

<b>Training Package</b>	Information and Communications Technology (ICA05)		<b>HSC Requirements and Advice</b>
<b>Title</b>	<b>Use computer operating system</b>		
<b>Unit code</b>	<b>Field</b>	<b>HSC Indicative Hours</b>	<b>15</b>
<b>ICAU2231A</b>	Use		
<b>Unit descriptor</b>	<p>This unit defines the competency required to configure, use and optimise a computer operating system.</p> <p>The following unit is a prerequisite for this competency:</p> <ul style="list-style-type: none"> <li>ICAU1128A Operate a personal computer.</li> </ul> <p>There may be benefit in concurrent learning of the following unit:</p> <ul style="list-style-type: none"> <li>ICAU2005A Operate computer hardware.</li> </ul> <p>These units are linked and form an appropriate cluster:</p> <ul style="list-style-type: none"> <li>ICAU2005A Operate computer hardware.</li> </ul>		

<b>Evidence Guide</b>			<b>HSC Requirements and Advice</b>
The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge, the Range Statement and the assessment guidelines for this Training Package.			
<b>Resources</b>	<b>Critical aspects of evidence</b>	<b>Assessment guidance</b>	<b>Key Terms and Concepts</b>
<p>To demonstrate competency in this unit the person will require access to:</p> <ul style="list-style-type: none"> <li>workstation</li> <li>operating system</li> <li>software configuration guides</li> <li>documents detailing operating system control panel and configuration data.</li> </ul> <p>An introduction to the command line at this level would be appropriate to prepare the person for concepts related to directory structure, folder hierarchy and path relationships.</p>	<p>Assessment must confirm the ability to use an operating system in a variety of scenarios and across all functions including (1) scheduling, loading, initiating, and supervising the execution of programs; (2) allocating storage; (3) initiating and controlling input/output operations; and (4) handling errors.</p>	<p>The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.</p> <p>Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.</p> <p>Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.</p> <p>In the case of this unit, it could be assessed in a holistic manner with:</p> <ul style="list-style-type: none"> <li>ICAU2005A Operate computer hardware.</li> </ul>	<ul style="list-style-type: none"> <li>adding peripherals</li> <li>apply user changes</li> <li>basic structure of a personal computer</li> <li>basic tasks</li> <li>benefits and limitations of single-user, multi-user and network</li> <li>command language/line</li> <li>command structure and syntax</li> <li>compatibility of operating systems</li> <li>computer operating system</li> <li>configure operating system</li> <li>control panel software</li> <li>create users</li> <li>customise graphical user interface</li> <li>directory structure</li> <li>features of operating system utilities and third party utilities</li> <li>folder hierarchy</li> </ul>

Evidence Guide cont/d		HSC Requirements and Advice	
Knowledge and skills		Role context	
<p><b>Knowledge includes:</b></p> <ul style="list-style-type: none"> <li>• function of single-user and multi-user operating systems</li> <li>• compatibility of an operating system, in respect to other versions</li> <li>• interoperability between operating systems</li> <li>• software applicable to the operating system.</li> </ul>	<p><b>Skills include:</b></p> <ul style="list-style-type: none"> <li>• configure, use and optimise operating system</li> <li>• install and support peripheral devices</li> <li>• create users for a multi-user system</li> <li>• apply user changes for a multi-user operating system</li> <li>• set passwords for different users.</li> </ul>	<p>The operating system (OS) program is the first program loaded into the computer by a boot program and it remains in memory at all times thereafter. It is strategically placed in that it manages all the other programs in a computer including the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, access and security, hard disk space, and peripheral devices (like speakers or a mouse).</p> <p>The OS is the foundation software on which other programs, such as Word or Excel, depend. These other programs are called applications or application programs. The application programs make use of the operating system by making requests for services through a defined application program interface (API). In addition, users can interact directly with the operating system through a user interface such as a command language or a graphical user interface (GUI).</p> <p>Operating systems come in a variety of forms. Most use a graphical user interface (GUI) and some use command line; others have a combination of both.</p> <p>It is appropriate for the person to grasp the fundamentals of both the GUI and the command line interface to prepare them for advanced concepts should they chose to enter learning towards a more advanced unit of competency.</p> <p>The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.</p> <p>Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.</p> <p>Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.</p> <p>An individual demonstrating this competency would be able to:</p> <ul style="list-style-type: none"> <li>• demonstrate basic operational knowledge in a moderate range of areas</li> <li>• apply a defined range of skills</li> <li>• apply known solutions to a limited range of predictable problems</li> <li>• perform a range of tasks where choice between a limited range of options is required</li> <li>• assess and record information from varied sources</li> <li>• take limited responsibility for own outputs in work and learning.</li> </ul>	<ul style="list-style-type: none"> <li>• functionality checks</li> <li>• generic and customised vendor drivers</li> <li>• graphical user interface (GUI)</li> <li>• guides and documentation</li> <li>• input and output device</li> <li>• install drivers</li> <li>• install, upgrade and uninstall application software</li> <li>• interoperability between operating systems</li> <li>• locate and install software</li> <li>• main external connectors</li> <li>• main features of a motherboard</li> <li>• operating system software</li> <li>• optimise operating system</li> <li>• path relationships</li> <li>• peripherals</li> <li>• purpose of an operating system</li> <li>• safe work practices</li> <li>• set passwords</li> <li>• use operating system</li> <li>• working environment.</li> </ul>

## KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace.

Performance Level 1 – at this level, the candidate is required to undertake tasks effectively

Performance Level 2 – at this level, the candidate is required to manage tasks

Performance Level 3 – at this level, the candidate is required to use concepts for evaluating and reshaping tasks

The following Key Competency levels have been considered within the structure of this unit's Performance Criteria.

<b>Key competencies</b>	1	Collect, analyse and organise information	2
	2	Communicate ideas and information	1
	3	Plan and organise activities	1
	4	Work with others and in teams	1
	5	Use mathematical ideas and techniques	1
	6	Solve problems	2
	7	Use technology	2

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
1 Configure operating system	1.1 Configure <i>operating system</i> to suit the working environment, including but not limited to setting variables	<p>The Range Statement contextualises the unit of competency and provides a focus for assessment. The information provided is intended to define the scope of assessment and to assist assessors define the performance to be achieved by an individual in the workplace. The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. <i>Italicised</i> wording in the Performance Criteria is detailed as follows.</p> <p>[Variables are in <b>bold</b>, followed by the Scope in dot points.]</p> <p><b>Operating system</b></p> <ul style="list-style-type: none"> <li>• may include but is not limited to Linux 7.0 or above, Windows 2000 or above, Apple OS X or above.</li> </ul>	<p><b>Learning experiences for the HSC must address:</b></p> <p>Identification of:</p> <ul style="list-style-type: none"> <li>• the basic structure of a personal computer (PC) <ul style="list-style-type: none"> <li>- central processing unit (CPU)</li> <li>- random access memory (RAM)</li> <li>- peripherals <ul style="list-style-type: none"> <li>▪ input device</li> <li>▪ output device</li> </ul> </li> <li>- storage device/s</li> </ul> </li> <li>• the main features of the motherboard <ul style="list-style-type: none"> <li>- CPU</li> <li>- chip set</li> <li>- crystal oscillator</li> <li>- RAM</li> <li>- read only memory (ROM)</li> <li>- system bus</li> <li>- expansion slots</li> <li>- cache memory</li> </ul> </li> <li>• the main external connectors found at the back of the PC.</li> </ul> <p>An understanding of the following concepts:</p> <ul style="list-style-type: none"> <li>• configure</li> <li>• optimise</li> <li>• support</li> <li>• install</li> <li>• uninstall</li> <li>• upgrade</li> <li>• compatibility.</li> </ul> <p>A definition of:</p> <ul style="list-style-type: none"> <li>• operating system.</li> </ul> <p>An understanding of the purpose of an operating system including:</p> <ul style="list-style-type: none"> <li>• it is the first program loaded into the computer by a boot program and remains in memory at all times</li> <li>• it manages all other programs including the allocation and usage of hardware resources such as <ul style="list-style-type: none"> <li>- memory</li> <li>- CPU time</li> </ul> </li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<ul style="list-style-type: none"> <li>- access and security</li> <li>- hard disk space</li> <li>- peripheral device/s</li> </ul> <ul style="list-style-type: none"> <li>• it is the foundation software on which other applications/application programs depend.</li> </ul> <p>A working knowledge of the benefits and limitations of the following operating systems:</p> <ul style="list-style-type: none"> <li>• single-user/task</li> <li>• multi-user/task</li> <li>• network.</li> </ul> <p>An understanding of the different forms in which a user can interact with the operating system including:</p> <ul style="list-style-type: none"> <li>• command language/line</li> <li>• graphical user interface (GUI)</li> <li>• combination of both.</li> </ul> <p>Using available document/s to assist to configure, use and optimise the operating system including:</p> <ul style="list-style-type: none"> <li>• software configuration guide</li> <li>• documents detailing operating system control panel and configuration data.</li> </ul> <p>An awareness of the differences in:</p> <ul style="list-style-type: none"> <li>• procedures for 'logging in/out' between operating systems</li> <li>• access to the operating system for different users <ul style="list-style-type: none"> <li>- desktop user</li> <li>- manager</li> <li>- information technology (IT) support staff</li> <li>- system administrator</li> <li>- network administrator.</li> </ul> </li> </ul> <p>A knowledge of how to:</p> <ul style="list-style-type: none"> <li>• create users for a multi-user system</li> <li>• apply user changes</li> <li>• set passwords for different users.</li> </ul>
2 Use operating system	2.1 Install, upgrade and uninstall <i>application software</i> to suit the working environment	<b>Application software</b> <ul style="list-style-type: none"> <li>• may include databases, word processing, email, internet browsers, system browsers and spreadsheets.</li> </ul>	<b>Learning experiences for the HSC must address:</b> <p>An awareness of:</p> <ul style="list-style-type: none"> <li>• the difference between operating system software</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<p>and application software</p> <ul style="list-style-type: none"> <li>the operating system supported by the company/organisation.</li> </ul> <p>A knowledge of:</p> <ul style="list-style-type: none"> <li>compatibility of an operating system in respect to other versions</li> <li>interoperability between operating systems (with respect to the ability of operating systems from different vendors to share data using agreed file formats and protocols)</li> <li>application software appropriate to the operating system.</li> </ul> <p>A range of application software including:</p> <ul style="list-style-type: none"> <li>word processing</li> <li>database</li> <li>spreadsheet</li> <li>system browser</li> <li>email</li> <li>internet browser.</li> </ul>
	2.2 Use both the graphical user interface and the command line interface to perform basic tasks		<p><b>Learning experiences for the HSC must address:</b></p> <p>A basic understanding of the difference in operation of a GUI and a command line interface.</p> <p>Basic tasks including:</p> <ul style="list-style-type: none"> <li>logging in</li> <li>logging out</li> <li>getting online help</li> <li>changing passwords</li> <li>retrieving and editing previous commands.</li> </ul>
3 Optimise operating system	3.1 Use operating system and third-party utilities		<p><b>Learning experiences for the HSC must address:</b></p> <p>A basic knowledge of the features of operating system utilities and third-party utilities including:</p> <ul style="list-style-type: none"> <li>what information is produced when they are run</li> <li>how the information should be interpreted</li> <li>appropriate actions resulting from the information.</li> </ul>

