

Training Package	Information and Communications Technology (ICA05)		HSC Requirements and Advice
Title	Install and optimise operating system software		
Unit code	ICAI3020A	Field Implement	HSC Indicative Hours 20
Unit descriptor	<p>This unit defines the competency required to install operating system software and to make adjustments as a means of optimising the system to accommodate business and client needs.</p> <p>The following units are linked and form an appropriate cluster:</p> <ul style="list-style-type: none"> • ICAS3024A Provide basic system administration • ICAT3025A Run standard diagnostic tests. 		

Evidence Guide			HSC Requirements and Advice
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.			
Resources	Critical aspects of evidence	Assessment guidance	Key Terms and Concepts
<p>To demonstrate competency in this unit the person will require access to:</p> <ul style="list-style-type: none"> • personal computer/workstation • Operating System software and technical documentation. 	<p>Assessment must confirm the ability to install and improve system performance with minimum disruption to clients.</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"> • ICAS3024A Provide basic system administration • ICAT3025A Run standard diagnostic tests. 	<ul style="list-style-type: none"> • active listening • adjustment recommendations • application software • batch system • client evaluation/feedback • client/user • customise desktop and viewing options • default settings • diagnostic tools • evaluation and selection of operating systems • features and functions of operating systems • feedback mechanism • file system • hardware • implementation plan • install and configure application software

Evidence Guide cont/d		HSC Requirements and Advice	
Knowledge and skills			
<p>Knowledge includes:</p> <ul style="list-style-type: none"> organisational and technical systems detailed knowledge of the system's current functionality functions and features of operating systems used by the organisation set-up and configuration procedures current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas software packages supported by the organisation prerequisites for system software installation vendor specifications and requirements for installation broad knowledge of incorporating systems software broad general knowledge of systems diagnostic software. 	<p>Skills include:</p> <ul style="list-style-type: none"> problem solving skills for a defined range of predictable problems plain English literacy and communication skills in relation to analysis, evaluation and presentation of information report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas strong interpersonal skills for team work and responsible workplace interactions software installation and configuration questioning and active listening for conveying and clarifying information literacy skills in regard to interpretation of technical computer installation manuals use of diagnostic tools. 	<p>Role context</p> <p>The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.</p> <p>Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic.</p> <p>Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.</p> <p>An individual demonstrating this competency would be able to:</p> <ul style="list-style-type: none"> demonstrate some relevant theoretical knowledge apply a range of well-developed skills apply known solutions to a variety of predictable problems perform processes that require a range of well-developed skills where some discretion and judgement is required interpret available information, using discretion and judgement take responsibility for own outputs in work and learning take limited responsibility for the output of others. 	<ul style="list-style-type: none"> install, configure and optimise operating system installation options licences managing new technology memory management minimum and recommended system requirements multi-tasking system one-to-one instruction operating system software operating system vendors operating systems process scheduling purpose of the operating system questioning techniques real time system sources of information system functionality system security technical specifications virtual memory workplace documentation.

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.

Key competencies	1	Collect, analyse and organise information	1
	2	Communicate ideas and information	2
	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 Determine function of operating systems	1.1 Identify and demonstrate understanding of the purposes of the <i>operating system</i>	<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 bold, followed by the Scope in dot points.]</p> <p>Operating System</p> <ul style="list-style-type: none"> • May include but is not limited to Linux 7.0 or above, Windows 2000 or above, Apple OS X or above. 	<p>Learning experiences for the HSC must address:</p> <p>A definition of:</p> <ul style="list-style-type: none"> • operating system. <p>An understanding of the purpose of an operating system including:</p> <ul style="list-style-type: none"> • first program loaded into the computer by a boot program and remains in memory at all times • manage all other programs including the allocation and usage of hardware resources such as: <ul style="list-style-type: none"> - memory - central processing unit (CPU) time - access and security - hard disk space - peripheral devices • foundation software on which other application/application programs depend. <p>An awareness of the benefits and limitations of the following operating systems:</p> <ul style="list-style-type: none"> • single-user/task • multi-user/task • network. <p>A basic understanding of the features of operating systems including:</p> <ul style="list-style-type: none"> • open source (such as Linux) • Windows • Apple.
	1.2 Distinguish between batch system, real-time system, multi-tasking system		<p>Learning experiences for the HSC must address:</p> <p>Basic features, function, benefits and limitations of:</p> <ul style="list-style-type: none"> • batch system • real-time system • multi-tasking system.
	1.3 Identify and demonstrate understanding of the basic functions of <i>operating system</i> , including file system, memory management, process scheduling		<p>Learning experiences for the HSC must address:</p> <p>Knowledge of features and functions of the operating system used by the company/organisation.</p>

