

**B O A R D O F S T U D I E S**  
NEW SOUTH WALES

## **Stage 6**

# **Information Technology Curriculum Framework**

## **Support Document**

2006

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# 1 Information Technology Curriculum Framework

## 1.1 Introduction

The Information Technology Curriculum Framework gives students the opportunity to gain credit towards the NSW Higher School Certificate (HSC) and credit towards national vocational qualifications for the information and communications technology industry under the Australian Qualifications Framework (AQF). This Framework is based on the national Information and Communications Technology Training Package (ICA05).

This Framework incorporates all HSC Information Technology VET courses whether:

- delivered by schools
- delivered by TAFE colleges, or
- delivered by other Registered Training Organisations (RTOs) on behalf of schools or TAFE colleges.

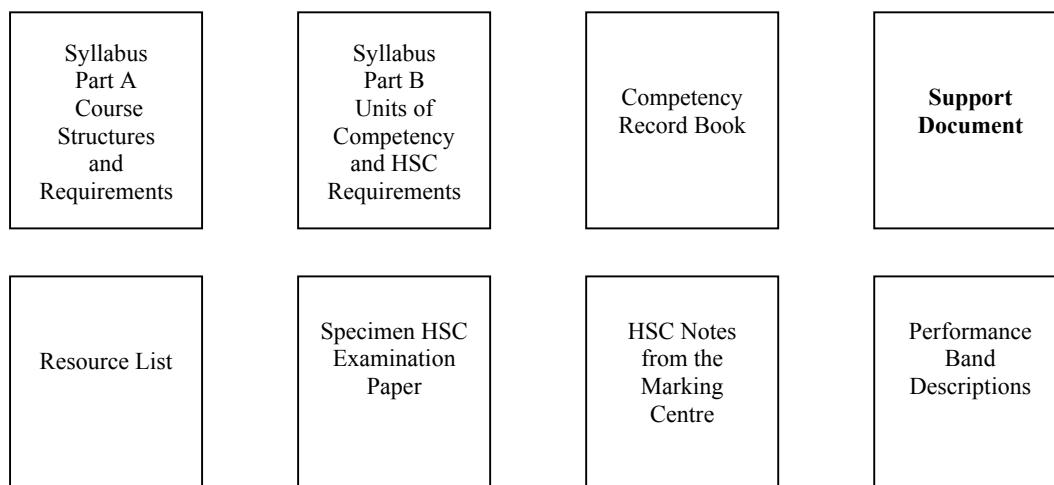
This document, the *Information Technology Curriculum Framework Support Document*, contains material and advice which is intended to assist teachers and trainers in the initial implementation of courses within the Framework and in the assessment of student competency. It must be read in conjunction with Part A and Part B of the Syllabus.

Part A of the Syllabus contains general advice about the Information Technology Curriculum Framework and describes course structures and requirements, including work placement. For HSC accreditation the delivery of all courses in the Information Technology Curriculum Framework must comply with the structures and requirements described in Part A of the Syllabus.

Part B of the Syllabus contains the text of the units of competency from the Training Package that have been included in the 240-hour course in the Framework. Part B must be used in the delivery of the Information Technology 120 and 240 indicative hour HSC courses.

The Framework documentation for the Information Technology Curriculum Framework also includes an *Information Technology Competency Record* for recording student achievement of competency. The use of the Competency Record is not mandatory. RTOs may choose to design an alternative form of competency record or use versions produced by industry bodies.

### Industry Curriculum Framework Documentation



Support materials for this Curriculum Framework include this support document and a resource list.

Parts A and B of the Syllabus are available in hard copy from the Board of Studies and may also be accessed on the Board's website ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au)). The competency record, the support document and the resource list may be accessed through the website.

## 2 Course Delivery

### 2.1 General Information

Teaching programs for courses in the Information Technology Curriculum Framework can be developed using a number of different approaches. These include:

- programming individual units of competency sequentially
- identifying a theme that is common to several units of competency, and programming teaching and learning activities which address this theme
- devising a project, experience or event that requires students to learn and use a number of competencies
- a combination of any of the above.

Each approach has merit depending on the nature of particular competencies selected, access to facilities, equipment, resources and workplaces, and the needs and experiences of students.

When considering these approaches, teachers and trainers should keep in mind the following general principles:

- VET courses focus on the achievement of workplace competence. They are intended to equip students with the skills and knowledge required to perform workplace roles to the standard expected in industry. Competence incorporates all aspects of work performance including communication, problem-solving and the capacity to apply skills and knowledge in both familiar and new situations as well as industry-specific skills
- students must be given the opportunity to develop skills over time and have multiple opportunities to demonstrate that they possess the necessary combination of skills and knowledge
- students must have the opportunity to develop and practise skills in a real or simulated workplace setting
- assessment of competence involves the assessment of skills and knowledge combined. An **integrated** or **holistic** approach to assessment should be adopted in line with the concept of competence as the integration of a wide range of skills, knowledge and attitudes. An integrated approach to course delivery will facilitate integrated competency assessment.

On the basis of these principles, teachers and trainers should develop teaching and learning programs that allow for the integrated development of several elements and/or units of competency simultaneously. Where this is not possible, learning activities developed for individual units of competency should seek to integrate elements within the unit and to address the linkages to other units identified in the Training Package and in the Syllabus.

In particular, students should be given frequent opportunities to develop and update information and communications technology industry knowledge and to consolidate skills and knowledge with respect to the environment, safety and teamwork.

Where possible, assessment tasks and events should be included as an integral part of training.

## 2.2 Sequence of Delivery

Neither the Information Technology Curriculum Framework nor the Training Package prescribes a particular delivery sequence<sup>1</sup> for individual units of competency or for related groups of units of competency. Refer to the *Information Technology Curriculum Framework Part A* for information on course structures.

The sequencing of a teaching program for a particular course is a matter for the teacher's professional judgement, based on the existing skills and experience of students, their interests, access to facilities including workplaces and the timing of work placement.

### 2.2.1 Relationships between units of competency

Relationships exist between units of competency and this should inform programming and assessment activities.

Units of competency generally need to be linked to reflect the skills required for a job role.

While holistic assessment should be adopted, most units of competency in the Training Package can be assessed independently. There are some units that **must** be assessed before other units (prerequisites). This is the case when the skills and knowledge essential to the achievement of a particular unit of competency are found in other units. The Information and Communications Technology Training Package (ICA05) contains two types of prerequisites:

- those that are relevant to every qualification from Certificate III upwards (core units from Certificate II in Information Technology); and
- those that are 'unit-specific'.

The prerequisite requirements for units of competency available in this Framework are outlined in Section 8 of Part A of the Syllabus. Details regarding prerequisites, corequisites and linked units and Training Package suggestions for holistic assessment of units of competency where combined assessment and/or training is recommended can be found in the *Unit descriptor* of each unit of competency. This information is available in Part B of the Syllabus or the Information and Communications Technology Training Package (ICA05).

The following information (pp 8–9) is reproduced from the *Competency Standards* of the *Information and Communications Technology Training Package (ICA05)*<sup>2</sup>

The success of the learning process associated with some units requires pre-existing skills and knowledge from another unit(s).

#### Prerequisites

The ICT Training Package ICA05 contains a large number of technical units of competency particularly in higher level specialist qualifications. In a number of these cases, it may be difficult to achieve to a level of workplace technical competence without pre-existing competence in another unit.

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<sup>1</sup> Some qualifications (Certificate III and above) and individual units of competency have prerequisite requirements which must be adhered to. Refer to Section 8 in Part A of the Syllabus and Section 2.2.1 in this document.

<sup>2</sup> DEST, 2005, *Information and Communications Technology Training Package (ICA05)* Volume 1 Section 1.6, pp 1-184 & 1-185. The *Competency Standards* of the *Information and Communications Technology Training Package* may also be accessed via the National Training Information Service website ([www.ntis.gov.au](http://www.ntis.gov.au)).

### Corequisites

Similarly, the learning process associated with some units may benefit by concurrent learning of the skills and knowledge in another unit. These units are called ‘corequisites’ and are also listed under the *Unit description* of each unit where relevant. Their specification may assist individuals and training organisations in the planning and execution of training.

### ‘Linked’ units

Some ICA05 units show linked or clustered units under the primary unit’s descriptor. The listing of such linked units indicates a potential relationship between the units and may provide some guidance to individuals and training organisations in the following ways:

- units which may have a degree of logical connection for example in the workplace
- identification of a ‘natural cluster’ of units to assist in elective or stream choice
- some commonality in underpinning skills and knowledge which may assist in the planning or structuring of the learning process.

However, such information is merely provided by way of guidance, will vary in its relevance depending on the configuration of particular qualifications and is not designed to dictate elective choice. It should also be noted that listed linked units may not necessarily coincide with qualification electives lists even if the primary unit is a core.

### Holistic or interdependent assessment

The final reference to other units with the text of the primary unit may be contained in the *Evidence Guide* under the heading of *Assessment Guidance*.

In some cases, the unit listed may match a ‘linked’ unit, but not always. The purpose of this guidance to user of the package is to highlight the opportunities which may present for more holistic assessment (as distinct from perhaps single-unit, independent assessment). There may be a number of reasons why a unit is listed for potentially holistic assessment including:

- common underpinning knowledge or skills
- closely related outcomes, for example one unit logically flowing one to another
- a degree of logic in grouping units for holistic assessment within the context of a project-oriented learning environment.

#### 2.2.1.1 Prerequisites for units of competency within the Information Technology Curriculum Framework

The following units of competency are **prerequisites** for **all** qualifications at Certificate III in Information Technology and above. They contain the basic fundamentals of ICT ‘foundation’ knowledge and skills. Students must achieve these units of competency prior to commencing higher-level qualifications (ie Certificate III upwards):

<i>BSBCMNI06A</i>	<i>Follow workplace safety procedures</i>
<i>ICAU1128A</i>	<i>Operate a personal computer</i>
<i>ICAD2012A</i>	<i>Design organisational documents using computing packages</i>
<i>ICAU2005A</i>	<i>Operate computer hardware</i>
<i>ICAU2006A</i>	<i>Operate computing packages</i>
<i>ICAU2013A</i>	<i>Integrate commercial computing packages</i>
<i>ICAU2231A</i>	<i>Use computer operating system</i>
<i>ICAW2001A</i>	<i>Work effectively in an IT environment</i>
<i>ICAW2002A</i>	<i>Communicate in the workplace.</i>

In addition some units of competency in the Information Technology Curriculum Framework have **unit-specific prerequisites**.

