Pearson Edexcel

# INTERNATIONAL GCSE

## Information and Communication Technology (ICT) (9-1)

SPECIFICATION

Pearson Edexcel International GCSE in Information and Communication Technology (ICT) (4IT1)

For first teaching September 2017
First examination June 2019
Issue 2

**Edexcel, BTEC and LCCI qualifications**

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*Acknowledgements*

This specification has been produced by Pearson on the basis of consultation with teachers, examiners, consultants and other interested parties. Pearson would like to thank all those who contributed their time and expertise to the specification's development.

*References to third party material made in this specification are made in good faith. Pearson does not endorse, approve or accept responsibility for the content of materials, which may be subject to change, or any opinions expressed therein. (Material may include textbooks, journals, magazines and other publications and websites.)*

*All information in this specification is correct at time of going to publication.*

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# Summary of Pearson Edexcel International GCSE in Information and Communication Technology (4IT1) specification Issue 2 changes

| Summary of changes made between previous issue and this current issue | Page number |
|---|---|
| For clarity, some technical language has been corrected and a number of changes applied throughout the specification. | Throughout |

If you need further information on these changes or what they mean, contact us via our website at: qualifications.pearson.com/en/support/contact-us.html.

# Contents

# 1 About this specification

The Pearson Edexcel International GCSE in Information and Communication Technology (ICT) is part of a suite of International GCSE qualifications offered by Pearson.

This qualification is not accredited or regulated by any UK regulatory body.

This specification includes the following key features.

**Structure**: the Pearson Edexcel International GCSE in Information and Communication Technology (ICT) is a linear qualification. All papers must be taken at the end of the course of study.

**Content**: features a relevant and engaging body of content that has been updated to current standards.

**Assessment**: comprises both written and practical papers, allowing students to demonstrate and apply their knowledge and understanding of ICT.

**Approach**: building a foundation for students wishing to progress to the Pearson Edexcel International Advanced Level Applied ICT, or equivalent qualifications.

## Specification updates

This specification is Issue 2 and is valid for the Edexcel International GCSE examination from 2019. If there are any significant changes to the specification, we will inform centres to let them know. Changes will also be posted on our website.

For more information please visit qualifications.pearson.com

## Using this specification

This specification has been designed to give guidance to teachers and to encourage effective delivery of the qualification. The following information will help you get the most out of the content and guidance.

**Compulsory content**: as a minimum, all the bullet points in the content must be taught. The word 'including' in content specifies the detail of what must be covered.

**Assessments**: use a range of material and are not limited to the examples given. Teachers should deliver the qualification using a good range of examples to support the assessment of the content.

**Depth and breadth of content**: teachers should use the full range of content and all the Assessment Objectives given in *Section 2: Information and Communication Technology (ICT) content.*

## Qualification aims and objectives

The aims and objectives of this qualification are to enable students to:

- explore how digital technology impacts on the lives of individuals, organisations and society
- learn about current and emerging digital technologies and the issues raised by their use in a range of contexts by individuals and organisations
- develop awareness of the risks that are inherent in using ICT and the features of safe, secure and responsible practice
- broaden and enhance their ICT skills and capability
- work with a range of digital tools and techniques to produce effective ICT solutions in a range of contexts
- learn how to reflect critically on their own and others' use of ICT and how to adopt safe, secure and responsible practice.

# Why choose Edexcel qualifications?

## Pearson – the world's largest education company

Edexcel academic qualifications are from Pearson, the UK's largest awarding organisation. With over 3.4 million students studying our academic and vocational qualifications worldwide, we offer internationally recognised qualifications to schools, colleges and employers globally.

Pearson is recognised as the world's largest education company, allowing us to drive innovation and provide comprehensive support for our students to acquire the knowledge and skills they need for progression in study, work and life.

## A heritage you can trust

The background to Pearson becoming the UK's largest awarding organisation began in 1836, when a royal charter gave the University of London its first powers to conduct exams and confer degrees on its students. With over 150 years of international education experience, Edexcel qualifications have firm academic foundations, built on the traditions and rigour associated with Britain's educational system.

## Results you can trust

Pearson's leading online marking technology has been shown to produce exceptionally reliable results, demonstrating that at every stage Edexcel qualifications maintain the highest standards.

## Developed to Pearson's world-class qualifications standards

Pearson's world-class standards mean that all Edexcel qualifications are developed to be rigorous, demanding, inclusive and empowering. We work collaboratively with a panel of educational thought leaders and assessment experts, to ensure that Edexcel qualifications are globally relevant, represent world-class best practice and maintain a consistent standard.

For more information on the World Class Qualification process and principles please go to *Appendix 2: Pearson World Class Qualification Design Principles* or visit our website: uk.pearson.com/world-class-qualifications

# Why choose Edexcel International GCSE in Information and Communication Technology (ICT)?

We've listened to feedback from all parts of the international school and UK independent school subject community, including a large number of teachers. We've made changes that will engage students and give them skills that will support progression to the further study of ICT, Computing and a range of other subjects.

We believe ICT and Computer Science are unique and complementary subjects serving different purposes and meeting different student needs, and therefore we are offering both subjects as International GCSEs. We think that ICT develops important skills in students, such as data handling, which are transferable and useful for a wide range of jobs. In an increasingly digital world, we want to provide students with every opportunity to learn skills that will enable them to thrive.

The content and assessment approach for this qualification has been designed to meet student needs in the following ways:

**Developing confident and competent ICT users –** This qualification provides students with the opportunity of operating confidently in today's digital world. It is a useful, practical qualification which will provide skills needed in further education and work.

**Providing students with relevant and transferable skills** – Students will learn about topics ranging from digital devices and connectivity, safe and responsible practice, and understand the impact of internet on the way that organisations do business. They will be also be encouraged to practice using software applications effectively. A CBI and Pearson report on employability and skills in 2012 said that ' Many employers are also keen to see the government encouraging schools and colleges to strengthen technology skills amongst young people'

(http://www.cbi.org.uk/media/1514978/cbi_education_and_skills_survey_2012.pdf)

A similar report in 2015 said that '..close to half of businesses.. report having IT skills problems in their current workforces.'

