

# IGCSE Computer Studies 0420

## Unit 9: Operating Systems

### Recommended Prior Knowledge

In order to understand the role of an operating system, students should have had practical experience of using at least one operating system.

### Context

The facilities of operating systems are introduced here, followed by an appreciation of the diversity of the range of operating systems.

### Outline

*The aim of this section is to examine the concepts of operating systems.*

AO	Learning outcomes	Suggested Teaching activities	Learning resources
5.2	Operating system facilities	<ul style="list-style-type: none"> <li>Introduce the idea of system software as different from applications software</li> <li>Introduce the general tasks of an operating system (refer to comments below to enhance op system tasks)</li> <li>Role of the operating system in file management</li> <li>Discuss the fact that microprocessors in devices such as refrigerators, microwave ovens, etc. don't require an operating system since they only carry out simple, pre-determined instructions.</li> </ul> <p>(Also refer to comments in the following sections)</p>	<p><a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task1.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task1.htm</a> introduction to operating systems</p> <p><a href="http://www.ictgcse.com/sub_projects/ictgcse_th_operatingSystems.htm">http://www.ictgcse.com/sub_projects/ictgcse_th_operatingSystems.htm</a> another introduction to operating systems</p> <p><a href="http://www.teach-ict.com/gcse/software/opsystems/gcse_sw_opsyst.htm">http://www.teach-ict.com/gcse/software/opsystems/gcse_sw_opsyst.htm</a> teaching resources including websites and quizzes</p> <p>L+W 14.1 and 14.2</p>
	The nature of batch, online, multi-access, real-time transaction processing, multitasking, network and	Introduce the different types of processing system taking care to ensure that students understand the differences between them. Take special care with the difference	<a href="http://www.ewart.org.uk/it/op_sys/os_types.htm">http://www.ewart.org.uk/it/op_sys/os_types.htm</a> description of batch operating system and some short questions

AO	Learning outcomes	Suggested Teaching activities	Learning resources
	process-control operating systems;	between real-time transaction processing and real-time process control. <sup>1</sup>	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task6.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task6.htm</a> real-time process control
	The form of interface between the operating system and the user; use of command line and use of graphical user interfaces;	<p>Graphical interfaces have been used in unit 6, review this and introduce the idea of a command line interface.</p> <p>Discuss the main differences between command line interfaces and graphical user interfaces (as found in a Windows environment). Point out the advantages and disadvantages of both types of user interface.</p>	<p><a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task7.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task7.htm</a> real-time transaction processing</p> <p><a href="http://www.ictgcse.com/sub_projects/ictgcse_th_NetOperatingSystems.htm">http://www.ictgcse.com/sub_projects/ictgcse_th_NetOperatingSystems.htm</a> network operating systems</p> <p>L+W 14.3</p> <p><a href="http://www.psionica.co.uk/gcseict/operate.htm">http://www.psionica.co.uk/gcseict/operate.htm</a> introduction to operating systems including the type of interface</p> <p><a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task11.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task11.htm</a> more about types of interface</p>
	Management of files; file directories;	Practical use of file directories including sub-directories, copying, moving, listing and printing file utilities	<p>L+W 14.4</p> <p>L+W 14.5</p>
	Peripheral device control; use of buffers; interrupts and interrupt priorities; polling; handshaking; check sums	<p>Introduce two methods of peripheral control using interrupts or polling.</p> <p>Introduce the idea of using buffers and handshaking during transfer of data to and from peripherals.</p>	<p><a href="http://www.atarimagazines.com/compute/issue149/60_interrupts_made_easy.php">http://www.atarimagazines.com/compute/issue149/60_interrupts_made_easy.php</a> article on interrupts and polling (probably more useful for the teacher)</p> <p>L+W 14.6</p> <p>L+W 14.6 extension work</p>

<sup>1</sup> A real-time transaction processing system is an online system in which individual, discrete transactions are processed as they occur; an airline booking system and an online stock control system are typical examples. This use of the term real time differs from its use in a real-time process-control system, in which physical quantities are continuously monitored and processed sufficiently rapidly to be capable of influencing the sources of data.