

IGCSE

London Examinations IGCSE

Information and Communication Technology (ICT)
(4385)

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Teacher's Guide

London Examinations IGCSE

Information and Communication Technology (ICT) (4385)

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Introduction

This Teacher's Guide has been provided to assist teachers in their preparation for the delivery of courses based on the new London Examinations IGCSE in Information and Communication Technology (4385). The guide should be read in conjunction with the course specification and the specimen question papers. These are available in hard copy and also on the Edexcel International website: www.edexcel-international.org

The IGCSE in Information and Communication Technology is designed as a two-year course combining elements of both the London Examinations Ordinary level GCE in Computing and Edexcel's GCSE in Information and Communication Technology. It aims to encourage the exploration and study of Information and Communication Technology (ICT) in a variety of contexts: home, community, business, industry, recreation and education. In any given situation, students will be given the opportunity to acquire competence, ability and critical skills through the implementation, use and evaluation of a range of ICT systems. Students can develop their interests in, enjoyment of and critical reflections about ICT as an integral part of modern society.

Key features

- based on the GCE Ordinary Level Computing and GCSE ICT specifications
- tiers of entry allow the full range of ability to be examined
- coursework, with a weighting of 30% of the total assessment, is compulsory and externally assessed. It is based on a pre-released case study and one project
- external examination composed of structured questions
- extensive guidance and exemplar material for all aspects of the course
- ICT work carried out by students in other areas of the curriculum can be used as the basis of a coursework project
- provides a solid basis for GCE AS and Advanced Computing courses or equivalent qualifications

Tiers of entry

Paper 1F and Paper 2H

Students are entered for either Foundation Tier or Higher Tier.

The Foundation Tier paper (1F) is designed for candidates who are unlikely to achieve a high grade. Grade C is the highest grade that can be awarded and candidates who fail to achieve grade G will be awarded 'Ungraded'.

Questions appearing on the Higher Tier paper (2H) are more demanding and there are some topics which are for Higher Tier candidates only.

The highest grade which can be awarded at the Higher tier is A*, a grade reserved for the highest achievers at the top of grade A. Questions on the Higher Tier paper are targeted at grades A* to D but there is a 'safety net' for those who narrowly fail to achieve grade D. A grade E can be awarded to candidates who are within a few marks of grade D. Candidates who fail to achieve grade E will be awarded 'Ungraded'.

Higher Tier	A*	A	B	C	D	E	Ungraded		
Foundation Tier	No grades awarded			C	D	E	F	G	Ungraded

This diagram illustrates the grade overlap between the two tiers. It is not drawn to a uniform scale.

Because of the overlap at grades C and D between the two tiers, up to half of the questions will be common to both papers.

The Foundation and Higher Tier papers are examined at the same time, so candidates cannot be entered for both examinations. This puts a responsibility on the teacher to ensure that a candidate is entered for the appropriate tier. Students who consistently achieve grade C standard in practice tests would normally be entered for the Higher Tier, where they have the opportunity to achieve the highest grades.

Coursework

Coursework is common to both tiers. It tests the whole range of grades from A* to G. Unlike other IGCSE courses, the coursework for IGCSE ICT (4385) is compulsory. It is common to both tiers, and will consist of two components, a project (15%), and a collection of set tasks based on a case study (15%). Both components will be marked externally.

Structure of the specification

Tiers of entry

Candidates are entered at **either** Foundation Tier **or** Higher Tier.

Questions in the Foundation Tier paper are targeted at grades in the range C - G. The highest grade which will be awarded at Foundation Tier is grade C.

Questions in the Higher Tier paper are targeted at grades in the range A* - D. There is a 'safety net' grade E for candidates who narrowly fail to achieve grade D.

Candidates who fail to achieve grade G on Foundation Tier or Grade E on Higher Tier will be awarded 'Ungraded'.

Some examination questions will be common to both tiers.

Details of each paper / component

Papers 1F and 2H

The examination Papers 1F and 2H will each consist of short-answer questions with space below each question for candidates to write their answers. The questions will be graded and arranged in order of increasing difficulty.