(http://news.cbi.org.uk/reports/educationandskillssurvey2015/educationandskillssurvey2015)

**Clear and straightforward question papers** – Our question papers are clear and accessible for all students of all ability ranges and learning styles. Our mark schemes are straightforward, so that the assessment requirements are clear.

**Broad and deep development of students' skills** – The design of the revised International GCSE aims to extend students' knowledge and understanding by broadening and deepening skills, for example students develop the ability to:

- apply knowledge and understanding to produce Information and Communication Technology-based solutions
- develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions
- reflect critically on their own and others' use of Information and Communication Technology and to adopt safe, secure and responsible practice.

Progression to A Level – International GCSEs enable successful progression onto A level and beyond. Through our world class qualification development process we have consulted with teachers as well university professors to validate the appropriateness of this qualification for progression, including its content, opportunities for skills development and assessment structure.

Centres wishing to teach students how computers work or how to program them can use our Pearson Edexcel International GCSE in Computer Science. We offer both ICT and Computer Science, which can be taken in combination, to enable our centres to choose the most appropriate qualification for each student. More information about all of our qualifications can be found on our Edexcel International GCSE pages at: qualifications.pearson.com

# Supporting you in planning and implementing this qualification

### Planning

- Our *Getting Started Guide* gives you an overview of the Pearson Edexcel International GCSE in Information and Communication Technology (ICT) to help you understand the changes to content and assessment, and what these changes mean for you and your students.
- We will give you a course planner and schemes of work.
- Our mapping documents highlight key differences between the new and legacy qualifications.

### Teaching and learning

- Our skills maps highlight opportunities for students to develop skills that are directly and indirectly assessed.
- Print and digital learning and teaching resources – promote 'any time, any place' learning to improve student motivation and encourage new ways of working.

### Preparing for exams

We will also provide a range of resources to help you prepare your students for the assessments, including:

- specimen papers to support formative assessments and mock exams
- examiner commentaries following each examination series.

### ResultsPlus

ResultsPlus provides the most detailed analysis available of your students' exam performance. It can help you to identify the topics and skills where further learning would benefit your students.

### examWizard

A free online resource designed to support students and teachers with exam preparation and assessment.

### Training events

In addition to online training, we host a series of training events each year for teachers to deepen their understanding of our qualifications.

### Get help and support

Our subject advisor service will ensure you receive help and guidance from us. You can sign up to receive emails to keep up to date with qualification updates and product and service news. Sign up by emailing: teachingICT@pearson.com

# Qualification at a glance

# Paper overview

| **Paper 1: Written Paper** | Paper code 4IT1/01* |
|---|---|
| • Externally assessed<br>• Availability: June<br>• First assessment: May/June 2019 | 50% of the total International GCSE |
| **Content summary**<br>Students must study **all** of the following topics:<br>Topic 1: Digital Devices<br>Topic 2: Connectivity<br>Topic 3: Operating Online<br>Topic 4: Online Goods and Services.<br>Students will:<br>• gain knowledge and understanding of Information and Communication Technology<br>• develop skills to apply knowledge and understanding to produce ICT-based solutions<br>• develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions. | |
| **Assessment**<br>• Students are assessed through a 1-hour and 30-minute written examination, set and marked by Pearson.<br>• The examination comprises a mixture of multiple-choice, short- and long-answer questions.<br>• The total number of marks available for the examination paper is 100.<br>• The examination addresses all three Assessment Objectives.** | |

*See *Appendix 1* for a description of this code and all the other codes relevant to this qualification.

**See *page 28* for details of the Assessment Objectives.

| **Paper 2: Practical Paper** | Paper code 4IT1/02* |
|---|---|
| • Externally assessed<br>• Availability: June<br>• First assessment: May/June 2019 | 50% of the total International GCSE |

**Content summary**

Students must study **both** of the following topics:

Topic 5: Applying Information and Communication Technology

Topic 6: Software Skills

Students will:

- gain knowledge and understanding of Information and Communication Technology
- develop skills to apply the knowledge and understanding they acquire in all topics (1–6) to produce ICT-based solutions
- develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions.

**Assessment**

- Students are assessed through a three-hour practical examination, set and marked by Pearson (includes printing time).
- The examination window takes place during one week in May/June.
- The total number of marks available for the examination paper is 100.
- The examination addresses all three Assessment Objectives.**

* See *Appendix 1* for a description of this code and all the other codes relevant to this qualification.

** See *page 28* for details of the Assessment Objectives.

# 2 Information and Communication Technology (ICT) content

# Course structure

- The Pearson Edexcel International GCSE in Information and Communication Technology (ICT) comprises **six** topics assessed through **two** examination papers.
- The Pearson Edexcel International GCSE in Information and Communication Technology (ICT) is a linear qualification. **All** units must be taken in the terminal series at the end of the course of study.

