

# INTERNATIONAL ADVANCED LEVEL **INFORMATION TECHNOLOGY** STUDENT GUIDE

Pearson Edexcel International Advanced Subsidiary in Information Technology (XIT11)

Pearson Edexcel International Advanced Level in Information Technology (YIT11)

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# Getting started for students

## Student guide

### What are International AS and A Levels?

International AS and A Levels are the international version of the GCE AS and A Level qualifications taken by 16-19 year olds in UK schools and colleges.

An International AS (IAS) can either be taken as a stand-alone qualification, or as the first part of an International A Level (IAL) course.

### Are IAS and IAL qualifications globally recognised?

Pearson Edexcel qualifications are recognised and highly valued by universities and employers across the world.

Pearson is the UK's largest academic and vocational awarding organisation, offering a wide range of qualifications that are globally recognised and benchmarked.

Edexcel is the brand name for academic and general qualifications from Pearson, including International GCSEs, AS and A Levels.

### Why study Information Technology?

From smartphones and wifi, to intelligent clothing and self-driving cars, information technology (IT) plays a vital role in every aspect of modern-day life.

The growth in IT services, networking and data management is a key feature of global economies. Industries as diverse as entertainment, banking and manufacturing make extensive use of IT. Consequently, people with proven IT knowledge and skills are much in demand.

Both the IAS and the IAL will give you excellent IT knowledge and expertise, as well as excellent analytical and [problem-solving skills](#) that will prove extremely useful whatever career path you decide to pursue.

## **How are the IAS and IAL qualifications IT structured?**

[The IAS and the IAL Information Technology](#) are modular qualifications.

The IAS consists of two equally weighted units (Units 1 and 2).

The IAL consists of four equally weighted units – the two IAS units, plus two IA2 units (Units 3 and 4) that build upon the knowledge, understanding and skills developed in the IAS.

The IAS is studied in one year, with the option to top up to the IAL in the second year. The IAL is usually studied over two years with two units studied each year.

As you would expect, the IA2 units that you study in the second year of your course are offered at a higher cognitive level and are more demanding than the IAS units you took in the first year.

## **What will I learn?**

IT is concerned with how computers and other digital devices are used separately and in combination to store, retrieve, transmit, manipulate and secure data. The content of the IAS and IAL in IT combines knowledge and understanding of these fundamental concepts with practical application of IT skills.

# Unit 1

**Unit 1** covers:

- *Hardware and software* – functions and features of digital devices, such as computers, smartphones, printers and hard drives, and the technologies they use; the role of software in a computer systems, software licensing and updates; how to select appropriate hardware and software to meet particular needs.
- *Networks* – how digital devices are connected together in networks and the standards and protocols that enable them to communicate with each other; network components, how IP and MAC addresses are used to identify devices on a network and how to design networks to meet specified requirements; security threats to networks and some of the measures used to prevent them.
- *The online environment* – the internet and the world-wide web; the benefits and drawbacks of operating online; online communities; cloud storage and cloud computing.
- *IT systems* – how digital devices work together to form an IT system; how to decompose an IT system into smaller sub-systems; how to depict the data flow and processes of a system using flowcharts and dataflow diagrams; how to design IT systems to meet specified needs.
- *Data and databases* – the difference between data and information; how data is structured in a relational database; how to use structured query language (SQL) to create tables and search for data in a database.
- *Wider issues* associated with society's use of and dependence on IT systems – the impact on the environment; legal, moral and ethical issues; the implications of ubiquitous wireless access for 'smart cities' and 'location awareness' services.

## Unit 2

In **Unit 2** you'll learn how to use three core web languages – *HTML*, *CSS* and *JavaScript* – individually and in combination to create user-friendly, accessible web products that conform to accepted web design principles.

## Unit 3

**Unit 3** continues from where Unit 1 finished, deepening and extending your understanding of IT concepts. It covers:

- *Manipulating data* – processes used to ensure that data is accurate and consistent and how to interpret and construct data dictionaries and design validation rules; the process of normalising data in a relational database; Big Data.
- *Enabling technologies* that alone or in combination help an organisation to improve its performance – virtualisation; distributed systems; human computer interaction (HCI); cloud storage and database management systems (DBMS); encryption.
- *IT systems used in organisations* – transaction processing (TP) systems, customer relationship management (CRM), management information systems (MIS), intelligent transportation systems (ITS) and expert systems; operational issues associated with IT systems, including system maintenance, changeover and disaster recovery planning.
- *Systems development* – the need for effective project management when developing an IT system, how to specify SMART targets and use Gantt charts, critical path analysis and precedence tables; two contrasting project management methodologies – waterfall and agile.
- *Emerging technologies* – artificial intelligence and machine learning; virtual and augmented reality; the Internet of Things (IoT).

## Unit 4

In **Unit 4** you'll learn how to *use relational database software* to amend, construct and interrogate databases, import and export data and create appropriate user interfaces. Evaluation is a common theme throughout the unit. You'll learn why it is important to evaluate database solutions, how to go about it, including how to identify potential enhancements.

### **Is this the right subject for me?**

Are you interested in digital devices? Are you curious about how the Internet works and how dynamic web content is produced? Do you want to know more about IT systems, networks, Big Data and the Internet of Things? Would you like an opportunity to debate environmental, ethical and other issues arising from the use of IT? If so, this course is certainly the one for you.

You may be planning to take an IT or Computing related degree, in which case IAL IT is an obvious subject to study. But even if you have a completely different subject in mind – medicine, engineering, business, science, architecture, food technology to name but a few – you'll need a good understanding of IT and its role in order to be able to use it effectively and productively for your own purposes.

### **What do I need to know and be able to do before taking the course?**

There are no specific entry requirements for this course, although we would expect you to have had some experience of using a computer to access web services, send emails, word process documents etc. and have a general interest in IT.

### **How will I be assessed?**

All examinations are marked by Pearson Edexcel. Examinations are available in May/June each year.

The IAS has two examinations while the IAL has four.

Units 1 and 3 have traditional written examination papers.

Units 2 and 4 have practical examinations which require use of a computer and assess technical knowledge and skills in practical contexts, along with related theoretical understanding.

Unit	Type	Level	Marks	Length	Weighting
1	Written exam	IAS	80	2 hours	50% of IAS 25% of IAL
2	Practical exam, requiring use of a computer	IAS	80	3 hours	50% of IAS 25% of IAL
3	Written exam	IA2	80	2 hours	25% of IAL
4	Practical exam, requiring use of a computer	IA2	80	3 hours	25% of IAL



### **What can I do after I've completed the course?**

There are lots of computing and IT degree courses you could go on to study – web development, business information systems, software engineering, digital forensics, computer science, creative computing, cyber security to name but a few. Alternatively, if you have had enough of studying, you could enroll on an IT apprenticeship programme. The choice is yours.

### **Next Steps!**

The IT/Computing subject teacher at your school or college should be able to guide you further.

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