Up to half the questions will be common to both tiers and will be designed to test candidates in the grade range C - D.

The remaining questions on each paper will extend the range of grades that can be tested. Paper 1F will be designed to test grades C - G; Paper 2H will test grades in the range A* - D.

The coursework (component 3)

The coursework is common to both tiers. It consists of two components, a project (15%), and a collection of set tasks based on a case study (15%). Both components will be marked externally.

For the project, candidates must write a report on the use of a computer to solve a problem. Each candidate is required to identify a problem and solve it using an appropriate software package. The report of the solution must be presented under the following headings:

Process heading	Maximum mark
Identify	5
Analyse	9
Design	9
Implement	12
Evaluate	5
Total	40

Because of the need to distinguish between good work that is based on an exacting task, and very good work based on a less demanding task, the assessment guidance for examiners gives two mark ranges – standard and extension.

When marking coursework, examiners will decide what level of task the candidate has attempted and therefore which of the mark ranges to use in assessing the project. In the Identify and Evaluate sections it is possible for standard problems to gain all of the available marks; however, in the Analyse, Design, and Implement sections, the maximum number of marks that can be gained by standard problems is reduced.

Note: The coursework project is not intended to be a major project. It should be a small but worthwhile problem.

The following table is a general guide to standard and extension levels for certain kinds of problem. Examiners will use the examples as a guide to marking problem types that are not listed.

Problem type	Standard problems will involve the use of the following skills	Extension problems will involve the use of the following skills
General	General input, editing, processing and formatting associated with the software.	More complex processes associated with the software, including importing data from another package and customising the software for easy use.
Creation and manipulation of a database	Create the data tables, search the database, sort the database, generate reports.	Complex searches (e.g. and/or), reports from more than one table, related tables, macros.
Creation and manipulation of a spreadsheet	Enter text and numeric data, use formulae, multiple sheets, printing, generate graphs.	Multiple sheets with automatic transfer of data, complex formulae (e.g. if ...), look up tables, macros.
Word processing	Enter and edit text, font type and size, inserting clip art, page set up, columns, printing.	Importing data from another application, mail merge, setting up templates, macros.
Desk top publishing	Enter and edit text, font type and size, inserting clip art, page set up, columns, printing	Importing data from another application, text flow between blocks, image manipulation.
Website publishing	Enter and edit text, insert clip art, hyperlinks, font type and size, background	Importing data from another application, image manipulation, web bots, forms, CGI scripts, use of tables for layout

Project reports will be assessed using the criteria listed in Appendix 2.

Assessment Objectives

These tables show the overall weighting of the Assessment Objectives and the relationship between the Assessment Objectives and each of the examination components.

Foundation Tier

	Assessment objective	Paper 1F	Coursework
AO1	Apply knowledge, skills and understanding to a range of situations	45	11
A02	Analyse, design, implement, test, evaluate and document ICT systems for others' use and develop understanding of the wider implications and effects of ICT	15	15
AO3	Reflect critically on the way they and others use ICT	0	4
AO4	Discuss and review the impact of ICT applications in the wider world	5	0
AO5	Consider social, economic, political, legal, ethical and moral issues and security needs surrounding the use of ICT	5	0
	Totals	70%	30%

Higher Tier

	Assessment objective	Paper 2H	Coursework
AO1	Apply knowledge, skills and understanding of ICT to a range of situations	40	11
A02	Analyse, design, implement, test, evaluate and document ICT systems for others' use and develop understanding of the wider implications and effects of ICT	5	15
AO3	Reflect critically on the way they and others use ICT	5	4
AO4	Discuss and review the impact of ICT applications in the wider world	10	0
AO5	Consider social, economic, political, legal, ethical and moral issues and security needs surrounding the use of ICT	10	0
	Totals	70%	30%

Assessment requirements

External Assessment – Papers 1F and 2H

Questions set in these papers will address the Assessment Objectives stated on pages 5 and 6. Paper 1F (Foundation Tier) and Paper 2H (Higher Tier) each last for 1 ½ hours and all questions are compulsory.