# Topic 1: Digital Devices

Students need to know about the range of digital devices available. Developments in the features and functionality of digital devices are rapid and this impacts on the way that they are used by individuals, organisations and society. Students need to understand the principles of these devices and to be able to select suitable devices and associated hardware and software to use used in particular situations.

| 1 Digital Devices | Students should: |
|---|---|
| **1.1 Types of digital devices**<br>Students need to know about computers and other digital devices. They need to understand how each type of device is used but not the technology behind their operation. | **1.1.1** Be aware that mainframe computers are used for complex processing tasks and microprocessors are embedded in products such as washing machines.<br>**1.1.2** Understand that laptop and desktop computers are types of personal computers. Some laptops are used as desktop replacements.<br>**1.1.3** Know about types of mobile phones; smartphones and specialist phones and how they connect to the network (SIM).<br>**1.1.4** Know about tablet devices.<br>**1.1.5** Be able to describe the purpose and use of other digital devices such as:<br>• cameras and camcorders<br>• games consoles<br>• home entertainment systems<br>• media players.<br>**1.1.6** Know about navigation aids and how they are used.<br>**1.1.7** Understand the terms 'multifunctional' (e.g. mobile phones that include a camera, have limited game playing functionality and GPS) and 'convergence' (e.g. functionality of smartphones and tablet devices becomes more similar) in the context of digital devices. |
| **1.2 Features of digital devices** | **1.2.1** Understand features of digital devices: portability, performance, storage, user interface, connectivity, media support, energy consumption, expansion capability, security features.<br>**1.2.2** Be able to discuss the features of identified digital devices. |

| 1 Digital Devices | Students should: |
|---|---|
| **1.3 Software**<br><br>Students need to know the types of software used in digital devices. They need to be able to identify the differences between system software and application software. They need to know the types of software applications that are available. | **1.3.1** Be able to identify the purpose of systems software and applications software.<br><br>**1.3.2** Know about operating systems and system software tools such as utilities.<br><br>**1.3.3** Know about the role/function of the operating system, including basic knowledge of:<br>• single user and network<br>• memory management<br>• resource management<br>• security<br>• print spooling.<br><br>**1.3.4** Know about software applications (apps), including office-productivity tools, web authoring, image and sound editing, presentation software, control software, project management software.<br><br>**1.3.5** Know about software licensing types (free/open source and proprietary software).<br><br>**1.3.6** Understand that the purpose of communication software is to provide remote access to systems and to exchange files and messages in text, images, audio and/or video formats between different computers or users.<br><br>**1.3.7** Know why software is updated, how it is done and possible risks to data/systems. |
| **1.4 Types of peripheral devices – input and output** | **1.4.1** Know about types of output peripheral such as monitor (screen size, resolution), printer (laser, inkjet, 3D), plotter, data projector, speaker, control device and when they would be used.<br><br>**1.4.2** Know about types of input peripheral such as keyboard, mouse, tracker ball, joystick, graphics tablet, scanner, digital camera, webcam, microphone, touch screen, OMR reader, OCR reader, bar code scanner, biometric scanner, magnetic stripe reader, chip and pin, sensor and when they would be used. |

| 1 | Digital Devices | Students should: |
|---|---|---|
| **1.5** | **Types of peripheral devices – storage** | **1.5.1** Be able to differentiate between storage devices and the media used to store data.<br>**1.5.2** Know the characteristics of hard disk drives (HDD), solid state drives (SSD), optical disk drives.<br>**1.5.3** Know that storage devices can be internal or external.<br>**1.5.4** Know about types of storage media such as hard disks, optical disks (CD, DVD, Blu-ray), flash memory devices, magnetic tape<br>**1.5.5** Know that storage media can be recordable / write once (R) and rewritable (R/W)<br>**1.5.6** Understand the terms describing the capacity of storage such as bit, byte and multiples of these (kibibytes, mebibytes, gibibytes, tebibytes) (using 1KiB = 1024 bytes). |
| **1.6** | **Memory** | **1.6.1** Know that RAM stands for Random Access Memory and that ROM stands for Read Only Memory.<br>**1.6.2** Be able to describe the characteristics of RAM and ROM, the differences between them and the impact on the user of the size of ROM/RAM.<br>**1.6.3** Be able to describe the characteristics and uses of flash memory. |
| **1.7** | **Processors** | **1.7.1** Understand the function of the processing unit (CPU).<br>**1.7.2** Know how the speed of a processor is measured. |
| **1.8** | **ICT systems to meet specified needs** | **1.8.1** Be able to identify digital devices and associated peripheral devices that meets particular needs, including accessibility.<br>**1.8.2** Be able to identify appropriate software that meets specified needs.<br>**1.8.3** Understand that settings of ICT systems can be configured to meet the accessibility needs of individuals.<br>**1.8.4** Be able to justify choices made in identifying and configuring hardware and software. |

# Topic 2: Connectivity

Students need to know and understand the ways in which digital devices exchange data and communicate with each other and with the larger systems supporting online organisations. They should also be aware of the increasing importance of 'access everywhere' developments.

Students' understanding is not expected to be based on the details of the technology but should focus on the selection of the most appropriate digital communications for a particular context and the impact of this on the quality of connection.

| 2 | Connectivity | Students should: |
|---|---|---|
| **2.1** | **Types of digital communications** | **2.1.1** Know the range of ways that digital devices communicate: satellite, broadcast (TV, radio), wired (cable), wireless.<br>**2.1.2** Know that digital devices can communicate device to device and by using networks: local area network (LAN), wide area network (WAN), personal area network (PAN), tethering.<br>**2.1.3** Know the types of wireless communication: Wi-Fi, Bluetooth, GPS, 3G, 4G, infra-red (IR), near-field communication (NFC).<br>**2.1.4** Know the differences between Wi-Fi and Bluetooth and when each is best used. |
| **2.2** | **Factors influencing the choice of digital communication in a network** | **2.2.1** Understand factors influencing the speed and volume of data transfer.<br>**2.2.2** Understand the benefits and drawbacks of wired versus wireless communication in local networks.<br>**2.2.3** Understand the significance of bandwidth and latency, and their impact on the 'user experience'.<br>**2.2.4** Understand the features of broadband, mobile broadband and cellular networks. |