<b>UNIT OF COMPETENCY</b>	<b>UNIT-SPECIFIC PREREQUISITE</b>
ICAD2012A Design organisational documents using computing packages	ICAU1128A Operate a personal computer
ICAU2005A Operate computer hardware	ICAU1128A Operate a personal computer
ICAU2013A Integrate commercial computing packages	ICAU1128A Operate a personal computer
ICAU2231A Use computer operating system	ICAU1128A Operate a personal computer
ICAB3018A Develop macros and templates for clients using standard products	ICAU3126A Use advanced features of computer applications
ICAI3110A Implement system software changes	ICAI3020A Install and optimise operating system software
ICAS3032A Provide network systems administration	ICAI3101A Install and manage network protocols ICAS3024A Provide basic system administration
ICAS3034A Determine and action network problems	ICAS3024A Provide basic system administration ICAT3025A Run standard diagnostic tests
ICAS3120A Configure and administer a network operating system	ICAI3020A Install and optimise operating system software ICAS3024A Provide basic system administration ICAS3032A # Provide network systems administration
ICAU3028A Customise packaged software applications for clients	ICAU3126A Use advanced features of computer applications
ICAI4097A Install and configure a network	ICAI3101A Install and manage network protocols
ICAS427A Support system software	ICAI3020A Install and optimise operating system software
ICAS4134A Provide first-level remote help desk support	ICAS3031A Provide advice to clients

# this unit of competency has prerequisite requirements in its own right.

### 2.2.1.2 Prerequisite requirements for *ICAB4169A Use development software and IT tools to build a basic website*

The unit of competency *ICAB4169A Use development software and IT tools to build a basic website* was included in the Information Technology Curriculum Framework as it was deemed to be a unit which students would be interested in and enjoy.

This unit of competency is:

- compulsory for the 240 indicative hour course
- not examinable as a part of the optional HSC examination
- elective for Certificate III in Information Technology
- does not contribute to Certificate II in Information Technology.

The following units (core for Certificate II) are prerequisite units for qualifications at Certificate III and above and are therefore prerequisites for *ICAB4169A*:

<i>BSBCMNI06A</i>	<i>Follow workplace safety procedures</i>
<i>ICAU1128A</i>	<i>Operate a personal computer</i>
<i>ICAD2012A</i>	<i>Design organisational documents using computing packages</i>
<i>ICAU2005A</i>	<i>Operate computer hardware</i>
<i>ICAU2006A</i>	<i>Operate computing packages</i>
<i>ICAU2013A</i>	<i>Integrate commercial computing packages</i>
<i>ICAU2231A</i>	<i>Use computer operating system</i>
<i>ICAW2001A</i>	<i>Work effectively in an IT environment</i>
<i>ICAW2002A</i>	<i>Communicate in the workplace.</i>

Students must have achieved competence in these prerequisite units of competency **prior to commencing** study of *ICAB4169A*.

While *ICAB4169A* is compulsory for the Information Technology Curriculum Framework, if students have not achieved the prerequisite units of competency listed above they **should not** commence learning for this unit.

It is appropriate for students to spend more time working towards competency in the prerequisite units in lieu of *ICAB4169A*.

It is **not appropriate** for students to be deemed competent in any unit of competency in order to enable them to commence study of *ICAB4169A*.

If students have met all other HSC course requirements, except that they did not undertake *ICAB4169A* as a part of the 240-hour course because they had not met prerequisite requirements, they should be considered to have satisfactorily completed the course.

## 2.2.2 Coding and numbering system for units of competency

For example: *ICAUI128A Operate a personal computer*

- the first three letters (ICA) identify the Training Package
- the next letter (U) identifies the field within the Training Package
- the first number (1) indicates the indicative AQF VET Certificate level
- the next three numbers (128) indicate the consecutive and unique unit number within the Training Package
- the last letter (A) indicates the version of the unit.

The following codes are for the fields included in the Framework:

B	Build	W	Teamwork
D	Documentation	T	Test
I	Implement	U	Use
S	Support		

## 2.2.3 Category status of units of competency for qualifications available in the Information Technology Curriculum Framework

The qualification packaging rules for the AQF VET qualifications available in this framework are outlined in Section 15 of Part A of the Syllabus. This information is reproduced from the Information and Communications Technology Training Package (ICA05).

Students who meet these requirements will be eligible for the relevant AQF VET Certificate, whether or not they have met the additional requirements of the HSC course.

Table 5 in Section 15 of Part A of the Syllabus indicates the status of each unit of competency for each qualification available in the Framework. This information will assist teachers to select specialisation study units of competency to meet qualification packaging rules.

## 2.2.4 Sample scope and sequence of units of competency to meet HSC course requirements and qualification packaging rules

Selection of units of competency should be undertaken under the guidance of the RTO to ensure that the RTO has scope to deliver those units of competency.

Units of competency contained in the Framework can be delivered by RTOs with the scope and appropriately accredited teachers and facilities. Teachers should seek advice from their school system/sector authority regarding which qualifications and units of competency they are qualified to deliver.

Guidelines regarding the selection of units of competency for qualification outcomes are provided in Section 15 of Part A of the Syllabus. Teachers should consult this document, along with Part B, when selecting units of competency.

The following examples have been developed as models which meet *HSC course indicative hour requirements and qualification packaging rules* for each qualification available in the framework. Each model is an **example of one approach** and the models are **not prescriptive**.

### 2.2.4.1 Information Technology (240 indicative hours)

**Example 1:** 240-hour course with 120-hour course exit point

*This sample scope and sequence is for the delivery of Information Technology (240 indicative hours) over two years. Course requirements for Information Technology (120 indicative hours) have been considered should a student exit the course at the end of Term 3, Year 11.*

Possible qualification outcomes:

- Certificate II in Information Technology
- Statement of Attainment towards Certificate III in Information Technology.

#### YEAR 11

Week		1	2	3	4	5	6	7	8	9	10	
TERM 1	Info Tech (240 hours)	ICAU1128A Operate a personal computer (5) BSBCM106A Follow workplace safety procedures (0) ICAU3004A Apply occupational health and safety procedures (20)						ICAU2005A Operate computer hardware (5) ICAU2231A Use computer operating system (15)				
		Assessment for RPL Refer to Part A of the Syllabus – Section 8.4						➔ A 35-hour work placement is to be undertaken by the end of Term 3				

Week		1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAU 2005A cont/d	ICAW2001A Work effectively in an IT environment (20)								
		ICAU 2231A cont/d	ICAW2002A Communicate in the workplace (15)								
work placements											

Week		1	2	3	4	5	6	7	8	9	10	
TERM 3	Info Tech (240 hours)	ICAU2006A Operate computing packages (5)						Yr 11 Exams	ICAU2006A cont/d			
		ICAD2012A Design organisational documents using computing packages (20)							ICAD2012A cont/d			
		ICAU2013A Integrate commercial computing packages (15)						ICAU2013A cont/d				
work placements							work placements ←					

Week		1	2	3	4	5	6	7	8	9	10	
TERM 4	Info Tech (240 hours)	ICAS3234A Care for computer hardware (20)						ICAI3020A Install and optimise operating system software (20)				
		➔ A second 35-hour work placement is to be undertaken by the end of Term 2, Year 12										

**YEAR 12**

	Week	1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAS3025A Run standard diagnostic tests (10)  ICAS3031A Provide advice to clients (30)								Year 12 Exams	
		work placements									

	Week	1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAS3025A cont/d ICAS3031A cont/d		ICAD3218A Create user documentation (20)					ICAB4169A Use development software and IT tools to build a basic website (20)		
		work placements ←									

	Week	1	2	3	4	5	6	7	8	9	10
TERM 3	Info Tech (240 hours)	ICAB4169A cont/d			Trial HSC		Revision				

**Example 2:** 240-hour course without 120-hour course exit point

*This sample scope and sequence is for the delivery of Information Technology (240 indicative hours) over two years. The pattern of delivery has given greater consideration to the holistic delivery of units of competency than meeting Information Technology (120 indicative hours) course requirements.*

*(However, if this pattern of delivery was adopted and a student did decide to leave after 120 hours, they could continue in Term 4 Year 11 and ensure the following units of competency were completed in that term: ICAU3004A, ICAW2001A and ICAW2002A).*

*Possible qualification outcomes:*

- Certificate II in Information Technology
- Statement of Attainment towards Certificate III in Information Technology.

**YEAR 11**

Week		1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAU1128A Operate a personal computer (5)				ICAU2005A Operate computer hardware (5)					
		BSBCMNI06A Follow workplace safety procedures (0)				ICAS3234A Care for computer hardware (20)					
		Assessment for RPL Refer to Part A of the Syllabus – Section 8.4				→ A 35 hour work placement is to be undertaken by the end of Term 3					

Week		1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAU2231A Use computer operating system (15)									
		ICAI3020A Install and optimise operating system software (20)									
		work placements									

Week		1	2	3	4	5	6	7	8	9	10	
TERM 3	Info Tech (240 hours)	ICAU2006A Operate computing packages (5)						Yr 11 Exams	ICAU2006A cont/d			
		ICAD2012A Design organisational documents using computing packages (20)							ICAD2012A cont/d			
		ICAU2013A Integrate commercial computing packages (15)						ICAU2013A cont/d				
		work placements						work placements ←				

		Week	1	2	3	4	5	6	7	8	9	10
TERM 4	Info Tech (240 hours)	ICAW2001A Work effectively in an IT environment (20)						ICAW2002A Communicate in the workplace (15) ICAS3031A Provide advice to clients (30)				
		→ A second 35 hour work placement is to be undertaken by the end of Term 2, Year 12										

## YEAR 12

		Week	1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAW2002A cont/d ICAS3031A cont/d					ICAU3004A Apply occupational health and safety procedures (10) cont/d				Yr 12 Exams	
		work placements										

		Week	1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAD3218A Create user documentation (20)					ICAS3025A Run standard diagnostic tests (10)				ICAB4169A Use development software and IT tools to build a basic website (20)	
		work placements ←										

		Week	1	2	3	4	5	6	7	8	9	10
TERM 3	Info Tech (240 hours)	ICAB4169A cont/d			Trial HSC			Revision				

### 2.2.4.2 Information Technology (240 indicative hours) plus Information Technology Specialisation Study (180 indicative hours)

#### Example 1: Applications Focus

This sample scope and sequence is for the delivery of Information Technology (240 indicative hours) as indicated on page 15. It includes concurrent delivery of Information Technology Specialisation Study (180 indicative hours) with an Applications focus.