Assessment Questions

The following questions are taken from the specimen examination papers (available from Edexcel International) and shows comparable questions from the Higher and Foundation papers. Commentaries on answers have been supplied as guidance to the way in which an examiner would assess a candidate's work.

A typical question at the Higher Level might be

HomeDesign is a small company that designs houses for customers. At the moment the designs are drawn by hand, but HomeDesign intends to modernise by using a computer and appropriate software.

- (a) *Suggest appropriate software for designing houses and give a reason for your choice.*

Software.....
Reason.....

(2)

Commentary

At the higher-level examiners would be expecting candidates to realise that the software required would be a Computer Aided Design (CAD) package. Candidates would also have to give a valid reason for this choice and this should be related to the attributes of a CAD package, some of which are –

- Uses specialist libraries of objects
- Can calculate costs of materials required
- Can produce quantities of materials required for the job
- Automatically converts drawing lines to dimensions

2 marks (1 mark for software; 1 mark for reason related to software)

- (b) (i) *Give **three** advantages to the company of using the modernised system instead of the present system.*

1.....
2.....
3.....

Commentary

- (i) In their answer candidates must show the examiner that they now how this package will help the **company** and **only the company** in this case. There are many advantages to be gained by using such a system; candidates only have to provide three. Calculating the cost of the material or quantities of material have already arisen in (a) this can also apply here

- CAD will be more accurate than drawing by hand.
- Drawings can easily be amended, filed or retrieved.
- Less storage space is required to keep the drawings.
- The presentation should be better and therefore may attract more customers.
- Some customers will be attracted by the hi-tech image given by CAD systems

Candidates should be advised not to give single word answers such as *faster*, *quicker* or *cheaper*, Any answer given must be qualified in some way (3)

- (ii) Give **one** advantage for the customer.

.....

Commentary

- (ii) This time candidates must show a distinct **customer** advantage. Again there will be many acceptable answers candidates must show that they understand the type of image a CAD package can produce e.g. 3D images, different views of the image can be produced. There will be zoom effects, rotation, colours etc (1)

At Foundation Level candidates are not expected to have detailed knowledge of the package in question. A similar question for a **Foundation** candidate might be:

A company uses a CAD package to design houses.

- (a) *State what the letters CAD stand for.*

.....

Commentary

All that is needed from the candidate is the fact that CAD stands for Computer Aided Design. (1)

(b) Explain **two** ways in which CAD might benefit the company.

1.....

2.....

Commentary

The answer given must demonstrate to the examiner the fact that the candidate is aware of the advantages to be gained by the **company** through using a computerised package. As at the higher level there will be many suitable sensible answers and these need not be as detailed as those given by a higher-level candidate. Some are shown here-

CAD will be more accurate than drawing by hand. Drawings can easily be amended, filed or retrieved. Less storage space is required to keep the drawings. Better presentation for customers with 3D views. The examiner will award 2 marks, 1 mark for each valid point given **(2)**

(c) Give **three** other types of application software which the company could use.

1.....

2.....

3.....

Commentary

At foundation level candidates are expected to know what the term ‘Application Software’ means and under what situation they may be used. Examiners will therefore be looking for specific types of application software in the candidates answer. There will be many possible answers here; examiners will give marks for any sensible answers. Answers given may include - Word processor, database, spreadsheet, Desk Top Publishing etc **(3)** (1 mark for any sensible software package)

The following questions show how the candidate’s knowledge of Graphical Users Interfaces might be assessed at both levels

For the Higher Level candidate the question would be worded as follows:

A user interface may be command line driven or a GUI.

(a) Describe **two** differences between a command line interface and a GUI.

1.....

.....

2.....

..... **(2)**

Commentary

(a) Candidates must be able to clearly differentiate between the two user interfaces. The answer given must clearly show the examiner that they can explain the common differences. There are too many options to list them all here but answers may include:

- a Command Line Interface uses keyboard only, GUI uses a keyboard and pointers
 - when using a Command Line Interface exact commands must be given, otherwise the command will not be accepted. Using a GUI is largely intuitive
 - a Command Line Interface uses text only. A GUI uses visually recognisable icons
- 2 marks** (1 mark for each difference)

(b) *Explain **two** features of a GUI which would help a physically handicapped person.*

1.....
.....
.....
2.....
.....
.....

