



INTERNATIONAL ADVANCED LEVEL INFORMATION TECHNOLOGY SUGGESTED RESOURCES

June 2018. v1

PEARSON EDEXCEL International Advanced Level Information Technology

Suggested resources

These are suggested resources for the topics covered in the International Advanced Level Information Technology qualification.

The content of websites is dynamic and constantly changing. Centres are strongly advised to check each site for content and accessibility prior to using it with students.

Pearson Edexcel is not responsible for the accuracy or content of information contained in these sites. The inclusion of a link to an external website should not be understood to be an endorsement of that website or the site's owners (or their products/services).

The qualification will also be supported by [free teaching and learning materials](#) including Getting Started Guide, Sample Assessment Materials, Specimen Papers, Marked exemplars with examiner commentaries and Scheme of Work.

[Published Teacher Resource Pack](#) is also available.

Unit 1

Sources of IT-related news, product reviews etc.

Topic 1

Ars Technica

<https://arstechnica.com/information-technology/>

CNET

<https://www.cnet.com/>

IT Pro

<http://www.itpro.co.uk>

PC Magazine

<http://uk.pcmag.com>

The Register

<https://www.theregister.co.uk/>

The technology section of the BBC website

<http://www.bbc.co.uk/news/technology>

The technology section of Forbes' website

<http://www.forbes.com/technology>

The technology section of Reuters website

<https://uk.reuters.com/news/archive/technologyNews>

The technology section of the New York Times

<https://www.nytimes.com/section/technology>

ZDNet

<http://www.zdnet.com>

Topic 2

The early chapters of CCNA's free study guide (1CND1 100-101)

<http://www.freeccnastudyguide.com/study-guides/icnd1-100-101/>

Wikipedia page on network topologies

http://en.wikipedia.org/wiki/Network_topology

Computer Networking Topology tutorial (January 2009)

<http://www.youtube.com/watch?v=kfEDPQAYH4k>

Network security

Cyber Security Challenge UK Has a series of free lesson plans covering TCP/IP, network topologies, network security amongst other topics.

<https://www.cybersecuritychallenge.org.uk/education/schools/teachers>

'Network security' – a free OpenLearn course from the Open University. It goes into considerably more depth than students need for this unit but is a useful reference.

<http://www.open.edu/openlearn/science-maths-technology/computing-and-ict/systems-computer/network-security/content-section-0?>

Topic 3

The Internet and the worldwide web

Andrew Blum's TED lecture 'What is the internet really?' (2012)

http://www.ted.com/talks/andrew_blum_what_is_the_internet_really

YouTube video: 'How the Internet works' (February 2009)

http://www.youtube.com/watch?v=7_LPdttKXPc

'Warriors of the Net' movie (January 2011)

<http://www.warriorsofthe.net/>

YouTube video: 'What is the world wide web?' (May 2014)

<https://www.youtube.com/watch?v=J8hzJxb0rpc>

Explain that Stuff's explanation of how the WWW works (January 2018)

<https://www.explainthatstuff.com/howthewebworks.html>

Useful tool to find out who a domain name belongs to

<http://www.whois.sc/>

Visual trace route tool

<http://www.yougetsignal.com/tools/visual-tracert/>

YouTube video: 'The Client/Server model' (May 2011)

<http://www.youtube.com/watch?v=bW9vY0izaVA>

Examples of online professional communities

CompTIA

<https://www.comptia.org/communities>

IET Engineering communities

<https://communities.theiet.org/communities/>

LinkedIn

<https://www.linkedin.com>

Examples of online social communities

Facebook

<https://www.facebook.com>

Google+

<https://plus.google.com/people>

Twitter

<https://twitter.com>

Topic 4

'Introducing ICT Systems' – a free OpenLearn course from the Open University

<http://www.open.edu/openlearn/science-maths-technology/computing-and-ict/information-and-communication-technologies/introducing-ict-systems/content-section-0?>

'Information Systems for business and beyond' by David T. Bourgeois, Pressbooks (February 2014)

<https://bus206.pressbooks.com>

YouTube video: 'How to Draw a Data Flow Diagram' (June 2013)

<https://www.youtube.com/watch?v=KA4rRnihLII>

There's a useful article and video on flowcharts on the Mind Tools website

https://www.mindtools.com/pages/article/newTMC_97.htm

Drawing software

Serif DrawPlus is useful for drawing data flow diagrams, flowcharts and network diagrams. The starter edition is free. Students won't be able to use it in the exam, but it's got all the correct symbols in its library and would be good for practice work.

https://download.cnet.com/Serif-DrawPlus-Starter-Edition/3000-2191_4-75547730.html or <https://serif-drawplus-starter-edition.en.softonic.com/download> .