Possible qualification outcomes:

- Certificate II in Information Technology
- Certificate III in Information Technology (specialising in Applications).

#### YEAR 11

	Week	1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAU1128A Operate a personal computer (5)				ICAU2005A Operate computer hardware (5)  ICAS3234A Care for computer hardware (20)					
		BSBCM106A Follow workplace safety procedures (0)									
		ICAU3004A Apply occupational health and safety procedures (10)									
		Assessment for RPL Refer to Part A of the Syllabus – Section 8.4				→ A 35 hour work placement is to be undertaken by the end of Term 3					

	Week	1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAU2231A Use computer operating system (15)									
		ICAI3020A Install and optimise operating system software (20)									
		work placements									

	Week	1	2	3	4	5	6	7	8	9	10	
TERM 3	Info Tech (240 hours)	ICAU2006A Operate computing packages (5)						Yr 11 Exams	ICAU2006A cont/d			
		ICAD2012A Design organisational documents using computing packages (20)							ICAD2012A cont/d			
		ICAU2013A Integrate commercial computing packages (15)							ICAU2013A cont/d			
		work placements							work placements ←			

Week		1	2	3	4	5	6	7	8	9	10	
TERM 4	Info Tech (240 hours)	ICAW2001A Work effectively in an IT environment (20)						ICAW2002A Communicate in the workplace (15) ICAS3031A Provide advice to clients (30)				
		→ A second 35 hour work placement is to be undertaken by the end of Term 2, Year 12										

Week		1	2	3	4	5	6	7	8	9	10	
Info Tech SS (180 hours)	ICAS3024A Provide basic system administration (20)					ICAI3110A Implement system software changes (20)						
						ICAI4030A Install software to networked computers (40)						
						ICAS4127A Support system software (20)						
→ An additional 49 hour work placement is to be undertaken by the end of Term 2, Year 12												

## YEAR 12

Week		1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAW2002A cont/d ICAS3031A cont/d				ICAU3004A Apply occupational health and safety procedures (10) cont/d				Yr 12 Exams	
		work placements									

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)		ICAI3110A cont/d ICAI4030A cont/d ICAS4127A cont/d								Yr 12 Exams	
		additional work placements									

Week		1	2	3	4	5	6	7	8	9	10	
TERM 2	Info Tech (240 hours)	ICAD3218A Create user documentation (20)					ICAS3025A Run standard diagnostic tests (10)			ICAB4169A Use development software and IT tools to build a basic website (20)		
		work placements ←										

Week		1	2	3	4	5	6	7	8	9	10	
	Info Tech SS (180 hours)	ICAU3126A Use advanced features of computer applications (30)							ICAU3028A Customise packaged software for clients (30)			
		additional work placements ←										

Week		1	2	3	4	5	6	7	8	9	10
TERM 3	Info Tech (240 hours)	ICAB4169A cont/d			Trial HSC		Revision				

Week		1	2	3	4	5	6	7	8	9	10
	Info Tech SS (180 hours)	ICAU3028A cont/d			Trial HSC		ICAU3019A Migrate to new technology (20)				

**Example 2: Network Administration focus**

*This sample scope and sequence is for the delivery of Information Technology (240 indicative hours) as indicated on page 15. It includes concurrent delivery of Information Technology Specialisation Study (180 indicative hours) with a Network Administration focus.*

*Possible qualification outcomes:*

- *Certificate II in Information Technology*
- *Statement of Attainment towards Certificate III in Information Technology (specialising in Network Administration).*

**YEAR 11**

		Week	1	2	3	4	5	6	7	8	9	10	
TERM 1	Info Tech (240 hours)	ICAU1128A Operate a personal computer (5)				ICAU2005A Operate computer hardware (5)  ICAS3234A Care for computer hardware (20)							
		BSBCM106A Follow workplace safety procedures (0)											
		ICAU3004A Apply occupational health and safety procedures (10)				Assessment for RPL Refer to Part A of the Syllabus – Section 8.4				→ A 35 hour work placement is to be undertaken by the end of Term 3			

		Week	1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAU2231A Use computer operating system (15)										
		ICAI3020A Install and optimise operating system software (20)										
		work placements										

		Week	1	2	3	4	5	6	7	8	9	10	
TERM 3	Info Tech (240 hours)	ICAU2006A Operate computing packages (5)							Yr 11 Exams	ICAU2006A cont/d			
		ICAD2012A Design organisational documents using computing packages (20)								ICAD2012A cont/d			
		ICAU2013A Integrate commercial computing packages (15)							ICAU2013A cont/d				
		work placements						work placements ←					

Week		1	2	3	4	5	6	7	8	9	10	
TERM 4	Info Tech (240 hours)	ICAW2001A Work effectively in an IT environment (20)						ICAW2002A Communicate in the workplace (15) ICAS3031A Provide advice to clients (30)				
		→ A second 35 hour work placement is to be undertaken by the end of Term 2, Year 12										

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAI3101A Install and manage network protocols (30) ICAS3024A Provide basic system administration (20)										
	→ An additional 49 hour work placement is to be undertaken by the end of Term 2, Year 12										

## YEAR 12

Week		1	2	3	4	5	6	7	8	9	10	
TERM 1	Info Tech (240 hours)	ICAW2002A cont/d ICAS3031A cont/d					ICAU3004A Apply occupational health and safety procedures (10) cont/d				Yr 12 Exams	
		work placements										

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAI4029A Install network hardware to a network (40) ICAI4097A Install and configure a network (40)									Yr 12 Exams	
	additional work placements										

Week		1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAD3218A Create user documentation (20)					ICAS3025A Run standard diagnostic tests (10)			ICAB4169A Use development software and IT tools to build a basic website (20)	
	work placements ←										

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAI4029A cont/d								ICAS3032A Provide network systems administration (20)		
	ICAI4097A cont/d								ICAS3034A Determine and action network problems (20)		
additional work placements ←											

Week		1	2	3	4	5	6	7	8	9	10
TERM 3	Info Tech (240 hours)	ICAB4169A cont/d			Trial HSC		Revision				

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAS3032A cont/d ICAS3034A cont/d			Trial HSC		ICAS3032A cont/d ICAS3034A cont/d					

**Example 3: Support focus**

*This sample scope and sequence is for the delivery of Information Technology (240 indicative hours) as indicated on page 15. It includes concurrent delivery of Information Technology Specialisation Study (180 indicative hours) with a Support focus.*

*Possible qualification outcomes:*

- Certificate II in Information Technology
- Certificate III in Information Technology (specialising in Support).

**YEAR 11**

	Week	1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAU1128A Operate a personal computer (5)				ICAU2005A Operate computer hardware (5)  ICAS3234A Care for computer hardware (20)					
		BSBCM106A Follow workplace safety procedures (0)									
		ICAU3004A Apply occupational health and safety procedures (10)			Assessment for RPL Refer to Part A of the Syllabus – Section 8.4			➔ A 35 hour work placement is to be undertaken by the end of Term 3			

	Week	1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAU2231A Use computer operating system (15)									
		ICAI3020A Install and optimise operating system software (20)									
		work placements									

	Week	1	2	3	4	5	6	7	8	9	10	
TERM 3	Info Tech (240 hours)	ICAU2006A Operate computing packages (5)						Yr 11 Exams	ICAU2006A cont/d			
		ICAD2012A Design organisational documents using computing packages (20)							ICAD2012A cont/d			
		ICAU2013A Integrate commercial computing packages (15)							ICAU2013A cont/d			
		work placements							work placements ←			

Week		1	2	3	4	5	6	7	8	9	10	
TERM 4	Info Tech (240 hours)	ICAW2001A Work effectively in an IT environment (20)						ICAW2002A Communicate in the workplace (15) ICAS3031A Provide advice to clients (30)				
		→ A second 35 hour work placement is to be undertaken by the end of Term 2, Year 12										

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAI3021A Connect internal hardware components (30)										
	ICAS3115A Maintain working equipment and software in working order (20)										
ICAU3019A Migrate to new technology (20)											
→ An additional 49 hour work placement is to be undertaken by the end of Term 2, Year 12											

## YEAR 12

Week		1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAW2002A cont/d ICAS3031A cont/d					ICAU3004A Apply occupational health and safety procedures (10) cont/d			Yr 12 Exams	
		work placements									

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAI3021A cont/d ICAS3115A cont/d ICAU3019A cont/d					ICAS3024A Provide basic system administration (20)			Yr 12 Exams		
	additional work placements										

Week		1	2	3	4	5	6	7	8	9	10	
TERM 2	Info Tech (240 hours)	ICAD3218A Create user documentation (20)					ICAS3025A Run standard diagnostic tests (10)			ICAB4169A Use development software and IT tools to build a basic website (20)		
		work placements ←										

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAS3024A cont/d	ICTCC330A Manage customer relationship (15) ICAS4134A Provide first level remote help desk support (30)							ICAB4135A Create a simple mark-up language (20)		
		additional work placements ←									

Week		1	2	3	4	5	6	7	8	9	10
TERM 3	Info Tech (240 hours)	ICAB4169A cont/d			Trial HSC		Revision				

Week		1	2	3	4	5	6	7	8	9	10
Info Tech SS (180 hours)	ICAB4135A cont/d	Trial HSC		ICAD4217A Create technical documentation (20)							

### 2.2.4.3 Information Technology (240 indicative hours) plus Information Technology Specialisation Study (240 indicative hours)

#### Example 1: Network Administration Specialisation

This sample scope and sequence is for the delivery of Information Technology (240 indicative hours) over one year, as well as delivery of Information Technology Specialisation Study (240 indicative hours) with a Network Administration focus.

Possible qualification outcomes:

- Certificate II in Information Technology
- Certificate III in Information Technology (specialising in Network Administration).