| 2 | Connectivity | Students should: |
|---|---|---|
| **2.3** | **Requirements for connecting to a network, including the internet** | **2.3.1** Know about network operating systems and how devices are identified on a network: device name, internet protocol (IP) and Media Access Control (MAC).<br>**2.3.2** Understand the function of components of wired and wireless systems: cable, wireless access point, router, gateway, booster, server.<br>**2.3.3** Know the role of these for connecting to and using the internet:<br>• web browser<br>• ISP<br>• search engine<br>• filter software. |
| **2.4** | **Benefits of using a LAN/home network** | **2.4.1** Know about peer-to-peer and client-server networks.<br>**2.4.2** Know about the role of servers in a client-server network.<br>**2.4.3** Understand the benefits of using local area network:<br>• shared peripherals<br>• shared data<br>• flexible access<br>• media streaming<br>• communication<br>• shared access to the internet.<br>**2.4.4** Understand the benefits of using a client-server network:<br>• control of user access rights<br>• centralised administration<br>• centralised backup<br>• shared software<br>• shared storage and file access<br>• roaming profiles (hotdesk). |
| **2.5** | **Securing data on a network, including the internet** | **2.5.1** Know about and understand the use of log-ins and passwords, firewalls, WEP/WPA, encryption, VPN, file access rights, transaction logs and backups.<br>**2.5.2** Be able to select suitable methods of securing data for a particular context. |

# Topic 3: Operating Online

Students need to understand the risks to individuals and organisations of operating online. They also need to understand the way in which risks can be managed by both the individual and organisations. They need to be aware of the impact on individuals, organisations and society of the use of digital devices.

| 3 | Operating Online | Students should: |
|---|---|---|
| **3.1** | **Potential risks to data and personal information when information is transmitted and stored digitally** | **3.1.1** Be aware of risks to data and information:<br>• unauthorised access<br>• deliberate damage by malware<br>• accidental deletion<br>• theft of personal data: phishing, pharming.<br>**3.1.2** Know about methods available to secure data and personal information online:<br>• firewalls<br>• encryption<br>• passwords, PIN, biometrics, CAPTCHA tests, security questions<br>• anti-malware, anti-virus, anti-adware, anti-spyware<br>• access rights, file permissions<br>• secure websites<br>• not opening email attachments or following web links<br>• backup procedures.<br>**3.1.3** Know about online payment systems, third party payment systems, bank cards, contactless payment using NFC and how payments are protected. |

| 3 | Operating Online | Students should: |
|---|---|---|
| **3.2** | **Impact of the internet on individuals** | **3.2.1** Know about the impact on employment, such as new job opportunities as the nature of a job changes, new skills requirements, potential job loss.<br>**3.2.2** Understand the impact on working practices, including collaborative working and flexible or mobile working.<br>**3.2.3** Know about better access to information and services, new ways of learning, and the wider range of entertainment and leisure opportunities.<br>**3.2.4** Know about social impacts such as:<br>• reduced social interaction<br>• increases in cyberbullying<br>• reduced physical activity.<br>**3.2.5** Understand how to stay safe online. |
| **3.3** | **Online working from home** | **3.3.1** Understand how the availability of digital devices and the internet enables individuals to work from home.<br>**3.3.2** Know the benefits and drawbacks of working from home for individuals and organisations. |
| **3.4** | **Impact of the internet on organisations** | **3.4.1** Understand positive impacts: improved communication, access to global markets and workforce, changes in the way information is managed and used.<br>**3.4.2** Understand negative impacts: security issues, risk of hacking, greater competition. |
| **3.5** | **Impact of the internet on society** | **3.5.1** Understand the impact on society of the ability of individuals to have less-restricted access to networks at any time.<br>**3.5.2** Know about the gap between information rich and information poor.<br>**3.5.3** Understand the causes and implications of unequal access to ICT (locally, globally).<br>**3.5.4** Know about the impact on individuals and communities of limited or no access to digital technologies.<br>**3.5.5** Understand the impact of changes in ways of socialising. |

| 3 | Operating Online | Students should: |
|---|---|---|
| **3.6** | **Types of online communities** | **3.6.1** Understand key features of online communities:<br>• social networking<br>• online gaming<br>• online work spaces<br>• virtual learning environments (VLE)<br>• user-generated reference sites: wikis, websites, forums<br>• user-generated content: video sharing sites, blogs, websites<br>• social bookmarking. |
| **3.7** | **Use of online communities** | **3.7.1** Know the functions and target audience of different forms of online communities.<br>**3.7.2** Understand the ways in which online communities are used to communicate and collaborate on a global scale.<br>**3.7.3** Be aware of the purpose of responsible use and acceptable behaviour policies.<br>**3.7.4** Understand how to stay safe online: cyber bullying, anonymity of others (misrepresentation), disclosure of personal information/location. |
| **3.8** | **Implications of the use of digital technologies** | **3.8.1** Know about data protection, the legal requirements of those storing data about individuals and an individual's legal rights.<br>**3.8.2** Understand how copyright legislation affects the use of digital information and media.<br>**3.8.3** Understand that individuals' movements and communications can be monitored.<br>**3.8.4** Be aware of safe and responsible practice when using ICT.<br>**3.8.5** Understand sustainability issues and ways of mitigating the environmental impact of digital devices.<br>**3.8.6** Understand the health and safety issues that arise from individuals' use of ICT and know how they can be minimised. |

| 3 | Operating Online | Students should: |
|---|---|---|
| **3.9** | **Availability of information online and the use of online information** | **3.9.1** Understand that information can be gathered from a wide range of sources.<br>**3.9.2** Be able to select and use appropriate sources of information.<br>**3.9.3** Know how to use search engines effectively.<br>**3.9.4** Be able to evaluate the fitness for purpose of available information in terms of accuracy, age, relevance, reliability, bias.<br>**3.9.5** Understand issues related to copyright: permission to use, acknowledgement of source.<br>**3.9.6** Understand issues related to plagiarism: copy and paste, rewriting, paraphrasing. |

# Topic 4: Online Goods and Services

In addition to understanding how standalone and local area networks are used students need to know about the increasing use of the online systems using dedicated links and the internet.

