level 0 and level 1 to illustrate the flow of information • List of hardware and software requirements • Good use of technical vocabulary and SPG.	• Satisfactory use of technical vocabulary and SPG.
• CCEA Assessment Resource • Mock examinations • CCEA past paper questions • Class tests • Classwork • Bookwork	• The candidate can **thoroughly** recall, select and communicate their knowledge and understanding of the concepts, characteristics, components and functions of digital technology. • The candidate will use an **extensive** range of accurate and appropriate technical language.	• The candidate's ability to recall, select and communicate their knowledge and understanding of the concepts, characteristics, components and functions of digital technology will be **good**. • The candidate will use a **reasonable** range of accurate and appropriate technical language.	• The candidate's ability to recall, select and communicate their knowledge and understanding of the concepts, characteristics, components and functions of digital technology will be **limited**. • The candidate will use a **basic** range of accurate and appropriate technical language.

Assessment Objective	AO2 Candidates must apply knowledge and understanding of digital technology to investigate and analyse problems and propose solutions		
	A	**C**	**E**
Grade Descriptions	For AO2, candidates characteristically: • apply advanced knowledge and understanding of the systems development process and analytical approaches to problem solving; • carry out thorough investigation and analysis of IT-related problems; and • provide detailed documentation of user requirements and propose solutions using accurate and appropriate technical language.	For AO2, candidates characteristically: • apply good knowledge and understanding of the systems development process and analytical approaches to problem solving; • carry out suitable investigation and analysis of IT-related problems; and • provide good documentation of user requirements and propose solutions using relevant technical language.	For AO2, candidates characteristically: • apply basic knowledge and understanding of the systems development process and analytical approaches to problem solving; • carry out limited investigation and analysis of IT-related problems; and • provide basic documentation of user requirements and propose solutions using technical language.
AO2 Evidence	**Grade A Key Features**	**Grade C Key Features**	**Grade E Key Features**
Coursework: Design	• Highly detailed structured diagram/storyboard of the solution • Documented and accurate database normalisation to 3NF, including appropriate entity relationship (ER) model • Detail designs of structured algorithms • Fully documented data table(s) design • Complex query design (Inc. SQL) and report design • Detailed design of user interface • Comprehensive and well-structured test plan including a wide range of test data and expected results	• Suitable structured diagram/ of the solution. • Accurate normalisation to 3NF along with an appropriate ER model • Design of algorithms • Relevant data table(s) design • Relevant use of query design and report design • Appropriate design of user interface • Well-structured test plan for the design, including a range of test data and expected results	• Incomplete structured diagram/storyboard of part of the solution • Accurate Database normalisation to at least 2NF, along with an outline ER model • Simple query and report design • A brief test plan for the design with reference to some of the user requirements
• CCEA Assessment Resource	• The candidate can effectively apply skills, knowledge and understanding of digital technology to investigate and	• The candidate can apply good skills, knowledge and understanding of digital technology to investigate and analyse problems and propose solutions	• The candidate will use a **basic** range of accurate, appropriate technical language and concepts to solve complex problems.

• Mock examinations • CCEA past paper questions • Class tests • Classwork • Bookwork	analyse problems and propose solutions • The candidate will use an **extensive** range of accurate, appropriate technical language and concepts to solve complex problems.	• The candidate will use a **reasonable** range of accurate, appropriate technical language and concepts to solve complex problems.

	A	**C**	**E**
Assessment Objective	**AO3** Candidates must design, develop and evaluate digital technology solutions to solve problems, making reasoned judgements and presenting conclusions		
Grade Descriptions	For AO3, candidates characteristically: • design comprehensive solutions to solve complex problems; • develop and test solutions to complex problems, analyse and present valid conclusions; and • critically evaluate the solution and make informed judgements about recommendations for improvement.	For AO3, candidates characteristically: • design suitable solutions to solve complex problems; • develop and test solutions to complex problems, analyse and present some valid conclusions; and • provide a good evaluation of the solution and make suitable judgements about recommendations for improvement.	For AO3, candidates characteristically: • design solutions of limited scope to solve a given problem; • develop and test solutions to problems and present basic conclusions; and • provide a limited evaluation of the solution and make some recommendations for improvement.
AO3 Evidence	**Grade A Key Features**	**Grade C Key Features**	**Grade E Key Features**
Coursework : Application and Development	• Comprehensive and effective software solution • High quality evidence of full and effective implementing of the test plan with third party involvement • Fully documented the results of testing, with outputs cross-referenced to the original plan • Detailed strategy for system implementation	• An effective software solution to the specified problem • Good quality evidence of an effective test plan with user involvement • Documented the results of testing • Brief strategy for system implementation	• Incomplete software solution to the specified problem • A brief test plan with limited user involvement • Brief annotation of results of testing • Brief strategy for system implementation
Coursework: Documentation and Evaluation	• Comprehensive evaluation of the solution against the user requirements • Detailed and realistic awareness of limitations and extensions to the solution • Detailed electronic user guide, accessible from the user interface	• Evaluation of the solution against the user requirements • Demonstrated awareness of limitations and set out some extensions to the solution • Electronic user guide, accessible from the user interface	• Evaluation of the solution against some of the user requirements • Demonstrated awareness of some limitations or some extensions to the solution • Brief Electronic user guide covering some of the features

	highly detailed troubleshooting and FAQs section	Detailed troubleshooting and FAQs section	Brief detail on Troubleshooting and FAQs
• CCEA Assessment Resource • Mock examinations • CCEA past paper questions • Class tests • Classwork • Bookwork	• The candidate can comprehensively analyse and evaluate digital technology solutions to solve problems, making reasoned judgements and present conclusions • The candidate will use an **extensive** range of accurate, appropriate technical language and concepts when **critically** analysing and evaluating solutions to problems.	• The candidate can adequately analyse and evaluate digital technology solutions to solve problems, making adequate reasoned judgements and present conclusions • The candidate will use a **reasonable** range of accurate, appropriate technical language and concepts when providing **good** analysis and evaluation for solutions.	• The candidate can provide limited analysis and evaluation to digital technology solutions to solve problems, making limited judgements and conclusions • The candidate will use a **basic** range of accurate, appropriate technical language and concepts when providing **limited** analysis and evaluation for solutions.

Appendix 3

Definitions of Levels of Control

Levels of control for the conditions under which students have completed assessments that are internally marked in school are defined as High, Medium and Limited at GCSE. These definitions also align with the conditions of control for GCE and other CCEA qualifications. In recording the levels of control for evidence to be used in Centre Determined Grades for Summer 2021, the following should be used.

High	The use of resources is tightly prescribed. The centre must ensure that: • all students are within direct sight of the teacher/supervisor throughout the session(s); • display materials which might provide assistance are removed or covered; • there is no access to email, the internet or mobile phones; • students complete their work independently; • interaction with other students does not occur; and • no assistance of any description is provided.
Medium	Students do not need to be directly supervised at all times. The use of resources, including the internet, is not tightly prescribed. Centres should ensure that: • there is sufficient evidence to ensure that the individual work can be authenticated; and • the work an individual student submits for assessment is their own. If work has been completed in groups, teachers must ensure that they can determine and assess the individual student's contribution to the work. If work has been completed remotely, it may be useful to ask questions about what they did and how/why they did it, to help authenticate the work.
Limited	Work is completed without any direct supervision and would not normally contribute to assessable outcomes.

Rewarding Learning