#### YEAR 11

	Week	1	2	3	4	5	6	7	8	9	10
TERM 1	Info Tech (240 hours)	ICAU1128A Operate a personal computer (5)	BSBCM106A Follow workplace safety procedures (0)	ICAU2005A Operate computer hardware (5)	ICAS3234A Care for computer hardware (20)		ICAU2231A Use computer operating system (15)				ICAI3020A Install and optimise operating system software (20)
		ICAU3004A Apply occupational health and safety procedures (10)									
		Assessment for RPL Refer to Part A of the Syllabus – Section 8.4			→ 70 hours (2 x 35 hour blocks) of work placement is to be undertaken by the end of Term 3						

	Week	1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech (240 hours)	ICAU2006A Operate computing packages (5)	ICAD2012A Design organisational documents using computing packages (20)		Yr 11 Exams (IT only)	ICAU2006A cont/d	ICAU2013A cont/d	ICAW2001A Work effectively in an IT environment (20)			ICAW2002A Communicate in the workplace (15)
		ICAD2012A cont/d				ICAS3031A Provide advice to clients (30)					
		work placements		work placements							

	Week	1	2	3	4	5	6	7	8	9	10	
TERM 3	Info Tech (240 hours)	ICAW2002A cont/d			ICAU3004A (10) cont/d		ICAD3218A Create user documentation (20)		Yr 11 Exams	ICAD3218A cont/d		
		ICAS3031A cont/d			Revision		ICAS3025A Run standard diagnostic tests (10)			ICAS3025A cont/d		
		work placements								work placements		

	Week	1	2	3	4	5	6	7	8	9	10
TERM 4	Info Tech (240 hours)	Revision prior to sitting IT HSC exam				ICAB4169A Use development software and IT tools to build a basic website (20)					

	Week	1	2	3	4	5	6	7	8	9	10
Info Tech Special'n Study (240 hours)	ICAI3101A Install and manage network protocols (30) ICAS3024A Provide basic system administration (20)										
	➔ An additional 70 hours (2 x 35 hour blocks) of work placement is to be undertaken by the end of Term 2, Year 12										

## YEAR 12

	Week	1	2	3	4	5	6	7	8	9	10	
TERM 1	Info Tech Special'n Study (240 hours)	ICAI4029A Install network hardware to a network (40) ICAI4097A Install and configure a network (40)								Year 12 Exams		
		additional work placements										

	Week	1	2	3	4	5	6	7	8	9	10
TERM 2	Info Tech Special'n Study (240 hours)	ICAI4029A cont/d		ICAS3032A Provide network systems administration (20)							
		ICAI4097A cont/d		ICAS3034A Determine and action network problems (20)							
				ICAD4217A Create technical documentation (20)							
		additional work placements ←									

	Week	1	2	3	4	5	6	7	8	9	10
TERM 3	Info Tech Special'n Study (240 hours)	ICAS3120A Configure and administer a network operating system (30)  ICAS3121A Administer network peripherals (20)			Trial HSC		ICAS3120A cont/d  ICAS3121A cont/d			Catch up time	

### **2.2.5 The timing of work placement**

The scheduling of work placement should reflect student readiness and complement off-the-job learning programs. It is recommended the learning experiences for the HSC for the following units of competency be addressed prior to students undertaking a work placement:

- BSBCMN106A Follow workplace safety procedures
- ICAU30004A Apply occupational health and safety procedures
- ICAU1128A Operate a personal computer.

### **3 Teaching Programs**

#### **3.1 An Integrated Approach to Programming – Using a Theme**

An integrated approach to programming using a theme or other focus can provide a holistic approach to teaching and assessing a number of units of competency.

Units that relate to a particular aspect of the ICT industry could be grouped together, for example:

- communication in the workplace
- provide advice to customers.

Programs could be developed using a theme such as:

- computer hardware
- operating systems
- computing packages.

**Sample Program                      Safety in the workplace**

**Rationale:**        This theme is intended to provide the opportunity for students to develop knowledge and skills required to apply occupational health and safety requirements to daily workplace operations in an information technology environment.

**Units of competency:**    BSBCM106A    Follow workplace safety procedures  
    ICAU3004A    Apply occupational health and safety procedures  
    ICAU1128A    Operate a personal computer

**HSC Requirements and Advice – Key terms and concepts:**

<b>Apply occupational health and safety procedures</b>	
<ul style="list-style-type: none"> <li>• appropriate person/s</li> <li>• consultation</li> <li>• correct manual handling techniques</li> <li>• cost of workplace injury</li> <li>• design, awareness and training</li> <li>• emergency procedures</li> <li>• emergency situations</li> <li>• employer and employee responsibilities</li> <li>• ergonomic requirements</li> <li>• ergonomic solutions</li> <li>• evacuation plan</li> <li>• hazard</li> <li>• hierarchy of risk control measures</li> <li>• legislation, regulations and codes of practice</li> <li>• monitoring</li> <li>• occupational health and safety (OHS)</li> <li>• <i>Occupational Health and Safety Act 2000 (NSW)</i></li> <li>• <i>Occupational Health and Safety Regulations 2001(NSW)</i></li> <li>• OHS policies, procedures and practices</li> <li>• OHS representative/committee</li> <li>• OHS standards</li> </ul>	<ul style="list-style-type: none"> <li>• participation</li> <li>• person/s responsible for OHS</li> <li>• recording and reporting</li> <li>• review and assess (OHS audit) workplace and workstation</li> <li>• risk management</li> <li>• safe work practices</li> <li>• safety signs and symbols</li> <li>• seeking assistance</li> <li>• sources of information</li> <li>• weight limits</li> <li>• work environment</li> <li>• work station</li> <li>• WorkCover NSW</li> <li>• working with electricity</li> <li>• workplace documentation and reports.</li> </ul>

**Assessment:**

Unit/element of competency	Possible assessment strategy
<p><i>ICAUI128A Operate a personal computer</i></p> <ol style="list-style-type: none"> <li><b>1 Start the computer</b></li> <li><b>2 Access basic system information</b></li> <li><b>3 Navigate and manipulate desktop environment</b></li> <li><b>4 Organise basic directory/folder structure and files</b></li> <li><b>5 Organise files for user and/or organisation requirements</b></li> <li><b>6 Print information</b></li> <li><b>7 Shut down computer</b></li> </ol>	<p><b>Task 1</b>    <i>Training guide – Beginners guide to using a computer</i></p> <p>Students create a do-it-yourself training guide for beginners to learn the basic fundamentals of how to operate a personal computer. Students will be required to select and use appropriate software and include activities, graphics and appropriate formatting where relevant.</p> <p>The training guide should cover the following areas:</p> <ul style="list-style-type: none"> <li>• preparing the computer for use             <ul style="list-style-type: none"> <li>- checking peripheral devices</li> <li>- turn on at power point and system unit</li> </ul> </li> <li>• logging on to systems             <ul style="list-style-type: none"> <li>- individual computers</li> <li>- networks</li> </ul> </li> <li>• accessing system information             <ul style="list-style-type: none"> <li>- hardware</li> <li>- software</li> </ul> </li> <li>• desktop environment             <ul style="list-style-type: none"> <li>- desktop icons</li> <li>- application windows</li> </ul> </li> <li>• on-line help</li> <li>• directories and subdirectories             <ul style="list-style-type: none"> <li>- creating, naming and moving</li> <li>- properties (eg read-only, hidden)</li> <li>- access</li> </ul> </li> <li>• files             <ul style="list-style-type: none"> <li>- search via system browser</li> <li>- select, open, rename and move</li> <li>- copy and delete</li> <li>- restoring deleted files</li> <li>- erasing and formatting disks</li> </ul> </li> <li>• printers             <ul style="list-style-type: none"> <li>- add printer and set as default</li> <li>- progress of print jobs</li> </ul> </li> <li>• shut down procedures.</li> </ul>

Unit/element of competency	Possible assessment strategy
<p><i>ICAUI128A Operate a personal computer</i></p> <ol style="list-style-type: none"> <li><b>1 Start the computer</b></li> <li><b>2 Access basic system information</b></li> <li><b>3 Navigate and manipulate desktop environment</b></li> <li><b>4 Organise basic directory/folder structure and files</b></li> <li><b>5 Organise files for user and/or organisation requirements</b></li> <li><b>6 Print information</b></li> <li><b>7 Shut down computer</b></li> </ol>	<p><b>Task 2</b>    <i>Hardware and software report</i></p> <p>Students will operate a personal computer to access the system information. As a part of the assessment they will demonstrate their skills in word processing, organising files and folders and directories, saving and printing.</p> <p>Information to be identified and reported:</p> <ul style="list-style-type: none"> <li>• operating system               <ul style="list-style-type: none"> <li>- system version</li> <li>- licence details</li> </ul> </li> <li>• software applications.</li> </ul> <p>Students will create a number of directories and subdirectories saved to the home drive and to disk. Students will be required to submit their report in electronic and hardcopy format and provide the file pathname for the electronic version.</p>
<p><i>BSBCMNI06A Follow workplace safety procedures</i></p> <ol style="list-style-type: none"> <li><b>1 Follow workplace safety procedures</b></li> <li><b>2 Contribute to occupational health and safety in the workplace</b></li> </ol> <p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <ol style="list-style-type: none"> <li><b>1 Determine OH&amp;S issues relating to immediate work environment</b></li> <li><b>2 Document and disseminate OH&amp;S requirements</b></li> <li><b>3 Provide basic ergonomic advice</b></li> </ol> <p><i>ICAUI128A Operate a personal computer</i></p> <ol style="list-style-type: none"> <li><b>1 Start the computer</b></li> <li><b>3 Navigate and manipulate desktop environment</b></li> <li><b>4 Organise basic directory/folder structure and files</b></li> <li><b>5 Organise files for user and/or organisation requirements</b></li> <li><b>6 Print information</b></li> <li><b>7 Shut down computer</b></li> </ol>	<p><b>Task 3</b>    <i>OHS advice for an organisation</i></p> <p>Students are given a case study of an organisation that is opening a regional office where staff will spend extended periods of time working at computer workstations. The company is employing each student as an OHS specialist to provide advice and recommendations about the working environment.</p> <p>Students are to produce a word processed document that includes the following information:</p> <ul style="list-style-type: none"> <li>• overview of the relevant OHS legislation</li> <li>• OHS responsibilities of the employer and employees</li> <li>• potential workplace hazards and policies/procedures that can be implemented to minimise risk</li> <li>• basic ergonomic requirements of employees</li> <li>• emergency situation procedures</li> <li>• the establishment and role of an OHS committee.</li> </ul>