| 4 | Online Goods and Services | Students should: |
|---|---|---|
| **4.1** | **Types of services** | **4.1.1** Understand what online services are offered by:<br>• shopping sites – basket, checkout, secure payment, product catalogue<br>• booking systems for travel, leisure and entertainment<br>• banks<br>• education and training providers – VLE, online support, online training courses, remote access<br>• gaming sites<br>• news and other information providers<br>• auction sites<br>• entertainment providers – on demand, streaming, downloads. |
| **4.2** | **Impact of online services** | **4.2.1** Understand the impact on an individual's lifestyle and behaviour of the availability of goods and services online.<br>**4.2.2** Understand the impact of the internet on the ways that organisations do business.<br>**4.2.3** Understand how transactional data is collected and used: what is collected, cookies, transaction tracking.<br>**4.2.4** Know about targeted marketing and personalisation techniques.<br>**4.2.5** Understand the features and characteristics of online services and local services. |
| **4.3** | **Online software** | **4.3.1** Understand the impact of cloud-based services: hosted applications, storage.<br>**4.3.2** Understand the features and characteristics of hosted applications software and locally installed software.<br>**4.3.3** Understand the features and characteristics of online data storage and local storage. |

# Topic 5: Applying Information and Communication Technology

Students need to be able to use a range of software applications effectively and appropriately.

| 5 | Applying ICT | Students should: |
|---|---|---|
| **5.1** | **Software applications** | **5.1.1** Use the following software effectively:<br>• word processing<br>• database management<br>• spreadsheet<br>• web authoring<br>• presentation (multimedia)<br>• graphics.<br>**5.1.2** Select appropriate software applications to meet needs. |
| **5.2** | **Data and information** | **5.2.1** Understand the difference between data and information<br>**5.2.2** Use:<br>• text<br>• numbers<br>• images<br>• animation.<br>**5.2.3** Enter, organise, develop, refine and format information, applying editing techniques to meet needs.<br>**5.2.4** Bring together and organise different types of information to achieve a purpose. |
| **5.3** | **Using software applications** | **5.3.1** Produce information that is fit for purpose and audience, using accepted layouts and house styles.<br>**5.3.2** Use styles appropriately, including serif and sans serif fonts, colour choice.<br>**5.3.3** Work accurately and proofread, using software facilities where appropriate for the task. |

| 5 | Applying ICT | Students should: |
|---|---|---|
| 5.4 | **Reviewing outcomes** | **5.4.1** Review the outcomes of the use of software applications by comparing the digital product with the original requirements.<br>**5.4.2** Identify strengths and weaknesses in a digital product and suggest possible improvements.<br>**5.4.3** Make modifications to improve the outcomes.<br>**5.4.4** Evaluate the selection, use and effectiveness of ICT tools and facilities used. |

# Topic 6: Software Skills

Students need to demonstrate skills in using the software applications identified in 5.1.1.

| 6 | Software Skills | Students should be able to: |
|---|---|---|
| **6.1** | **Word processing** | **6.1.1** Enter or edit text that is appropriate for a given context using accurate spelling, punctuation and grammar.<br>**6.1.2** Enter, edit and format text using: bullets, numbering, sub-numbering, alignment, tabs, line spacing, colour, font size and style, text wrap, text boxes.<br>**6.1.3** Use columns and/or tables: horizontal and vertical text alignment, merge and split cells, gridlines, borders, shading.<br>**6.1.4** Use page layout: headings, sub-headings, lists, templates, header, footer, portrait, landscape, page breaks, page numbering.<br>**6.1.5** Integrate in a single document: charts, tables, images, callouts/autoshapes, text from different files, text boxes, grouping, layering (in front of/behind), values from spreadsheets.<br>**6.1.6** Produce documents in these document types: letter, report, newsletter, poster, leaflet, information sheet (fact sheet), memo.<br>**6.1.7** Use standard conventions: salutation, complimentary close, date, subject, logo.<br>**6.1.8** Use mail merge: mail merge from word processed, spreadsheet and database documents. |

| 6 | Software Skills | Students should be able to: |
|---|---|---|
| 6.2 | Database management | **6.2.1** Identify data types: alphanumeric/text, numeric/number, date, currency, logical/Boolean.<br>**6.2.2** Explain the structure of a given database, including: record, field, table, primary key/field, foreign key/field, relationships between tables.<br>**6.2.3** Explain the need for validation and identify validation checks such as range check, presence check, type check, length check.<br>**6.2.4** Sort using a single field, multiple fields, ascending/descending order.<br>**6.2.5** Input information to given tables or forms applying format consistently.<br>**6.2.6** Use search/query using single criterion, multiple criteria, search within results, relational operators, logical operators.<br>**6.2.7** Produce outputs: reports, mail merge documents, specified fields, design view (table structure, searches/queries, forms, relationships), data view (table, search/query results, forms). |

| 6 | Software Skills | Students should be able to: |
|---|---|---|
| 6.3 | **Spreadsheet** | **6.3.1** Know data types, number, text.<br>**6.3.2** Format a worksheet: currency, percentage, decimal places, date, time, text wrap, row height, column width, gridlines, merge/split cells, cell borders, cell shading, hiding rows and columns.<br>**6.3.3** Use formulae: arithmetic operators (plus, minus, multiply, divide), percentage, single operators, multiple operators, absolute and relative cell referencing, named cells/ranges. Replicate effectively.<br>**6.3.4** Use functions: SUM, AVERAGE, IF, VLOOKUP /LOOKUP, MAXIMUM, MINIMUM, COUNT (COUNTA, COUNTIF), LENGTH, PRODUCT.<br>**6.3.5** Use other features: multiple worksheets, sorting, filtering.<br>**6.3.6** Add graphs and charts: pie chart, line chart, bar/column chart, scattergram.<br>**6.3.7** Select an appropriate graph/chart and format it effectively adding title, axis labels, legends, axis, scale, trend line as appropriate.<br>**6.3.8** Print selected columns/rows from a worksheet formula view or data view in landscape or portrait format, adding headers and footers, row and column headers. |
| 6.4 | **Web authoring** | **6.4.1** Use a template: tables/frames, standard page features, banners, menu/navigation.<br>**6.4.2** Insert text, images, buttons, animation.<br>**6.4.3** Format a web page: headings, subheadings, body text, alignment.<br>**6.4.4** Use HTML code: insert hyperlinks, insert images, font enhancements. |