Topic 5

Data and information

'An introduction to data and information' – a free OpenLearn course from the Open University

<http://www.open.edu/openlearn/science-maths-technology/computing-and-ict/introduction-data-and-information/content-section-0?>

Liquid Web: 'Ten ways databases run your life' (June 2018)

<https://www.liquidweb.com/blog/ten-ways-databases-run-your-life/>

Relational databases

YouTube video: 'Database terms' (January 2014)

<http://www.youtube.com/watch?v=Kwcs-BwLFmg&feature=youtu.be>

YouTube video: 'Database Key fields – animation' (February 2014)

<https://www.youtube.com/watch?v=JkwbhFUftSc>

YouTube video: 'DatabaseKeysrelationship' (February 2014)

<https://www.youtube.com/watch?v=djggCzZem7w>

SQL

YouTube video: 'SQL tutorial - What is SQL?' (March 2010)

https://www.youtube.com/watch?v=EUB113i_mzA

SQLZoo

http://sqlzoo.net/wiki/Main_Page

Khan Academy

<https://www.khanacademy.org/computing/computer-programming/sql>

Topic 6

Environmental impact

YouTube video: 'Computer Science and the Environment' (April 2014)

<https://www.youtube.com/watch?v=YQdmj6njzzw>

Privacy

YouTube video 'Hot on Your Trail: Privacy, Your Data, and Who Has Access to Information IT' (September 2013)

<https://www.youtube.com/watch?v=bqWuioPHhz0>

Stephen Waddington's often posts thought-provoking comments on aspects of data privacy on his blog

<https://wadds.co.uk>

James Ball's article: 'Me and my data: how much do the internet giants really know' (April 2012)

<https://www.theguardian.com/technology/2012/apr/22/me-and-my-data-internet-giants>

Fw: Thinking: 'Is digital privacy at an end?'

<https://www.fwthinking.com/videos/is-digital-privacy-at-an-end-video.htm>

Computer misuse

YouTube video: '10 things you didn't know could be hacked' (March 2017)

<https://www.youtube.com/watch?v=vQy5v0MIwjo>

YouTube video: 'UK hospitals hit by large-scale cyber-attack' (May 2017)

<https://www.youtube.com/watch?v=r4qw7RJKSJA>

Smart cities

'Smart cities' – a free OpenLearn course from the Open University

<http://www.open.edu/openlearn/science-maths-technology/smart-cities/content-section-overview-0>

Unit 2

HTML, CSS and JavaScript

Free online training courses

Codecademy

<https://www.codecademy.com/learn>

Khan Academy

<https://www.khanacademy.org/computing/computer-programming/html-css>

The Mozilla Development Network

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web

w3schools

<https://www.w3schools.com/>

HTML dog

<http://www.htmldog.com>

The modern JavaScript Tutorial

<https://javascript.info>

MOOCs

A number of MOOCs delivered by HE institutions cover some or all of the unit content. They are usually free (unless participants opt to pay for certification), although in some cases course materials are made available at no cost for a limited amount of time.

HTML5 and CSS Fundamentals

Introduction to HTML and JavaScript

<https://www.edx.org>

Responsive Website Basics: Code with HTML, CSS and JavaScript

Programming Foundations with JavaScript, HTML and CSS

Introduction to Web Development

<https://www.coursera.org>

Web design

Examples of well- and badly-designed websites

The Best Designs

<http://thebestdesigns.com/>

site inspire

<http://siteinspire.com/>

Web pages that suck

<http://www.webpagethatsuck.com>

Free web design tools

Envato learning guides

<https://webdesign.tutsplus.com/>

960 Grid System

<https://960.gs>

Style tiles

<http://styletil.es/>

speckyboy – a collection of free wireframes

<https://speckyboy.com/free-wireframe-templates-mobile-app-web-ux-design/>

CSS Zen Garden – CSS templates

<http://www.csszengarden.com>

The Web Font Combinator

<http://font-combinator.com>

Google Fonts

<https://fonts.google.com>

Usability and accessibility

The ultimate source of information is W3C's Web Accessibility Initiative

<https://www.w3.org/WAI/gettingstarted/>

Crazy Egg article: '5 key principles of good website usability'

<https://www.crazyegg.com/blog/principles-website-usability/>

Semantic code

w3schools.com has a section on HTML5 Semantic Elements

https://www.w3schools.com/html/html5_semantic_elements.asp

Lifewire article: 'Why use semantic HTML?' (April 2018)

<https://www.lifewire.com/why-use-semantic-html-3468271>

W3C provides a validation service that checks that web documents are W3C compliant

<http://validator.w3.org>

Unit 3

The TechTarget network of technology-specific websites give access to industry experts, independent content and analysis. Techtarger itself is commercial, but most of the articles are free and the site might have been written with Unit 3 in mind.