Commentary

The candidate’s knowledge of the *accessibility* option within a GUI is being tested here. Candidates must provide a feature that is available and expand the answer to show who would use the feature. Some of the features that can be listed are as follows:

- Enlarged fonts and icons for the visually impaired
 - Use of sound prompts for the visually impaired
 - Pointing devices are available for the physically handicapped
 - Speech input can be used by the physically handicapped
- 4 marks** (1 mark for each feature; 1 mark for explanation)

Total 6 marks

For the **Foundation Level** candidate the question would be worded differently and the emphasis is on the more visual aspects of a GUI:

User interfaces may be command line or GUI.

(a) State what the letters GUI stand for.

.....

(1)

Commentary

Examiners will be looking for the words Graphical User Interface

(b) Give **one** advantage of a GUI over a command line interface.

.....
.....

(1)

Commentary

(b) At Foundation Level an explanation is not required the candidate only has to state an advantage. As always there are many answers that would be acceptable, some are listed below:

- Easier to understand
- The exact command does not have to be typed
- More user friendly
- Easier to switch between programmes

1 mark for a valid advantage.

(c) A GUI uses windows, icons, menus and pointers.

State what each of these is and give an example of its use.

windows.....
.....

icons.....
.....

menus.....
.....

pointers.....
..... (8)

Commentary

The question is testing the candidate's knowledge on four main features of a GUI. An examiner would be looking for a simple statement on each of these features and also an indication of its use within a GUI environment. The exact wording shown below would not be required

Windows - an independent area on the screen showing a program / folder contents

Icons - small pictures / symbols which connect to a program / activity / folder / file

Menus - a text list of options that can be selected in some way.

Pointers - symbols / small pictures / icons which move in response to movements of a mouse / other pointing device.

In each case above marks would be awarded as follows:

1 mark for a recognisable description; **1 mark** for a valid example

(8)

Total 10 marks

The following questions at Higher Level and Foundation Level apply to control systems. As would be expected more detailed knowledge of the system operation is required from candidates at the higher Level.

Higher Level

Every office in an office block is connected to a computer system that controls the air-conditioning.

(a) *State the input and output data for the air-conditioning system.*

Input.....

Output.....

(2)

Commentary

- (a) Candidates must show the examiner that they know input data is derived from sensors at the input stage. The sensor must be of a type that could be used to control air conditioning. A suitable actuator will be used on at the output. This must also be associated with the control of air conditioning.

Input – this will be a signal from a temperature or humidity sensor, some are listed below:

- Thermocouple
- Digital thermometer
- Electronic thermometer
- Hygrometer

Output – this will be the signal to the actuator

- Switch
- Central heating controller
- OWTTE

2 marks

(b) *Explain how the system would be able to control the air-conditioning in each office.*

.....
.....

Commentary

To answer this question the candidate must give four valid points from the process that is taking place to control the air conditioning. Although not essential to gain full marks it would be beneficial to the candidate and the examiner to explain the process in a logical order. The stages involved would be as follows:

- Temperature is set for each room
 - Values are stored on the computer
 - The sensor detects the room temperature
 - Analogue to digital conversion takes place on the measured value
 - A comparison is made with the set values stored on the computer
 - The computer decides what to do
 - Signals are passed to the actuators to turn on or off the air conditioning unit
- 4 marks** (1 mark for each valid point)

(c) *The computer also assists with security in the office block. Describe **two** ways in which the computer could be used for this purpose. Your answers should give details of sensors and other equipment that would be required.*

1.....
.....
2.....
.....

Commentary

To answer this question correctly candidates must be aware that the examiner would be looking for details relating to the automatic detection of intruders. No marks would be awarded to candidates that suggest human intervention or gaining illegal access to the computer system. With this in mind answers might include:

- Locking doors, using of key cards or biometric methods to detect right of access.
- To detect intruders a burglar alarm could be used, this would require sensors to trigger the alarm. There are many acceptable types some are as follows - pressure pads, contact sensors, Infra Red beams etc. Motion sensors to activate lighting or video cameras etc.