| 6 | Software Skills | Students should be able to: |
|---|---|---|
| **6.5** | **Presentation** | **6.5.1** Create a template/master slide: placeholders, footer, slide number, background, font enhancements (bold, italic, underline).<br>**6.5.2** Create slides: insert text, images, action buttons, hyperlinks; add animation, transition effects.<br>**6.5.3** Print: handouts (two to a page, three to a page), notes pages, full page, headers and footers. |
| **6.6** | **Graphics** | **6.6.1** Explain features of image types: bitmap, vector.<br>**6.6.2** Create images: combining basic shapes and text, rectangles (including square), circles (including ovals), lines, triangles, arrows, text boxes.<br>**6.6.3** Edit images: image editing, cropping, adding captions/text, editing/deletion of unwanted aspects. |
| **6.7** | **File management** | **6.7.1** Save work regularly and keep information secure.<br>**6.7.2** Use sensible filenames and formats.<br>**6.7.3** Create and manage files and folder structures. |

# 3 Assessment information

## Assessment requirements

| Component/paper number and unit title | Level | Assessment information | Number of marks allocated in the component/paper |
|---|---|---|---|
| Paper 1:<br>Written Paper | 1/2 | One-hour and 30-minute written examination, set and marked by Pearson, comprising a mixture of multiple-choice, short- and long-answer questions. | 100 marks |
| Paper 2:<br>Practical Paper | 1/2 | Three-hour practical examination, set and marked by Pearson, comprising two sections. The examination contains series of scenario-based tasks. | 100 marks |

### Sample assessment materials

Sample papers and mark schemes can be found in the *Pearson Edexcel International GCSE in Information and Communication Technology (ICT) Sample Assessment Materials (SAMs)* document.

# Assessment Objectives and weightings

| | | % in International GCSE |
|---|---|---|
| **AO1** | Demonstrate knowledge and understanding of Information and Communication Technology (ICT) | 25-27% |
| **AO2** | Apply knowledge, understanding and skills to produce ICT-based solutions | 46-52% |
| **AO3** | Analyse, evaluate, make reasoned judgements and present conclusions* | 24-26% |

* Students will be required to demonstrate approximately 15% of analysis and 10% evaluation.

# Relationship of Assessment Objectives to units

| Unit number | Assessment Objective | | |
|---|---|---|---|
| | **AO1** | **AO2** | **AO3** |
| Paper 1 | 20-23% | 14-16% | 13-14% |
| Paper 2 | 5-6% | 34-36% | 10-11% |
| **Total for International GCSE** | 25-27% | 46-52% | 24-26% |

All components will be available for assessment from May/June 2019.

# 4 Administration and general information

## Entries

Details of how to enter students for the examinations for this qualification can be found in our *International Information Manual*. A copy is made available to all examinations officers and it is also available on our website.

Students should be advised that, if they take two qualifications in the same subject, colleges, universities and employers are very likely to take the view that they have achieved only one of the two GCSEs/International GCSEs. Students or their advisers who have any doubts about subject combinations should check with the institution to which they wish to progress before embarking on their programmes.

## Access arrangements, reasonable adjustments, special consideration and malpractice

Equality and fairness are central to our work. Our equality policy requires all students to have equal opportunity to access our qualifications and assessments, and our qualifications to be awarded in a way that is fair to every student.

We are committed to making sure that:

- students with a protected characteristic (as defined by the UK Equality Act 2010) are not, when they are undertaking one of our qualifications, disadvantaged in comparison to students who do not share that characteristic
- all students achieve the recognition they deserve for undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

## Language of assessment

Assessment of this qualification will only be available in English. All student work must be in English.

We recommend that students are able to read and write in English at Level B2 of the Common European Framework of Reference for Languages.

## Access arrangements

Access arrangements are agreed before an assessment. They allow students with special educational needs, disabilities or temporary injuries to:

- access the assessment
- show what they know and can do without changing the demands of the assessment.

The intention behind an access arrangement is to meet the particular needs of an individual student with a disability without affecting the integrity of the assessment. Access arrangements are the principal way in which awarding bodies comply with the duty under the Equality Act 2010 to make 'reasonable adjustments'.

Access arrangements should always be processed at the start of the course. Students will then know what is available and have the access arrangement(s) in place for assessment.

## Reasonable adjustments

The Equality Act 2010 requires an awarding organisation to make reasonable adjustments where a student with a disability would be at a substantial disadvantage in undertaking an assessment. The awarding organisation is required to take reasonable steps to overcome that disadvantage.

A reasonable adjustment for a particular student may be unique to that individual and therefore might not be in the list of available access arrangements.

Whether an adjustment will be considered reasonable will depend on a number of factors, including:

- the needs of the student with the disability
- the effectiveness of the adjustment
- the cost of the adjustment; and
- the likely impact of the adjustment on the student with the disability and other students.

An adjustment will not be approved if it involves unreasonable costs to the awarding organisation, timeframes or affects the security or integrity of the assessment. This is because the adjustment is not 'reasonable'.

## Special consideration

Special consideration is a post-examination adjustment to a student's mark or grade to reflect temporary injury, illness or other indisposition at the time of the examination/assessment, which has had, or is reasonably likely to have had, a material effect on a candidate's ability to take an assessment or demonstrate their level of attainment in an assessment.

## Further information

Please see our website for further information about how to apply for access arrangements and special consideration.

For further information about access arrangements, reasonable adjustments and special consideration please go to the Joint Council for Qualifications (JCQ) website: www.jcq.org.uk.

## Malpractice

## Candidate malpractice

Candidate malpractice refers to any act by a candidate that compromises or seeks to compromise the process of assessment or which undermines the integrity of the qualifications or the validity of results/certificates.