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	3.2 Customise the graphical user interface		<p><b>Learning experiences for the HSC must address:</b></p> <p>Using control panel software tools to customise the GUI.</p>
	3.3 Use techniques unique to the command line interface		<p><b>Learning experiences for the HSC must address:</b></p> <p>A basic knowledge of command structure and syntax including the use of switches and parameters.</p> <p>A basic understanding of:</p> <ul style="list-style-type: none"> <li>• directory structure</li> <li>• folder hierarchy</li> <li>• path relationships.</li> </ul>
4 Support input and output devices	4.1 Set up input and output devices and check functionality		<p><b>Learning experiences for the HSC must address:</b></p> <p>An understanding of the difference between an input and output device.</p> <p>A range of peripherals including:</p> <ul style="list-style-type: none"> <li>• keyboard</li> <li>• mouse</li> <li>• scanner</li> <li>• monitor</li> <li>• printer</li> <li>• modem</li> <li>• removable storage device.</li> </ul> <p>An awareness of safe work practices:</p> <ul style="list-style-type: none"> <li>• for attaching and/or removing devices and cables</li> <li>• when working with electricity.</li> </ul> <p>Adding peripherals:</p> <ul style="list-style-type: none"> <li>• following manufacturer's instructions</li> <li>• connecting to <ul style="list-style-type: none"> <li>- an external port <ul style="list-style-type: none"> <li>▪ serial</li> <li>▪ parallel</li> <li>▪ game</li> <li>▪ universal serial bus (USB)</li> </ul> </li> <li>- an expansion card <ul style="list-style-type: none"> <li>▪ expansion slot in motherboard.</li> </ul> </li> </ul> </li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<p>A knowledge of how to:</p> <ul style="list-style-type: none"> <li>• locate and install software</li> <li>• run the software to check functionality</li> <li>• troubleshoot as required.</li> </ul>
	<p>4.2 Install drivers as appropriate and check functionality</p>		<p><b>Learning experiences for the HSC must address:</b></p> <p>A definition of:</p> <ul style="list-style-type: none"> <li>• driver.</li> </ul> <p>The difference between a generic driver and a customised vendor driver, and the implications of using one or the other.</p> <p>An awareness that drivers need to be updated periodically to ensure optimal performance.</p>