Unit/element of competency	Possible assessment strategy
<p><i>BSBCMNI06A Follow workplace safety procedures</i></p> <p><b>1 Follow workplace safety procedures</b></p> <p>1.1 Hazards in the work area are recognised, while under direct supervision and reported to appropriate people according the workplace procedures</p> <p><b>2 Contribute to occupational health and safety in the workplace</b></p> <p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p><b>2 Document and disseminate OH&amp;S requirements</b></p> <p><b>3 Provide basic ergonomic advice</b></p>	<p><b>Task 4</b> IT workplace safety audit</p> <p>Students perform an OHS audit of:</p> <ul style="list-style-type: none"> <li>• school office/IT environment or a workplace</li> <li>• an individual workstation using the teacher as the client.</li> </ul> <p>The audit should assess:</p> <ul style="list-style-type: none"> <li>• OHS standards</li> <li>• environmental and ergonomic requirements</li> <li>• safety in relation to working with electricity.</li> </ul> <p>Students produce a written report outlining their findings and proposing and justifying recommendations of revised policies and procedures and a suitable workstation including costing from a suitable supplier.</p>

**Assessment checklist:**

Unit/Element of Competency	Task 1	Task 2	Task 3	Task 4
<b>ICAU1128A Operate a personal computer</b>				
<i>1 Start the computer</i>				
1.1 Check peripheral device connections for correct position	✓	✓	✓	
1.2 Switch on power at both the power point and computer	✓	✓	✓	
<i>2 Access basic system information</i>				
2.1 Insert user name and password as prompted and note access, privacy, security and related conditions of use displayed on introductory screens	✓	✓		
2.2 Navigate through the operating system to access system information to identify system configuration and application versions in operation	✓	✓		
2.3 Use on line help functions as required	✓	✓		
<i>3 Navigate and manipulate desktop environment</i>				
3.1 Create and customise desktop icons	✓	✓	✓	
3.2 Select, open and close desktop icons to access application programs	✓	✓	✓	
3.3 Manipulate application windows and return desktop to original condition	✓	✓	✓	
<i>4 Organise basic directory/folder structure and files</i>				
4.1 Create and name directories and subdirectories	✓	✓	✓	
4.2 Identify attributes of directories	✓	✓	✓	
4.3 Move subdirectories between directories	✓	✓	✓	
4.4 Rename directories as required	✓	✓	✓	
4.5 Access directories and subdirectories via different paths	✓	✓	✓	
<i>5 Organise files for user and/or organisation requirements</i>				
5.1 Use system browser to search drives for specific files	✓	✓	✓	
5.2 Access the most commonly used types of files in the directories	✓	✓	✓	
5.3 Select, open and rename groups of files as required	✓	✓	✓	
5.4 Move files between directories	✓	✓	✓	
5.5 Copy files to disk	✓	✓	✓	
5.6 Restore deleted files as necessary	✓	✓	✓	

Unit/Element of Competency	Task 1	Task 2	Task 3	Task 4
5.7 Erase and format disks as necessary	✓	✓	✓	
<b>6 Print information</b>				
6.1 Add a printer if required and ensure correct printer settings	✓	✓	✓	
6.2 Change the default printer if appropriate	✓	✓	✓	
6.3 Print information from an installed printer	✓	✓	✓	
6.4 View and delete progress of print jobs as required	✓	✓	✓	
<b>7 Shut down computer</b>				
7.1 Save any work to be retained and close all open application programs correctly	✓	✓	✓	
7.2 Shut down computer correctly	✓	✓	✓	
<b>ICAU3004A Apply occupational health and safety procedures</b>				
<b>1 Determine OH&amp;S issues relating to immediate work environment</b>				
1.1 Identify person responsible for OH&S standards in the subject workplace			✓	
1.2 Identify OH&S standards that apply to the workplace			✓	✓
1.3 Review and assess workplace according to OH&S standards and record findings			✓	✓
1.4 Report issues or problems with the workplace to the appropriate person			✓	✓
<b>2 Document and disseminate OH&amp;S requirements</b>				
2.1 Determine and document the OH&S standards impact upon the subject workplace			✓	✓
2.2 Submit documentation to appropriate person for verification			✓	✓
2.3 Update or reissue OH&S documents relating to IT as required			✓	
<b>3 Provide basic ergonomic advice</b>				
3.1 Assess basic ergonomic requirements of people in the workplace			✓	✓
3.2 Document the ergonomic advice for client based on vendor requirements, workplace policies and OH&S standards			✓	✓
3.3 Submit advice to the appropriate person for verification			✓	✓
<b>BSBCM106A Follow workplace safety procedures</b>				
<b>1 Follow workplace safety procedures</b>				
1.1 Hazards in the work area are recognised, while under direct supervision and reported to appropriate people according the workplace procedures			✓	✓

<b>Unit/Element of Competency</b>	<b>Task 1</b>	<b>Task 2</b>	<b>Task 3</b>	<b>Task 4</b>
1.2 Workplace procedures and work instruction for own area of responsibility, for assessing and controlling risks are followed accurately while under supervision			✓	
1.3 Workplace procedures for dealing with incidents (accidents), fire and other emergencies are followed under direct supervision, whenever necessary within the scope of responsibilities and competencies			✓	
<i>2 Contribute to occupational health and safety in the workplace</i>				
2.1 Occupational Health and Safety issues are raised with appropriate people in accordance with workplace procedures and relevant Occupational Health and Safety legislation			✓	✓
2.2 Contributions to participative arrangements for Occupational Health and Safety management in the workplace are made within organisational procedures and the scope of responsibilities and competencies			✓	✓

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAU1128A Operate a personal computer</i></p> <p><b>1 Start the computer</b></p> <p>1.1 Check peripheral device connections for correct position</p> <p>1.2 Switch on power at both the power point and computer</p> <p><b>2 Access basic system information</b></p> <p>2.1 Insert user name and password as prompted and note access, privacy, security and related conditions of use displayed on introductory screens</p> <p>2.2 Navigate through the operating system to access system information to identify system configuration and application versions in operation</p> <p>2.3 Use on-line help functions as required</p> <p><b>3 Navigate and manipulate desktop environment</b></p> <p>3.1 Create and customise desktop icons</p> <p>3.2 Select, open and close desktop icons to access application programs</p> <p>3.3 Manipulate application windows and return desktop to original condition</p> <p><b>4 Organise basic directory/folder structure and files</b></p> <p>4.1 Create and name directories and subdirectories</p> <p>4.2 Identify attributes of directories</p> <p>4.3 Move subdirectories between directories</p> <p>4.4 Rename directories as required</p> <p>4.5 Access directories and subdirectories via different paths</p> <p><b>5 Organise files for user and/or organisation requirements</b></p>	<p><b>Introduction to IT - Basic computer operation</b></p> <p>Parts of a computer:</p> <ul style="list-style-type: none"> <li>• hardware components</li> <li>• peripheral devices</li> </ul> <p>Awareness of a range of operating systems and application programs.</p>	<p>Demonstrate:</p> <ul style="list-style-type: none"> <li>• start-up and shutdown procedures</li> <li>• network log-on and log-off</li> </ul> <p>Students create a basic map of the hardware for their computer.</p> <p>In small groups brainstorm the following and report back to the class:</p> <ul style="list-style-type: none"> <li>• common input and output devices found in the workplace</li> <li>• peripheral hardware and its appropriate application including: <ul style="list-style-type: none"> <li>- printers of various types</li> <li>- types of VDU (CRT, LCD, projector etc)</li> </ul> </li> <li>• interfaces and connections found on the computer</li> </ul> <p>Discuss role of an operating system (OS) and the difference between an OS and application software</p> <p>Link to Task 2 – list the application programs available on the school/ college workstations.</p> <p>Conduct internet research on the following OS:</p> <ul style="list-style-type: none"> <li>• Windows XP</li> <li>• Mac OS X</li> <li>• Linux.</li> </ul> <p>For each identify:</p> <ul style="list-style-type: none"> <li>• the developer</li> <li>• the platform</li> <li>• a range of features unique to each.</li> </ul>