Candidate malpractice in examinations **must** be reported to Pearson using a *JCQ Form M1* (available at www.jcq.org.uk/exams-office/malpractice). The form can be emailed to pqsmalpractice@pearson.com or posted to: Investigations Team, Pearson, 190 High Holborn, London, WC1V 7BH. Please provide as much information and supporting documentation as possible. Note that the final decision regarding appropriate sanctions lies with Pearson.

Failure to report malpractice constitutes staff or centre malpractice.

## Staff/centre malpractice

Staff and centre malpractice includes both deliberate malpractice and maladministration of our qualifications. As with candidate malpractice, staff and centre malpractice is any act that compromises or seeks to compromise the process of assessment or which undermines the integrity of the qualifications or the validity of results/certificates. The security of assessment materials, including secure data files, must be maintained at all times prior to and throughout the examination window. Failure to do so may constitute maladministration or malpractice. Any breach must be reported to Pearson immediately at mail to: pqsmalpractice@pearson.com.

All cases of suspected staff malpractice and maladministration **must** be reported immediately, before any investigation is undertaken by the centre, to Pearson on a *JCQ Form M2(a)* (available at www.jcq.org.uk/exams-office/malpractice).

The form, supporting documentation and as much information as possible can be emailed to pqsmalpractice@pearson.com or posted to: Investigations Team, Pearson, 190 High Holborn, London, WC1V 7BH. Note that the final decision regarding appropriate sanctions lies with Pearson.

Failure to report malpractice itself constitutes malpractice.

More-detailed guidance on malpractice can be found in the latest version of the document *JCQ General and vocational qualifications Suspected Malpractice in Examinations and Assessments,* available at www.jcq.org.uk/exams-office/malpractice.

## Awarding and reporting

The International GCSE qualification will be graded and certificated on a nine-grade scale from 9 to 1 using the total subject mark where 9 is the highest grade. Individual components are not graded. The first certification opportunity for the Pearson Edexcel International GCSE in Information and Communication Technology (ICT) will be in 2019. Students whose level of achievement is below the minimum judged by Pearson to be of sufficient standard to be recorded on a certificate will receive an unclassified U result.

## Student recruitment and progression

Pearson's policy concerning recruitment to our qualifications is that:

- they must be available to anyone who is capable of reaching the required standard
- they must be free from barriers that restrict access and progression
- equal opportunities exist for all students.

## Prior learning and other requirements

There are no prior learning or other requirements for this qualification.

## Progression

This qualification supports progress to further study, including International A Levels, GCEs, BTECs and Diplomas in IT, Computing and related subjects.

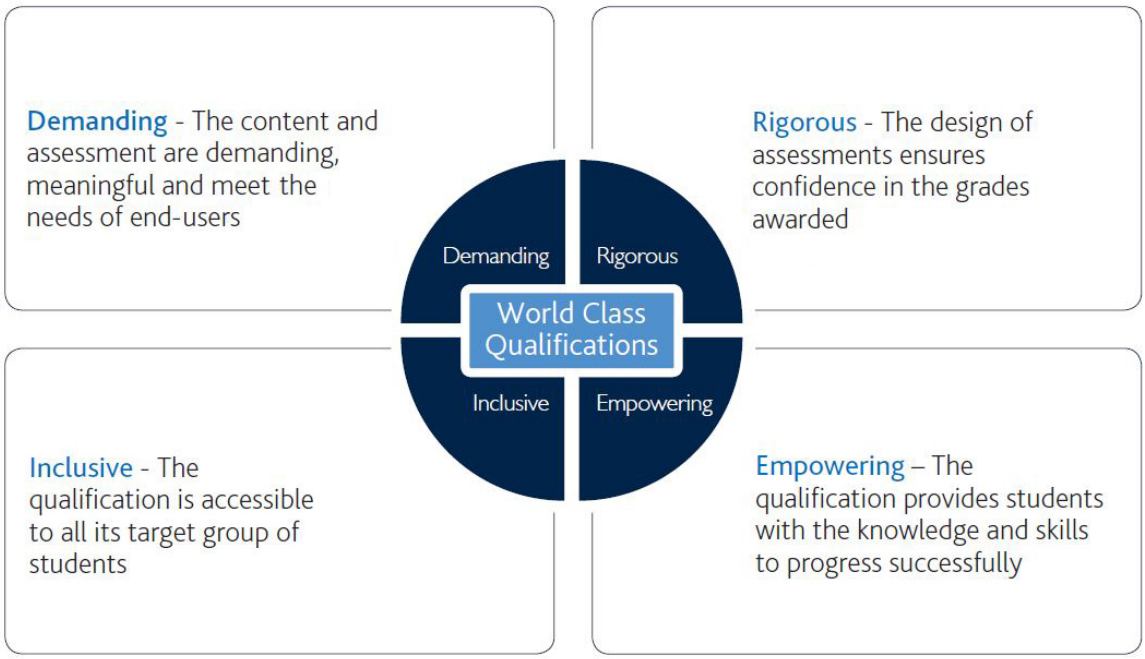
# Appendices

# Appendix 1: Codes

| Type of code | Use of code | Code |
|---|---|---|
| Subject codes | The subject code is used by centres to cash in the entry for a qualification. | International GCSE – 4IT1 |
| Paper codes | These codes are provided for information. Students may need to be entered for individual papers. | Paper 1: 4IT1/01<br>Paper 2: 4IT1/02 |

# Appendix 2: Pearson World Class Qualification Design Principles

Pearson's World Class Qualification design principles mean that all Edexcel qualifications are developed to be **rigorous, demanding, inclusive and empowering**.




We work collaboratively to gain approval from an external panel of educational thought leaders and assessment experts from across the globe. This is to ensure that Edexcel qualifications are globally relevant, represent world-class best practice in qualification and assessment design, maintain a consistent standard and support learner progression in today's fast-changing world.