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	1.4 Identify and demonstrate management of virtual memory		<p>A detailed knowledge of the system's current functionality.</p> <p>Learning experiences for the HSC must address:</p> <p>An understanding of virtual memory and the circumstances in which it is used.</p>
2 Obtain operating system	2.1 Contact <i>operating system</i> vendors to obtain technical specifications and system requirements	<p>Operating System</p> <ul style="list-style-type: none"> • May include but is not limited to Linux 7.0 or above, Windows 2000 or above, Apple OS X or above. 	<p>Learning experiences for the HSC must address:</p> <p>Sources of information regarding vendor products and services including:</p> <ul style="list-style-type: none"> • consultants • suppliers • personal contacts • industry/trade publications and magazines • trade shows • the internet. <p>A definition of:</p> <ul style="list-style-type: none"> • technical specification • system requirements. <p>An understanding of the difference between minimum and recommended system requirements for installation of vendor products.</p> <p>Knowledge of:</p> <ul style="list-style-type: none"> • compatibility of an operating system in respect to other versions • interoperability between operating systems (with respect to the ability of operating systems from different vendors to share data using agreed file formats and protocols) • application software appropriate to the operating system. <p>Evaluation of available operating systems and selection of a system to meet the needs of the client (company/organisation and their users) in line with their information and communications technology (ICT) strategic plan.</p>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			An understanding of possible selection criteria including: <ul style="list-style-type: none"> • functionality • benefit/s • security • growth • delivery time • software and hardware • support • risk/s.
	2.2 Document adjustment recommendations and provide to <i>appropriate person</i>	Appropriate person <ul style="list-style-type: none"> • May include a supervisor, teacher, authorised business representative or client. 	Learning experiences for the HSC must address: Identification of adjustments required for the operating system. Methods for documenting and reporting adjustment recommendations. Appropriate person/s including: <ul style="list-style-type: none"> • supervisor/team leader • management • system administrator • ICT technical support staff • trainer • client.
	2.3 Determine and apply knowledge of licensing, hardware and security requirements		Learning experiences for the HSC must address: Knowledge of: <ul style="list-style-type: none"> • end user licence agreements (EULA) and responsibilities • the differences between single-user, network and site licences • intellectual property • copyright issues • user authorisation and system security • hardware and software registers.
3 Install, configure and optimise operating system	3.1 Install, configure and test the <i>operating system software</i> in accordance with installation procedures and <i>organisational requirements</i>	Operating System <ul style="list-style-type: none"> • May include but is not limited to Linux 7.0 or above, Windows 2000 or above, Apple OS X or above. 	Learning experiences for the HSC must address: An awareness of the difference between operating system software and application software.