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<p>5.1 Use system browser to search drives for specific files</p> <p>5.2 Access the most commonly used types of files in the directories</p> <p>5.3 Select, open and rename groups of files as required</p> <p>5.4 Move files between directories</p> <p>5.5 Copy files to disk</p> <p>5.6 Restore deleted files as necessary</p> <p>5.7 Erase and format disks as necessary</p> <p><b>6 Print information</b></p> <p>6.1 Add a printer if required and ensure correct printer settings</p> <p>6.2 Change the default printer if appropriate</p> <p>6.3 Print information from an installed printer</p> <p>6.4 View and delete progress of print jobs as required</p> <p><b>7 Shut down computer</b></p> <p>7.1 Save any work to be retained and close all open application programs correctly</p> <p>7.2 Shut down computer correctly</p>	<p>Operating a personal computer:</p> <ul style="list-style-type: none"> <li>• start up and shut down</li> <li>• access system <ul style="list-style-type: none"> <li>- network log in</li> <li>- system information (hardware and software)</li> <li>- on-line help functions</li> </ul> </li> <li>• access application programs <ul style="list-style-type: none"> <li>- create and use desktop icons</li> <li>- manipulate icons</li> <li>- open and close applications</li> </ul> </li> <li>• use directories/folders <ul style="list-style-type: none"> <li>- create, name and rename</li> <li>- identify attributes</li> <li>- move</li> <li>- access via different paths</li> </ul> </li> <li>• use files <ul style="list-style-type: none"> <li>- search for files using system browser</li> <li>- commonly used files</li> <li>- select, open and rename groups of files</li> <li>- move files</li> <li>- copy files</li> <li>- restore deleted files</li> <li>- erase and format disks</li> <li>- save files</li> </ul> </li> <li>• print <ul style="list-style-type: none"> <li>- use/adjust printer settings</li> <li>- add a printer</li> <li>- set default printer</li> <li>- print jobs</li> <li>- view and delete print jobs</li> </ul> </li> </ul>	<p>Investigate the following computer settings, identifying the function of each:</p> <ul style="list-style-type: none"> <li>• available printers (default printers) <ul style="list-style-type: none"> <li>- printer settings</li> <li>- print queue</li> </ul> </li> <li>• network resources <ul style="list-style-type: none"> <li>- servers</li> <li>- home directories</li> <li>- directory structure</li> </ul> </li> <li>• display controls and screensavers.</li> </ul> <p><i>On a 'locked down' computer network some elements of this activity may be best done as a demonstration.</i></p> <p>Discuss acceptable conventions for:</p> <ul style="list-style-type: none"> <li>• use of directories and subdirectories</li> <li>• naming files</li> <li>• version control</li> <li>• placement of student name, date and version in footers</li> </ul> <p>Link to Tasks 1 and 2.</p>
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p>1.1 Identify person responsible for OH&amp;S standards in the subject workplace</p>	<p><b>Safety in the workplace</b></p> <p>Cost of workplace injury:</p> <ul style="list-style-type: none"> <li>• human</li> <li>• social</li> <li>• economic</li> <li>• organisational.</li> </ul>	<p>Class discussion about the concept of workplace health and safety.</p> <p>Develop a portfolio of newspaper articles on injuries in the office environment.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>An understanding of how the objectives of occupational health and safety (OHS) – to increase productivity, safety and comfort – can be met through the use of:</p> <ul style="list-style-type: none"> <li>• design</li> <li>• awareness</li> <li>• training.</li> </ul> <p>Sources of information regarding OHS in the workplace:</p> <ul style="list-style-type: none"> <li>• organisation/company policies and procedures                             <ul style="list-style-type: none"> <li>- safety/emergency/incident plan</li> <li>- Australian Standards</li> <li>- training manuals</li> <li>- operator’s manuals</li> </ul> </li> <li>• WorkCover NSW and National Occupational Health and Safety Commission (NOHSC) publications/safety alerts</li> <li>• legislation/regulations/codes of practice</li> <li>• manufacturer’s specifications.</li> </ul>	<p>Internet research – obtain statistical data on workplace injuries in information communication technology workplaces on a national or state level. Present the results in a graph or table.</p> <p>Discuss the costs of workplace injury to the employer and employee and write a newspaper article to inform the community of these costs.</p> <p>Define the term ‘occupational health and safety’.</p> <p>Discuss the following:</p> <ul style="list-style-type: none"> <li>• the purpose of OHS and its importance                             <ul style="list-style-type: none"> <li>- employees perspective</li> <li>- employers perspective</li> </ul> </li> <li>• who is responsible for workplace safety.</li> </ul> <p>Group work – each group is to select an area (design, awareness or training) and identify how their area can meet the objectives of OHS. Create a handout and report back to the class.</p> <p>Compile a list of a range of sources of information on workplace safety – for each source identify its origin and summarise the type of information that can be accessed.</p>
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to</b></p>	<p><b>OHS Legislation</b></p> <p>A basic awareness of the differences between:</p> <ul style="list-style-type: none"> <li>• an act</li> </ul>	<p>Develop a glossary of the terms listed.</p>

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<p><b>immediate work environment</b></p> <p>1.1 Identify person responsible for OH&amp;S standards in the subject workplace</p>	<ul style="list-style-type: none"> <li>• a regulation</li> <li>• codes of practice</li> <li>• standards.</li> </ul> <p>A basic understanding of OHS legislation and codes of practice:</p> <ul style="list-style-type: none"> <li>• <i>Occupational Health and Safety Act 2000</i> (NSW)</li> <li>• <i>Occupational Health and Safety Regulations 2001</i> (NSW)</li> <li>• <i>Workers Compensation Act 1987</i> (NSW) and amendments</li> <li>• <i>Workplace Injury Management and Workers Compensation Act 1998</i> (NSW)</li> <li>• Codes of practice (WorkCover NSW)                             <ul style="list-style-type: none"> <li>- OHS Consultation</li> <li>- Risk Assessment.</li> </ul> </li> </ul> <p>An awareness of employer responsibilities under the OHS Act:</p> <ul style="list-style-type: none"> <li>• maintaining places of work under their control in a safe condition, and ensuring safe entrances and exits</li> <li>• making arrangements to ensure the safe handling, storage and transport of plant and substances</li> <li>• providing and maintaining systems of work and work environments that are safe and without risks to health</li> <li>• providing information, instruction, training and supervision necessary to ensure the health and safety of employees</li> <li>• providing adequate facilities for the welfare of employees</li> <li>• must not require employees to pay for anything done or provided to meet the requirements of the Act or Regulation</li> <li>• must consult with employees about OHS matters to enable them to contribute to decisions affecting their health, safety and welfare</li> <li>• must ensure the health and safety of visitors or people</li> </ul>	<p>Discuss the purposes of OHS legislation and summarise key points of the legislation as it applies to the information and communications technology (ICT) industry.</p> <p>Internet research activity – create a table outlining the following information for the legislation listed:</p> <ul style="list-style-type: none"> <li>• website address where each can be accessed</li> <li>• a brief outline of what each of the acts or regulations covers</li> <li>• the employer’s responsibilities under the acts</li> <li>• the employee’s responsibility under the acts.</li> </ul> <p>Role-play scenarios of good/poor OHS, highlighting employer/employee responsibilities.</p> <p>Discuss consequences of both employers and employees, as groups and individually, not taking responsibility for OHS in the workplace</p> <p>Link to Task 3.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>working who are not employees.</p> <p>An awareness of employee responsibilities under the OHS Act:</p> <ul style="list-style-type: none"> <li>• employees must take reasonable care of the health and safety of themselves and others</li> <li>• employees must cooperate with employers in their efforts to comply with occupational health and safety requirements</li> <li>• employees must not interfere with or misuse things provided for the health, safety or welfare of persons at work</li> <li>• employees must not obstruct attempts to give aid or attempts to prevent serious risk to the health and safety of a person at work</li> <li>• employees must not refuse a reasonable request to assist in giving aid or preventing a risk to health and safety</li> <li>• employees must not disrupt workplace by creating false health or safety fears.</li> </ul>	
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p>1.1 Identify person responsible for OH&amp;S standards in the subject workplace</p> <p><i>BSBCMNI06A Follow workplace safety procedures</i></p> <p><b>2 Contribute to occupational health and safety in the workplace</b></p> <p>2.1 Occupational health and safety issues are raised with appropriate people in accordance with workplace procedures and relevant occupational health and safety legislation</p>	<p><b>Key bodies in OHS</b></p> <p>The concept of ‘participation’ and ‘consultation’ as it relates to workplace safety and employee rights and responsibilities.</p> <p>An acknowledgement that OHS is everyone’s responsibility in the workplace.</p> <p>An understanding of the election/formation, roles and responsibilities of the OHS representatives or committee in the workplace.</p>	<p>Class discussion about the concept of participation and its relationship to the rights and responsibilities of employers and employees under the OHS Act.</p> <p>Class debate – only employers are responsible for OHS in the workplace.</p> <p>Look at the requirements for an OHS committee including:</p> <ul style="list-style-type: none"> <li>• legal requirements</li> <li>• representative composition</li> <li>• key groups involved</li> <li>• key responsibilities.</li> </ul>