4 marks (2 marks for each appropriate suggestion with named sensor and equipment)

The question that follows is identical for both Higher and Foundation candidates and therefore the answers expected would also be of the same standard

A college issues each of its students with a plastic card that can be used to identify the student. Whenever the student purchases books, equipment or meals within the college, the plastic card is passed through a card reader and details of the transaction are stored on a central computer.

(a) Suggest **two** other uses for such a card within the college.

1.....
.....
2.....
.....

(2)

Foundation

(b) Describe **two** ways in which data can be held on the card so that it can be read by a card reader.

- 1.....
.....
- 2.....
.....

(2)

(c) Unless certain security measures are taken, the cards could be misused by students.

(i) Explain how students might misuse the cards.

-
.....
.....

(2)

(ii) State a security measure that could be taken to prevent such misuse.

-
.....

(1)

(iii) Explain how that security measure would prevent such misuse.

-
.....

(1)

Total for Question 8: 8 marks

Course planning

London Examinations IGCSE: Planning Sheet

Term and year	Topic	ICT	
		Outcomes Students will be able to	Class work
Term 1 Year 1	ICT Systems- Hardware: Input/output devices, backing store, CPU, RAM/ROM, key role of the CPU	select the appropriate input/output device and storage media and devices for any given application	Choice of hardware for any given application
	Software Operating systems, application packages	Use of Graphical User Interfaces (GUI), file handling techniques	Setting up of folders and directories to store students' work and project material, file attributes
	Terms associated with data storage	select a suitable application package for a given task.	Students will have the opportunity to use a range of packages to include database, spreadsheets, word processor, desk top publishing, website writer, art packages and multi-media presentation packages within the duration of the course
		interpret bit patterns in terms of Kbytes, Mbytes and Gbytes and the ability to convert from one to another	

	Human Interface	evaluate user interfaces, command line, menu driven, GUI	
	The Internet	<p>list requirements for connection to the internet, (modem, router, browsers comms software, etc), list the services available. To include e-mail, news groups, web rings, chat rooms an search engines</p> <p>describe the range of services available on the World Wide Web, including advertising, news, customer support, distribution of software, e- commerce and bulletin boards.</p> <p>list the advantages and disadvantages of the internet as an educational resource</p>	The Internet as a source of information to support work within the classroom
	Communication	explain the advantages and disadvantages of the different communication methods (post telephone, fax, e-mail, video conferencing and messaging services)	

Term 2 Year 1	File handling terms	explain the use of transaction/master files, and the associated methods of updating, etc	
	Backup procedures	explain the need for backup procedures and identify suitable recovery methods	
	File security	Demonstrate the use of passwords. Levels of access and suitable physical restrictions	
	Networking	understand the terms Local Area Network (LAN) and Wide Area Network (WAN) and be able to describe the hardware and software required to create such networks	
		explain the advantages and disadvantages of networked computers compared to stand alone computers	
	Network Topologies	Recognise the layout of a bus and star network. Appreciate the greater fault tolerance of star network systems	

Term 3 Year 1	Modelling with ICT systems	apply the use of ICT in a number modelling situations to include: simulators, science experiments, weather forecasting, economic modelling, virtual reality and gaming	
	Benefits and limitations of modelling	appreciate the safety and economic advantages of using modelling, and the fact that many situations can be investigated. At the same time students will know that the main limitation of modelling is the lack of realism.	
	Data logging and control technology	specify the input, output and storage required for a data-logging or control application	
	Interfaces	understand the purpose of an interface – Analogue to Digital Converter	
	Feedback	recognise that feedback is an integral part of any control systems	
	Social, economic, legal and moral issues associated with ICT systems	Recognise the social, economic, legal and moral issues in terms of the following: Software copyright, Computer viruses, Health & Safety, computer hacking, computer crime and its prevention and the changing patterns of employment through the use of ICT.	