Pearson's Expert Panel for World-Class Qualifications is chaired by Sir Michael Barber, a leading authority on education systems and reform. He is joined by a wide range of key influencers with expertise in education and employability.

*"I'm excited to be in a position to work with the global leaders in curriculum and assessment to take a fresh look at what young people need to know and be able to do in the 21st century, and to consider how we can give them the opportunity to access that sort of education."* Sir Michael Barber.

## Endorsement from Pearson's Expert Panel for World Class Qualifications for the International GCSE development process

**December 2015**

"We were chosen, either because of our expertise in the UK education system, or because of our experience in reforming qualifications in other systems around the world as diverse as Singapore, Hong Kong, Australia and a number of countries across Europe.

We have guided Pearson through what we judge to be a rigorous world class qualification development process that has included, where appropriate:

- extensive international comparability of subject content against the highest-performing jurisdictions in the world
- benchmarking assessments against UK and overseas providers to ensure that they are at the right level of demand
- establishing External Subject Advisory Groups, drawing on independent subject-specific expertise to challenge and validate our qualifications.

Importantly, we have worked to ensure that the content and learning is future oriented, and that the design has been guided by Pearson's Efficacy Framework. This is a structured, evidenced process which means that learner outcomes have been at the heart of this development throughout.

We understand that ultimately it is excellent teaching that is the key factor to a learner's success in education but as a result of our work as a panel we are confident that we have supported the development of Edexcel International GCSE qualifications that are outstanding for their coherence, thoroughness and attention to detail and can be regarded as representing world-class best practice."

**Sir Michael Barber** (Chair)
Chief Education Advisor, Pearson plc

**Professor Lee Sing Kong**
Dean and Managing Director, National Institute of Education International, Singapore

**Dr Peter Hill**
Former Chief Executive ACARA

**Bahram Bekhradnia**
President, Higher Education Policy Institute

**Professor Jonathan Osborne**
Stanford University

**Dame Sally Coates**
Director of Academies (South), United Learning Trust

**Professor Dr Ursula Renold**
Federal Institute of Technology, Switzerland

**Professor Bob Schwartz**
Harvard Graduate School of Education

**Professor Janice Kay**
Provost, University of Exeter

**Jane Beine**
Head of Partner Development, John Lewis Partnership

**Jason Holt**
CEO, Holts Group

All titles correct as at December 2015.

# Appendix 3: Transferable skills

## The need for transferable skills

In recent years, higher-education institutions and employers have consistently flagged the need for students to develop a range of transferable skills to enable them to respond with confidence to the demands of undergraduate study and the world of work.

The Organisation for Economic Co-operation and Development (OECD) defines skills, or competencies, as 'the bundle of knowledge, attributes and capacities that can be learned and that enable individuals to successfully and consistently perform an activity or task and can be built upon and extended through learning.'[1]

To support the design of our qualifications, the Pearson Research Team selected and evaluated seven global 21st-century skills frameworks. Following on from this process, we identified the National Research Council's (NRC) framework [2] as the most evidence-based and robust skills framework, and have used this as a basis for our adapted skills framework.

The framework includes cognitive, intrapersonal skills and interpersonal skills. The NRC framework is included alongside literacy and numeracy skills.


The skills have been interpreted for this specification to ensure they are appropriate for the subject. All of the skills listed are evident or accessible in the teaching, learning and/or assessment of the qualification. Some skills are directly assessed. Pearson materials will support you in identifying these skills and developing these skills in students.

The table overleaf sets out the framework and gives an indication of the skills that can be found in Information and Communication Technology (ICT) and indicates the interpretation of the skill in this area. A full subject interpretation of each skill, with mapping to show opportunities for student development is given on the subject pages of our website: qualifications.pearson.com

[1] OECD – *Better Skills, Better Jobs, Better Lives* (OECD Publishing, 2012)
[2] Koenig, J. A. (2011) *Assessing 21st Century Skills: Summary of a Workshop* (National Academies Press, 2011)

| | | |
|---|---|---|
| **Cognitive skills** | Cognitive processes and strategies | • Critical thinking<br>• Problem solving<br>• Analysis<br>• Reasoning/argumentation<br>• Interpretation<br>• Decision making<br>• Adaptive learning<br>• Executive function |
| | Creativity | • Creativity<br>• Innovation |
| **Intrapersonal skills** | Intellectual openness | • Adaptability<br>• Personal and social responsibility<br>• Continuous learning<br>• Intellectual interest and curiosity |
| | Work ethic/ conscientiousness | • Initiative<br>• Self-direction<br>• Responsibility<br>• Perseverance<br>• Productivity<br>• Self-regulation (metacognition, forethought, reflection)<br>• Ethics<br>• Integrity |
| | Positive core self-evaluation | • Self-monitoring/ self-evaluation/ self-reinforcement |
| **Interpersonal skills** | Teamwork and collaboration | • Communication<br>• Collaboration<br>• Teamwork<br>• Co-operation<br>• Empathy/perspective taking<br>• Negotiation |
| | Leadership | • Responsibility<br>• Assertive communication<br>• Self-presentation |

Using skills, knowledge and understanding acquired to respond to new and innovative technologies and methods of communication.

Developing and refining a strategy over time for applications of ICT, to different contexts reflecting on the success or otherwise of the strategy.

Using verbal and non-verbal communication skills in discussions about ICT issues.

# Appendix 4: Glossary

| Term | Definition |
|---|---|
| Assessment Objectives | The requirements that students need to meet to succeed in the qualification. Each assessment objective has a unique focus, which is then targeted in examinations or coursework. Assessment Objectives may be assessed individually or in combination. |
| External assessment | An examination that is held at the same time and place in a global region. |
| Linear | Qualifications that are linear have all assessments at the end of a course of study. It is not possible to take one assessment earlier in the course of study. |

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visit qualifications.pearson.com



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