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<p>2.2 Contribute to participative arrangements for Occupational Health and Safety management in the workplace are made within organisational procedures and the scope of responsibilities and competencies</p>	<p>A basic understanding of the roles and functions of key bodies involved in OHS:</p> <ul style="list-style-type: none"> <li>• WorkCover NSW</li> <li>• NOHSC</li> <li>• local councils</li> <li>• unions</li> <li>• professional associations.</li> </ul>	<p>Link to Task 3.</p> <p>Guest speaker – chair of the school OHS committee to discuss</p> <ul style="list-style-type: none"> <li>• how the committee is formed/elected and its composition</li> <li>• training</li> <li>• roles and responsibilities</li> <li>• benefits of having an OHS committee to employers and employees</li> <li>• concept of participation and consultation.</li> </ul> <p>Form a hypothetical OHS committee and conduct a mock OHS of the school office and IT facilities.</p> <p>Visit the websites of listed organisations to identify their main role and function as it relates to the information and communication technology industry.</p>
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p>1.2 Identify OH&amp;S standards that apply to the workplace</p> <p><b>3 Provide basic ergonomic advice</b></p> <p>3.1 Assess basic ergonomic requirements of people in the workplace</p>	<p><b>Safe work practices</b></p> <p>Safe work practices:</p> <ul style="list-style-type: none"> <li>• OHS induction training (general, work activity and location specific)</li> <li>• selection of appropriate tools for the task</li> <li>• correct use, maintenance and storage of tools, equipment and machinery</li> <li>• correct handling, application, transport and storage of materials.</li> <li>• safe posture (sitting, standing, bending and lifting)</li> <li>• correct manual handling (lifting and transferring)</li> <li>• correct use of fire fighting equipment:</li> </ul>	<p>Students to complete one of the following online activities providing them with a broad overview of workplace health and safety.</p> <ul style="list-style-type: none"> <li>• ‘Get Certified’ WorkCover Corporation SA <a href="http://203.147.152.242/safeworksa/EducationAndTraining/GamesAndTests/GetCertified/instructions.htm">http://203.147.152.242/safeworksa/EducationAndTraining/GamesAndTests/GetCertified/instructions.htm</a></li> <li>• Safety Sense (Workcover QLD, Office section is good) <a href="http://www.whs.qld.gov.au/safetysense/index.htm">www.whs.qld.gov.au/safetysense/index.htm</a></li> <li>• HSC Online (OH&amp;S) <a href="http://hsc.csu.edu.au/info_tech/core/apply_ohs/icaitu004b/ICAITU004B.html">http://hsc.csu.edu.au/info_tech/core/apply_ohs/icaitu004b/ICAITU004B.html</a></li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>- fire blanket</li> <li>- fire extinguishers</li> <li>• hazard identification and risk control</li> <li>• basic first aid training and access to first aid kits</li> <li>• procedures to follow in the event of an emergency</li> <li>• effective communication and teamwork</li> <li>• adherence to work instructions, organisation/company policy and standard operating procedures</li> <li>• housekeeping/clean-up procedures with due consideration to OHS and the environment.</li> </ul> <p>An awareness of legal requirements for weight limits.</p> <p>Knowledge of correct manual handling techniques when:</p> <ul style="list-style-type: none"> <li>• moving</li> <li>• lifting/carrying</li> <li>• using hand tools</li> <li>• loading/unloading</li> <li>• working at heights</li> <li>• bending and twisting</li> <li>• using mechanical aids</li> <li>• undertaking repetitious tasks.</li> </ul> <p>Selection and use of standard safety signs and symbols common to an information technology work environment:</p> <ul style="list-style-type: none"> <li>• legislative requirements</li> <li>• meaning of shape and colour</li> <li>• appropriate placement and positioning.</li> </ul>	<p>Brainstorm a list of work practices to promote a safe and healthy office environment.</p> <p>Review issues associate with office practice that may pose OHS in the workplace:</p> <ul style="list-style-type: none"> <li>• rest breaks</li> <li>• exercise</li> <li>• facilities</li> <li>• noise</li> <li>• bullying and harassment</li> <li>• manual handling.</li> </ul> <p>In pairs select one element and produce a brief presentation to be shared with the class.</p> <p>Review the ‘National Code of Practice: Manual Handling’ and identify weight limits.</p> <p>Discuss the importance of correct manual handling techniques and the consequences of incorrect manual handling.</p> <p>Students visit the WorkCover NSW Safety Zone website <a href="http://workcover.cadre.com.au/index_1st.html">http://workcover.cadre.com.au/index_1st.html</a> , and explore this interactive website viewing the moving and handling section.</p> <p>Students prepare a manual handling checklist that may be used to evaluate each other’s manual handling technique.</p> <p>Demonstrate correct manual handling techniques.</p> <p>Review a range of signs used in the workplace and identify their meaning.</p> <p>Explore the website <a href="http://www.seton.com.au">www.seton.com.au</a> (a safety equipment manufacturer) and identify a range of standard safety signs appropriate to hazards in an IT environment.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Identification of safety requirements when working with electricity:</p> <ul style="list-style-type: none"> <li>• general electrical safety</li> <li>• proper position/placement of cables/leads</li> <li>• storage of excess cables/leads</li> <li>• cables/leads in good working condition</li> <li>• safety/lockout tagging as appropriate.</li> </ul>	<p>Identify hazards specific to working with electricity.</p> <p>Review the electrical safety section for tagging requirements on the WorkCover website  <a href="http://www.workcover.nsw.gov.au/FAQs/Industry/Electrical/default.htm">www.workcover.nsw.gov.au/FAQs/Industry/Electrical/default.htm</a></p> <p>Identify common cabling and placement problems.</p>
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>3 Provide basic ergonomic advice</b></p> <p>3.1 Assess basic ergonomic requirements of people in the workplace</p> <p>3.2 Document the ergonomic advice for client based on vendor requirements, workplace policies and OH&amp;S standards</p> <p>3.3 Submit advice to the appropriate person for verification</p>	<p><b>Ergonomics</b></p> <p>Identification of environmental and ergonomic requirements of a workstation:</p> <ul style="list-style-type: none"> <li>• environmental factors <ul style="list-style-type: none"> <li>- lighting</li> <li>- noise</li> <li>- ventilation</li> </ul> </li> <li>• ergonomic <ul style="list-style-type: none"> <li>- furniture <ul style="list-style-type: none"> <li>▪ desk</li> <li>▪ chair</li> <li>▪ footrest</li> <li>▪ arm rest</li> </ul> </li> <li>- equipment <ul style="list-style-type: none"> <li>▪ monitor</li> <li>▪ keyboard</li> <li>▪ mouse</li> <li>▪ document holder</li> </ul> </li> <li>- behavioural <ul style="list-style-type: none"> <li>▪ posture</li> <li>▪ exercise</li> <li>▪ time for break.</li> </ul> </li> </ul> </li> </ul> <p>Knowledge and application of basic ergonomic solutions relating to products and people/production interaction to reduce potential harm to a user when performing computer-related tasks.</p>	<p>Define the term ergonomics.</p> <p>Identify a range of environmental and ergonomic factors as listed.</p> <p>In small groups select one of the following areas, identify ergonomic risks and solutions and present a summary of the findings to the class:</p> <ul style="list-style-type: none"> <li>• environmental factors</li> <li>• furniture</li> <li>• selection and placement of equipment</li> <li>• office procedures (behavioural factors).</li> </ul> <p>Link to Task 4.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p>1.3 Review and assess workplace according to OH&amp;S standards and record findings</p> <p><i>BSBCMNI06A Follow workplace safety procedures</i></p> <p><b>1 Follow workplace safety procedures</b></p> <p>1.1 Hazards in the work area are recognised, while under direct supervision and reported to appropriate people according to workplace procedures</p> <p>1.2 Workplace procedures and work instructions for own area of responsibility, for assessing and controlling risks are followed accurately while under direct supervision</p>	<p><b>Hazard identification and risk management</b></p> <p>A definition of:</p> <ul style="list-style-type: none"> <li>• hazard.</li> </ul> <p>A basic understanding of risk management:</p> <ul style="list-style-type: none"> <li>• identify hazards</li> <li>• assess associated risks</li> <li>• use appropriate control measures to eliminate or minimise risks</li> <li>• monitor and review the control measures.</li> </ul> <p>Identification of potential hazards to:</p> <ul style="list-style-type: none"> <li>• self</li> <li>• visitors</li> <li>• colleagues</li> <li>• the general public.</li> </ul> <p>A range of hazards:</p> <ul style="list-style-type: none"> <li>• tools and equipment <ul style="list-style-type: none"> <li>- operation</li> <li>- maintenance</li> </ul> </li> <li>• manual handling</li> <li>• materials in use</li> <li>• work processes/practices</li> <li>• work environment <ul style="list-style-type: none"> <li>- poor/inadequate lighting</li> <li>- inadequate amenities</li> <li>- lack of storage and/or shelving</li> <li>- poor housekeeping</li> <li>- wet or slippery floors</li> <li>- exposed cables, extension leads and wires</li> <li>- damaged carpets</li> <li>- falling objects</li> <li>- noise</li> </ul> </li> </ul>	<p>Define risk and hazard.</p> <p>Class discussion on the concept of risk management.</p> <p>Access the WorkCover NSW site. Review the section on managing safety risks and create a brochure informing the community about risk management.  <a href="http://www.workcover.nsw.gov.au/OHS/ManagingSafetyRisks/default.htm">www.workcover.nsw.gov.au/OHS/ManagingSafetyRisks/default.htm</a></p> <p>Brainstorm who may be at risk of hazards in an IT environment.</p> <p>Brainstorm some common hazards in the IT workplace environment. Create a mind map of the range of hazards identified.</p> <p>Internet activity – explore the ‘virtual office’ interactive activity on hazard identification in the IT work on the Worksafe, South Australia website  <a href="http://www.safework.sa.gov.au/contentPages/EducationAndTraining/GamesAndTests/VirtualOffice/vofficeframe.htm">www.safework.sa.gov.au/contentPages/EducationAndTraining/GamesAndTests/VirtualOffice/vofficeframe.htm</a></p> <p>Identify potential hazards associated with a range of hardware:</p> <ul style="list-style-type: none"> <li>• monitors</li> <li>• CPU</li> <li>• printers</li> <li>• computer cabling (condition and placement)</li> <li>• carpet and flooring</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>- vibration</li> <li>- poor ventilation</li> <li>• working                             <ul style="list-style-type: none"> <li>- alone</li> <li>- with electricity</li> <li>- in confined spaces</li> </ul> </li> <li>• human factors                             <ul style="list-style-type: none"> <li>- stress</li> <li>- violence/bullying</li> <li>- playing practical jokes</li> <li>- fatigue</li> <li>- failure to follow procedures</li> <li>- lack of training or experience</li> <li>- carelessness</li> <li>- poor personal health/hygiene</li> <li>- using wrong techniques/procedures</li> <li>- ignoring safety rules/signs</li> <li>- taking short cuts</li> <li>- knowingly using unsafe equipment/tools.</li> </ul> </li> </ul> <p>Knowledge of designated personnel in relation to hazard identification and control within an organisation/company.</p> <p>A basic awareness of the hierarchy of risk control measures:</p> <ul style="list-style-type: none"> <li>• Level 1 – eliminate the risk (such as discontinue the activity or not use the equipment)</li> <li>• Level 2 – minimise the risk by                             <ul style="list-style-type: none"> <li>- substituting the system of work/equipment (with something safer)</li> <li>- modifying the system of work/equipment (to make it safer)</li> <li>- isolating the hazard (such as introducing a restrictive work area)</li> <li>- introducing engineering control (such as monitor screens)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• placement of furniture and equipment.</li> </ul> <p>As a group walk around various areas of the school, identifying potential hazards:</p> <ul style="list-style-type: none"> <li>• create a list of a range of hazards identified</li> <li>• identify the potential risk</li> <li>• make a recommendation as to how the risk can be managed or minimized.</li> </ul> <p>Design a poster to warn workers about common hazards in the IT workplace.</p> <p>Link to Task 3.</p> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• who is responsible for hazards identification and control in the workplace?</li> <li>• appropriate procedures for reporting hazards.</li> </ul> <p>Class discussion – strategies to control or eliminate risks in the IT workplace.</p> <p>Develop a flow chart to show the steps in risk management (from identifying hazards through to monitoring and review of the control measures).</p> <p>In small groups students are to perform a risk assessment and apply the hierarchy of risk control for a case study then report their findings to the class:</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• Level 3 – other controls                             <ul style="list-style-type: none"> <li>- adopt administrative controls and safe work practices</li> <li>- use personal protective equipment (PPE).</li> </ul> </li> </ul>	
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p>1.3 Review and assess workplace according to OH&amp;S standards and record findings</p> <p>1.4 Report issues or problems with the workplace to the appropriate person</p> <p><i>BSBCMNI06A Follow workplace safety procedures</i></p> <p><b>1 Follow workplace safety procedures</b></p> <p>1.1 Hazards in the work area are recognised, while under direct supervision and reported to appropriate people according to workplace procedures</p> <p><b>2 Contribute to occupational health and safety in the workplace</b></p> <p>2.1 Occupational health and safety issues are raised with appropriate people in accordance with workplace procedures and relevant occupational health and safety legislation</p> <p>2.2 Contribute to participative arrangements for Occupational Health and Safety management in the workplace are made within organisational procedures and the scope of responsibilities and competencies</p>	<p><b>OHS Monitoring and Reporting</b></p> <p>A basic awareness of monitoring and reporting for OHS:</p> <ul style="list-style-type: none"> <li>• formal/informal</li> <li>• verbal</li> <li>• written                             <ul style="list-style-type: none"> <li>- safety inspection reports</li> <li>- checklists</li> <li>- accident reports</li> <li>- WorkCover NSW notification</li> <li>- registers/logs/files.</li> </ul> </li> </ul> <p>The importance of acting within level of authority in terms of:</p> <ul style="list-style-type: none"> <li>• taking initiative</li> <li>• problem-solving</li> <li>• decision-making.</li> </ul> <p>Appropriate person(s) for reporting OHS concerns/issues:</p> <ul style="list-style-type: none"> <li>• supervisor/team leader</li> <li>• manager</li> <li>• trainer</li> <li>• OHS representative/committee</li> <li>• union representative.</li> </ul> <p>How and when to report.</p> <p>A range of sample workplace documents for safety inspection checklists/reports.</p>	<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• advantages and disadvantages of types of reporting (formal versus informal, verbal versus written, combination)</li> <li>• identify situations in which the different types of reporting should occur.</li> </ul> <p>Review a range of sample work place documents for recording/reporting incidents.</p> <p>Complete sample risk notification form.</p> <p>Class discussion.</p> <p>Case studies – to assist students to distinguish the different roles of personnel in a range of situations and who concerns/issues should be reported to.</p> <p>Class discussion.</p> <p>Review a range of scenarios and identify how and when the issues should be reported.</p> <p>Collect and discuss a range of workplace safety checklists.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>An awareness of current business practice in relation to preparing reports.</p> <p>A basic OHS audit of an information technology (IT) workplace environment.</p>	<p>Examine the format and content of a range of workplace safety reports</p> <p>Create a workplace safety checklist appropriate for the schools IT facilities.</p> <p>Link to Task 4.</p>
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p>1.2 Identify OH&amp;S standards that apply to the workplace</p> <p>1.3 Review and assess workplace according to OH&amp;S standards and record findings</p> <p><i>BSBCMNI06A Follow workplace safety procedures</i></p> <p><b>1 Follow workplace safety procedures</b></p> <p>1.3 Workplace procedures for dealing with incidents (accidents), fire and other emergencies are followed under direct supervision, whenever necessary within the scope of responsibilities and competencies</p>	<p><b>Emergency situations</b></p> <p>Emergency situations:</p> <ul style="list-style-type: none"> <li>• bomb threats</li> <li>• accidents/serious injury</li> <li>• robbery</li> <li>• fire</li> <li>• armed hold-up</li> <li>• natural disasters.</li> </ul> <p>Procedures to follow in the event of an emergency:</p> <ul style="list-style-type: none"> <li>• notification <ul style="list-style-type: none"> <li>- appropriate authorities (emergency services and WorkCover NSW)</li> <li>- colleagues</li> <li>- supervisor</li> </ul> </li> <li>• workplace/company policies and procedures <ul style="list-style-type: none"> <li>- evacuate</li> <li>- secure building.</li> </ul> </li> </ul>	<p>Brainstorm – types of emergency situations that may effect an IT workplace.</p> <p>Class discussion – the ways in which people, both employees and visitors, might react to emergency situations.</p> <p>Small group work – each group is allocated an emergency situation. Students are to develop a mind map identifying the potential risks the emergency may pose and report back to the class.</p> <p>Access the schools section of Emergency Management Australia’s website to discover types of emergency events in NSW or the local area.  <a href="http://www.ema.gov.au/agd/ema/emaSchools.nsf">http://www.ema.gov.au/agd/ema/emaSchools.nsf</a></p> <p>View a copy of the school’s policies/procedures for dealing with emergencies:</p> <ul style="list-style-type: none"> <li>• identify the roles of each participant in the emergency plan</li> <li>• how might these differ in an office environment?</li> </ul> <p>Develop an emergency plan and flow chart of procedures for dealing with emergencies to be displayed in the workplace.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• reporting.</li> </ul> <p>How and when to seek assistance.</p> <p>Knowledge of emergency contact numbers:                      ‘000’ – landline number                      ‘112’ – mobile phones.</p> <p>An awareness of information required by emergency services attending the site:</p> <ul style="list-style-type: none"> <li>• location</li> <li>• nearest cross-street</li> <li>• nature of the incident</li> <li>• number of casualties</li> <li>• nature of injuries</li> <li>• contact name and number.</li> </ul> <p>A basic awareness of the primary role of personnel in an emergency:</p> <ul style="list-style-type: none"> <li>• first aid officer</li> <li>• safety officer/safety representative</li> <li>• OHS committee member</li> <li>• colleagues</li> <li>• manager</li> <li>• supervisor/team leader</li> <li>• emergency services</li> <li>• WorkCover NSW</li> <li>• union representative.</li> </ul>	<p>Workplace scenario – bomb threat:</p> <ul style="list-style-type: none"> <li>• use sample company/organisation procedures/policies to gain ideas</li> <li>• develop a proforma to be used by staff if a telephone bomb threat is received</li> <li>• identify strategies to be considered when dealing with a bomb threat.</li> </ul> <p>Brainstorm – list a range of organisations and/or personnel who may be called upon in an emergency situation.</p> <p>Discuss the use and misuse of emergency numbers.</p> <p>Create emergency contact signs.</p> <p>Guest speaker – personnel from one of the local emergency services organisations.</p> <p>Role-play reporting of an emergency situation.</p> <p>Handout – outlining the main role of relevant personnel. For each of emergency situations discussed earlier, identify to whom (and in which order) they should be reported.</p> <p>Case study – from the list of personnel, students describe the role they would have in an office building during a fire emergency.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>An acknowledgement of the importance of training in safe work practices and emergency procedures to meet OHS requirements.</p>	<p>Discuss how training may be delivered.</p> <p>Brainstorm – What should be included in an OHS induction package for a new employee?</p>
<p><i>ICAU3004A Apply occupational health and safety procedures</i></p> <p><b>1 Determine OH&amp;S issues relating to immediate work environment</b></p> <p>1.2 Identify OH&amp;S standards that apply to the workplace</p> <p><b>2 Document and disseminate OH&amp;S requirements</b></p> <p>2.1 Determine and document the OH&amp;S standards impact upon the subject workplace</p> <p>2.2 Submit documentation to appropriate person for verification</p> <p>2.3 Update or reissue OH&amp;S documents relating to IT as required</p>	<p><b>OHS Policies</b></p> <p>An awareness of the difference between OHS standards and OHS policies, procedures and practices.</p> <p>OHS standards common to an IT environment in relation to:</p> <ul style="list-style-type: none"> <li>• work stations and associated equipment</li> <li>• work environment</li> <li>• manual handling</li> <li>• employee behaviour.</li> </ul> <p>Preparation of draft OHS documentation for a workplace conducting IT related activities.</p> <p>An understanding of current business practices in relation to preparing required OHS documentation.</p> <p>An understanding of the importance of audit trails and version control for workplace policy/procedure documentation/manuals.</p>	<p>Define and discuss the difference between standards, policies, procedures and practices.</p> <p>Discuss OHS standards as they relate to the ICT environment.</p> <p>Prepare an OHS induction program for a new employee using a presentation application such as powerpoint.</p> <p>Discuss audit trails.</p>