<https://www.techtarger.com/network>

Topic 12

Data integrity

Article on Varonis' website: 'What is data integrity and how can you maintain it?' (May 2018)

<https://blog.varonis.com/data-integrity/>

Article in Database,guide: 'What is data integrity?' (May 2016)

<https://database.guide/what-is-data-integrity/>

Data normalisation

Article in Database,guide: 'What is normalization?' (October 2017)

<https://database.guide/what-is-normalization/>

SQA e-learning materials: Database Design Fundamentals (DV6E 34) has a section entitled 'Creating a normalised relational database structure' that includes sections on normalisation and the data dictionary.

https://www.sqa.org.uk/e-learning/SiteHomeCD/page_09.htm

Big Data

Kenneth Cukier's TED talk: 'Big data is better data' (2014)

https://www.ted.com/talks/kenneth_cukier_big_data_is_better_data

Fw:Thinking: 'The Future of Big Data'

<https://www.fwthinking.com/videos/future-big-data-video.htm>

Code.org's, Computer Science Principles, Unit 4 – Big Data and Privacy

<https://curriculum.code.org/csp-1718/unit4/>

TechTarget

<https://searchdatamanagement.techtarger.com/definition/big-data>

Topic 13

Virtualisation

Article in PC World: '10 Cool things Virtualization Lets You Do' (February 2011).

https://www.pcworld.com/article/220644/10_Cool_Things_Virtualization_Lets_You_Do.html

Red Hat topic: 'Understanding virtualization'

<https://www.redhat.com/en/topics/virtualization>

Article in Electronic Design: 'What's the difference between containers and virtual machines?' (July 2016)

<http://www.electronicdesign.com/dev-tools/what-s-difference-between-containers-and-virtual-machines>

Distributed Systems

A useful starting point is the article in Computing: 'A brief introduction to distributed systems' (August 2016)

<https://link.springer.com/article/10.1007/s00607-016-0508-7>

Hacker Noon has a helpful introduction to distributed systems: 'A thorough introduction to distributed systems' (April 2018)

<https://hackernoon.com/a-thorough-introduction-to-distributed-systems-3b91562c9b3c>

HCI

'Designing the user interface: text, colour, images, moving images and sound' – a free OpenLearn course from the Open University. It goes into considerably more depth than students need for this unit but is a useful reference.

<http://www.open.edu/openlearn/science-maths-technology/computing-and-ict/designing-the-user-interface-text-colour-images-moving-images-and-sound/content-section-0?>

Section 2 of The Encyclopedia of Human-Computer Interaction, 2nd Ed. – 'Human Computer Interaction – brief intro'. It goes into considerably more depth than students need for this unit but is a useful reference.

<https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/human-computer-interaction-brief-intro>

Data security in the cloud

The Conversation: 'How secure is your data when it's stored in the cloud?' (January 2018)

<http://theconversation.com/how-secure-is-your-data-when-its-stored-in-the-cloud-90000>

Forbes Tech: 'Cloud Storage Is Much More Secure Than You Think' (September 2017)

<https://www.forbes.com/sites/quora/2017/09/18/cloud-storage-is-much-more-secure-than-you-think/#195cb5037403>

Article in The New York Times: 'Where Does Cloud Storage Really Reside? And Is It Secure?' (January 2017)

<https://www.nytimes.com/2017/01/23/insider/where-does-cloud-storage-really-reside-and-is-it-secure.html>

TechTarget

<https://searchcloudcomputing.techtarget.com/resources>

Encryption

How-To Geek: 'What is Encryption, and How Does It Work' (September 2016)
<https://www.howtogeek.com/howto/33949/htg-explains-what-is-encryption-and-how-does-it-work/>

iNews: 'Encryption explained as simply as possible' (March 2017)
<https://inews.co.uk/news/technology/encryption-explained-simply-possible/>

YouTube video: 'Asymmetric encryption – Simply explained' (October 2017)
<https://www.youtube.com/watch?v=AQDCe585Lnc>

howstuffworks
<https://computer.howstuffworks.com/encryption.htm>

Upwork
<https://www.upwork.com/hiring/development/introduction-to-encryption-data-security/>

There's a lot of useful information about data security in general here, as well as encryption.
<https://ico.org.uk/for-organisations/guide-to-data-protection/encryption/>

Topic 14

IT Systems

YouTube video: 'What is a transaction?' (July 2016)
<https://www.youtube.com/watch?v=-hRZJ-YzJcY&t=7s>

Tutorialspoint's Management Information System Tutorial includes information on MIS and CRM.
https://www.tutorialspoint.com/management_information_system/index.htm

Salesforce learning Centre: 'A Beginner's Guide to CRM Systems'
<https://www.salesforce.com/uk/learning-centre/crm/crm-systems/>

Fw: Thinking: 'Our roads are getting smarter'
<https://www.fwthinking.com/videos/our-roads-are-getting-smarter-video.htm>