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
		<p>Software</p> <ul style="list-style-type: none"> • May include but are limited to operating systems, including standalone personal computer systems and network operating systems; commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, mail, communication packages and presentation functionalities. <p>Organisational requirements</p> <ul style="list-style-type: none"> • May include but are not limited to: <ul style="list-style-type: none"> - availability of system to be optimised - level of complexity of technical manuals - in-house or vendor; contracting arrangements relating to IT purchasing - client support documentation - IT policy and procedures relating to service levels and installation. <p>Client</p> <ul style="list-style-type: none"> • May include a person within a department, a department within the organisation or a third party. 	<p>An understanding of the following concepts:</p> <ul style="list-style-type: none"> • configure • optimise • support • install • uninstall • upgrade • compatibility. <p>Company/organisation policy and procedures to:</p> <ul style="list-style-type: none"> • install, configure and optimise operating system software • use diagnostic tools to test operating system software. <p>Knowledge of difference in policy and procedures for:</p> <ul style="list-style-type: none"> • stand-alone personal computers • networked computers. <p>Knowledge of prerequisites for system software installation.</p> <p>An understanding of:</p> <ul style="list-style-type: none"> • installation options <ul style="list-style-type: none"> - full - typical - portable - custom • installation files and directories • typical or default settings. <p>Interpretation of technical computer installation manuals.</p> <p>Determining the software or software upgrade requirements of the company/organisation.</p> <p>Installation and configuration of application software (to specification using available menu options) including:</p> <ul style="list-style-type: none"> • word processing • databases

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<ul style="list-style-type: none"> • spreadsheets • graphics • presentation • system browser • email • internet browser.
	3.2 Optimise the system to meet <i>organisational requirements</i>		
	3.3 Document the system according to <i>organisational requirements</i>		<p>Learning experiences for the HSC must address:</p> <p>Typical workplace methods for documenting the system.</p>
	3.4 Install the <i>operating system</i> with minimal disruption to <i>client</i> or users		<p>Learning experiences for the HSC must address:</p> <p>Development of an implementation plan to enable smooth transition to new technology with minimum disruption.</p> <p>Details to be included in an implementation plan including:</p> <ul style="list-style-type: none"> • timing • tasks involved • allocation of tasks • resources required • schedule • acceptance procedures • other issues specific to the company/organisation.
4 Provide instruction to meet new software requirements	4.1 Provide one-to-one instruction about changes to the <i>client</i> or users as required	<p>Client</p> <ul style="list-style-type: none"> • May include a person within a department, a department within the organisation or a third party. 	<p>Learning experiences for the HSC must address:</p> <p>General features and capabilities of a range of current industry-accepted hardware and software products.</p> <p>Set-up and configuration of operating system software to suit client/user requirements.</p> <p>Managing new technology including:</p> <ul style="list-style-type: none"> • overcoming resistance to technology • ensuring user competency

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<ul style="list-style-type: none"> • monitoring efficient use and rectifying any problems through appropriate means • monitoring performance of technology. <p>Questioning techniques (open, closed and reflective) and active listening for conveying and clarifying information.</p> <p>Customising desktop and viewing options for the client/user.</p>
	<p>4.2 Obtain <i>client</i> evaluation about new system to ensure requirements are met, using appropriate <i>feedback mechanism</i></p>	<p>Client</p> <ul style="list-style-type: none"> • May include a person within a department, a department within the organisation or a third party. <p>Feedback mechanism</p> <ul style="list-style-type: none"> • May include surveys, questionnaires, interviews and meetings. 	<p>Learning experiences for the HSC must address:</p> <p>Recognition of the value of client evaluation/feedback to the company/organisation.</p> <p>A range of methods to obtain client feedback including:</p> <ul style="list-style-type: none"> • questionnaire <ul style="list-style-type: none"> - paper - electronic • interview • focus group. <p>Points to consider when designing feedback mechanism including:</p> <ul style="list-style-type: none"> • use of language <ul style="list-style-type: none"> - targeted to client - plain English - minimise technical/industry jargon • questioning technique <ul style="list-style-type: none"> - open, closed and/or reflective - avoid bias/leading questions • opportunity for ‘free-response’. <p>A range of methods to enable feedback from the client:</p> <ul style="list-style-type: none"> • written <ul style="list-style-type: none"> - mail - electronic mail - internet/intranet - facsimile

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			<ul style="list-style-type: none"> • verbal <ul style="list-style-type: none"> - telephone - one-on-one - meeting. <p>Types of feedback including:</p> <ul style="list-style-type: none"> • positive • negative • constructive. <p>How to interpret feedback in order to improve work practices.</p> <p>Reporting feedback to appropriate person/s including:</p> <ul style="list-style-type: none"> • supervisor/team leader • management • vendor • supplier • trainer • colleagues • client.