Term and year	Topic	Outcomes	
		ICT	Coursework
Term 1 Year 2	Presentation techniques	select the best method of presenting results to different audiences – choose between tables, diagrams, graphs, multi-media presentations	
	Introduction to systems analysis	recognise the formal stages of investigation, analysis, design, implementation monitoring, documentation and testing	Students will find out how these terms can be applied to their project work and the implications for the set tasks in which they will meet this term
	Relate systems analysis to a given application		Practise on task-based assessment
	Data capture operations	design data capture forms and input screens, and apply input verification	
	Output presentation for a given application	design output screens and printed reports	Students will be able to start planning the project they will be submitting for assessment. Guidance should be given in helping them to decide on a project that is attainable in the given time span.
	Development of algorithms	produce and interpret algorithms in the form of flowcharts/structured English	
	Design of tables for a given application	demonstrate the skills necessary for defining record structure, defining fields in terms of length type and validation to be applied	Further development of the project.

	Testing and design of testing procedures	understand the concept of typical, extreme and invalid data	Application of testing to project work
	Data encoding	appreciate that coded data saves on storage space, makes data entry easier, and allows validation to be carried out	

Term 2 Year 2	Documenting solutions to problems	select the appropriate method by choosing from sketches, diagrams, tables, graphs, flowcharts, and photographs	Documenting project work with the appropriate methods
	Evaluation of solutions to problems	identify any shortcomings in the solution to any problem. Enabling them to provide alternative solutions	Evaluation of project work to date
	Input validation techniques	use software to validate data being used	Implementing validation checks within project work
	Project Work		Working on the project

Summer Year 2	Project Work		Finalisation of project work
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Coursework

All work submitted for this section must be the candidate's individual work. Sharing the work from any task may result in all the work being rejected.

Case study

Your centre will receive the case study at least one year before the examination. This will give you the opportunity to familiarise your students with the background to the scenario they will face.

It will also give you a chance to structure your teaching to solve some of the problems the students could be facing. Your students will be required to supply evidence that they have performed several tasks set by London Examinations based on the case study. Each task set will consist of a number of straightforward steps, each one building on the next.

It is very important that work submitted for assessment is the work of the student alone. Task completion must not be the result of group work. You will decide the time the student has to complete the task and there is no restriction on the hardware and software that may be used.

All coursework, projects and case studies need to arrive in London for assessment by a set date, which will be advertised to centres when the case study is sent out.

Project work

There is a general guide in the Specification booklet that will give you an indication of what examiners will be looking for when marking the candidate's project work.

For the project, candidates are expected to write a report on the use of a computer to solve a problem. The candidate will be expected to identify the problem and then solve it using an appropriate software package. Some examples might be:

Creation and manipulation of a database

This might be the setting up of a database to control the borrowing and returning of books in a library. This could include a book table, borrowers table and fines imposed, etc. Candidates might then demonstrate how to track the issuing of a book through their system to its subsequent return and whether a fine is payable or not. Another task might be to prove the exact location of a book at any given time following a request for a particular book. Depending on the candidate's ability and expertise suitable viewing screens might also be designed.

Creation and manipulation of spreadsheets

This might relate to the control of finances in a small business. The spreadsheet would probably enable the manager to enter details about what it costs to run the business (wages, cost of heating and lighting, cost of materials to be bought, for example) and then show the profit (or loss) that might be made by selling articles. Candidates would then have to demonstrate how their system works by printing a balance sheet for the year or perhaps forecasting a suitable profit during the same period. The more able candidates might make use of **IF** and **THEN** functions or perhaps make use of **LOOKUP** tables and use absolute cell referencing.

There are other software packages which could be used to develop suitable projects as long as they are used to overcome a particular problem. These might include

- data logging and control
- word processing
- desktop publishing (DTP)
- website publishing
- multimedia
- programming

None of the project tasks is intended to be a major project. They should be small, yet worthwhile problems. It is important that candidates attempt the solution through the five headings of **Identify, Analyse, Design, Implement, and Evaluate**. This will ensure that they have the experience of an organised approach.

The following is an example of how you might get your students to create an information system.

Identify

We must first start with the problem to be solved. Is there a manual system that needs to be replaced or is there an old computer system that needs to be updated? Always advise the students to make careful choices of the problem to be solved. If it is too ambitious then the assessment objectives may never be met and if it is too simple then not all the objectives will be used.