Operational issues

The National Computer Centre's Best Practice Guide goes into a lot more detail than students are expected to cover but the introductory section are useful: 'IT Governance. Developing a successful governance strategy. A Best Practice guide for decision makers in IT'
<https://www.isaca.org/Certification/CGEIT-Certified-in-the-Governance-of-Enterprise-IT/Prepare-for-the-Exam/Study-Materials/Documents/Developing-a-Successful-Governance-Strategy.pdf>

An IT disaster recovery plan template and guide can be downloaded from TechTarget <https://searchdisasterrecovery.techtarget.com/feature/IT-disaster-recovery-DR-plan-template-A-free-download-and-guide>

Topic 15

Project management

Project Management skills and techniques: <https://www.businessballs.com/project-management/project-management-skills-and-techniques/>

SMART targets examples: <https://www.toolshero.com/personal-development/smart-goals/>

https://www.youtube.com/watch?v=qkuUBcmmBpk&feature=youtu.be&feature=iv&rc_vid=Es4IKP_pQh0&annotation_id=annotation_2969299389

Free online project management course from Engineer4free covering Gantt charts, critical path and precedence tables

<https://www.engineer4free.com/project-management.html>

Explanation of GANTT and critical path analysis.

http://www.umsl.edu/~sauterv/analysis/488_f02_papers/ProjMgmt.html#3.1.2_GANTT

Gantt.com: 'What is a Gantt chart?'

<http://www.gantt.com/index.htm>

YouTube video: 'Project Management: What is a Gantt Chart?' (June 2013)

<https://www.youtube.com/watch?v=VIm8yWpBxFA>

GanttProject is a free package that allows professional quality GANTT charts to be developed <http://www.ganttproject.biz/>

Smartsheet's Guide to the critical path method

<https://www.smartsheet.com/critical-path-method>

Topic 16

AI

Hacker Noon has some useful information about machine learning in its AI section (April 2018) <https://hackernoon.com/artificial-intelligence/home>

SAS 'Machine Learning. What it is and why it matters'

https://www.sas.com/en_gb/insights/analytics/machine-learning.html

Virtual and augmented reality

Augment News: 'Virtual Reality vs. Augmented Reality' (October 2015)

<http://www.augment.com/blog/virtual-reality-vs-augmented-reality/>

The Startup: 'Augmented Reality (AR) and Virtual reality (VR): What are the differences?' (December 2017)

<https://medium.com/swlh/augmented-reality-ar-and-virtual-reality-vr-what-are-the-differences-bd650f9c7859>

IoT

Analytics Vidhya: '10 Real World Applications of the Internet of Things (IoT) – Explained in Videos' (August 2016)

<https://www.analyticsvidhya.com/blog/2016/08/10-youtube-videos-explaining-the-real-world-applications-of-internet-of-things-iot/>

Fw:Thinking: 'The Internet of Things'

<https://www.fwthinking.com/videos/fwthinking-ep1-internet-of-things-video.htm>

Fw:Thinking: 'How the Internet of Things will change the world'

<https://www.fwthinking.com/videos/internet-of-things-change-the-world-video.htm>

IoT section of Texas Instruments' website

http://www.ti.com/ww/en/internet_of_things/iot-applications.html

Google's overview of the IoT

<https://cloud.google.com/solutions/iot-overview>

Eastern Peak: '6 cool examples of Internet of Things applications and how to develop one' (August 2017)

<https://easternpeak.com/blog/6-cool-examples-of-internet-of-things-applications-and-how-to-develop-one/>

Unit 4

Teach-ICT has a useful section on databases.

http://www.teach-ict.com/as_as_computing/ocr/H447/F453/3_3_9/database_design/miniweb/index.htm

'Database Design for Mere Mortals: A Hands-On Guide to Relational Database Design', ISBN-13: 978-032188449

'Advanced Database Projects in Access 2007', Ian Rendell and Julian Mott, ISBN: 978 1444 117370 (2007 version of Access but still a very good resource for A Level database skills)

Sample solution to a database task from the legacy A LEVEL APPLIED ICT
<https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/applied-ict-2008.coursematerials.html> - [filterQuery=category:Pearson-UK:Unit%2FUnit-7&filterQuery=category:Pearson-UK:Category%2FTeaching-and-learning-materials](https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/applied-ict-2008.coursematerials.html)

Free online MS Access tutorials

The Microsoft Office website contains training material for Access.

<https://support.office.com/en-us/article/access-video-training-a5ffb1ef-4cc4-4d79-a862-e2dda6ef38e6?ad=US&rs=en-US&ui=en-US>

GCF LearnFree.org

<https://www.gcflearnfree.org/access2013/>

Allen Wyatt's Learn Access Now

<http://www.learnaccessnow.com/>

Baycon Group

<http://www.baycongroup.com/access2007/index.html>