They should always choose a topic that interests them or something they can find information about easily. Get them to talk to friends or relatives to come up with problems they have encountered in their jobs for example. Often the better projects are those that have been developed in response to an actual problem.

Make sure your school or college has the equipment available to carry out the work required and your student has enough time to complete it.

Analysis

At the analysis stage your student will need to give consideration to the following sections

1. **the existing system** – a description of the existing system along with its strengths and weaknesses. Flow diagrams could be created to show the information flow through the system
2. **user requirements** – The users of the system will be more familiar with the problem to be solved. Ask them about inputs and outputs and the processing that occurs
3. **constraints** – There will always be constraints of time and money. Too much time might be needed to develop the new system or project. For instance, is there a large amount of data to be keyed in? Can this be automated in any way?

Design

When designing the new system your student could adopt the following approach

- use diagrams to explain how the proposed system will work. Diagrams can include system flow charts and structure diagrams
- outline hardware and software requirements with reasons for choices made
- show how database features, for example, have been designed. How did your student arrive at the structure for a particular table?
- your student must consider Input and output features. What is the most appropriate method of data capture? What form will the output of the system take? What is the reason for choosing that particular method?
- your student will need to supply information about the proposed storage medium along with justification for its use.

Implementation

Your student will need to give information about the implementation of the system. This might include

- the method of implementation and the reason for its choice (e.g. parallel running step-by-step etc)
- how existing files will be changed to the new file format and how data will be keyed in
- how the new hardware and software will be installed
- how the people using the new system will be trained
- how the new system will be maintained – what will need to be done, and how often, in order to keep the system up to date.

Evaluation

Your students must look closely at the database they have created. Could it have been made any better? It is a chance for them to describe whether they are happy with the outcome of the project. Did it solve the problem they set out with? Should any improvements be considered, and why?

Deadlines for coursework

All coursework, projects and case studies, need to arrive in London for assessment by a set date which will be advertised to centres when the case study is sent out.

Subject-specific information

Students should be encouraged to read around the subject by making use of suitable websites, textbooks and computer related magazine articles to enhance and support work discussed in the classroom. In so doing students will be able to broaden their knowledge base and also acquire an understanding of the application of computers in the real world, away from the academic approach often given in the classroom.

Encourage students to discuss their project work with you at an early stage. Support them in their chosen task and at the same time ensure that it is something they are capable of completing in the allowable time span. It would not be beneficial for the students to opt for a complex project brief if you feel the student is not capable of completing the work and seeing it through all the stages outlined previously.

In all cases, students should always be encouraged to give generic rather than specific terms in their work, giving the name of hardware and software types rather than trade names.

Resources

The following textbook is particularly recommended for studying this specification:

Longman ICT for IGCSE – J Blair, R Crawford and R Birbal (Longman 2005)

ISBN: 1405 80210 3

In addition to the textbooks mentioned in the Specification, teachers may also find the following websites useful.

www.webopedia.com

An online dictionary of ICT related terms.

www.pctechguide.com

Covers all aspects of the computer and its component parts.

<http://courses.cs.vt.edu/~csonline/>

An excellent site covering most aspects of ICT. There are a number of interesting animations to support the topic being covered.

Support and training

Training

A programme of INSET courses covering various aspects of the specifications and assessment will be arranged by London Examinations on a regular basis. Full details may be obtained from

International Customer Relations Unit
Edexcel International
190 High Holborn
London
WC1V 7BE
United Kingdom

Tel: +44 (0) 190 884 7750

E-mail: international@edexcel.org.uk

Edexcel publications

Support materials and further copies of this specification can be obtained from

Edexcel Publications
Adamsway
Mansfield
Notts NG18 4LN
UK

Tel: +44 (0) 1623 450 781

Fax: +44 (0) 1623 450 481

E-mail: intpublications@linneydirect.com

Other materials available in 2003 include

- Specimen papers and mark schemes (Publication code: UG013055)
- Specification (Publication code: UG013066)

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Further copies of this publication are available from
Edexcel International Publications, Adamsway, Mansfield, Notts, NG18 4FN, UK

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