**Sample Program                      Operating systems and hardware**

**Rationale:**        This theme provides the opportunity for students to develop the knowledge and skills required to configure, use and optimise computer operating systems, as well as correctly operate and manage the selection, maintenance and siting of computer hardware.

**Units of competency:**    ICAS3234A        Care for computer hardware  
    ICAU2005A        Operate computer hardware  
    ICAU2231A        Use computer operating system

**HSC Requirements and Advice – Key terms and concepts:**

Care for computer hardware		Use computer operating system	
<ul style="list-style-type: none"> <li>• business requirements</li> <li>• cleaning materials and techniques</li> <li>• computer hardware</li> <li>• correct manual handling</li> <li>• diagnostic testing</li> <li>• diagnostic tools and software</li> <li>• environmental conditions</li> <li>• hardware and software interoperability</li> <li>• hardware components and their function</li> <li>• hardware problems</li> <li>• legal requirements</li> <li>• maintenance and storage of hardware, peripherals and media</li> <li>• maintenance requirements</li> <li>• maintenance schedules</li> <li>• manufacturer requirements</li> <li>• media</li> <li>• move/relocate hardware</li> <li>• occupational health and safety (OHS) principles and responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>• OHS standards</li> <li>• peripherals</li> <li>• problem-solving</li> <li>• quality standards</li> <li>• reloading of software</li> <li>• removal and replacement of components</li> <li>• safe work practices</li> <li>• selection of hardware and peripherals</li> <li>• set-up procedures</li> <li>• siting requirements</li> <li>• software</li> <li>• span of quality levels</li> <li>• system protection devices</li> <li>• warranty, replacement and upgrade.</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> <li>• functionality checks</li> <li>• generic and customised vendor drivers</li> </ul>	<ul style="list-style-type: none"> <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>

**Assessment:**

Unit/Element of competency	Possible assessment strategy
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>1 Identify computer hardware components</b></p> <p>1.1 Identify external hardware components and peripherals</p> <p>1.2 Identify internal hardware components</p> <p><b>2 Understand the inter-relationship between computer hardware and software</b></p> <p>2.6 Draw a simple block (schematic) diagram showing the interconnection of the various components of a computer</p> <p><b>3 Use computer input equipment</b></p> <p>3.1 Follow OH&amp;S standards and organisational policies and procedures when using computer input equipment</p> <p><i>ICAU2231A Use computer operating system</i></p> <p><b>1 Configure operating system</b></p> <p>1.1 Configure operating system to suit the working environment, including but not limited to setting variables</p> <p><b>2 Use operating system</b></p> <p>2.1 Install, upgrade and uninstall application software to suit the working environment</p> <p>2.2 Use both the graphical user interface and the command line interface to perform basic tasks</p> <p><b>3 Optimise operating system</b></p> <p>3.1 Use operating system and third party utilities</p> <p>3.2 Customise the graphical user interface</p> <p><b>4 Support input and output devices</b></p> <p>4.1 Set up input and output devices and check functionality</p> <p>4.2 Install drivers as appropriate and check functionality</p> <p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b></p> <p>1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware</p> <p>1.2 Determine, record and apply requirements specified by hardware manufacturers</p> <p>1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements</p>	<p><b>Task 1</b>     <i>Workstation assessment report</i></p> <p>Students are required to produce a report outlining the hardware and software of a standard computer workstation using an appropriate software application.</p> <p>Students will undertake each of the following tasks and outline the procedures taken and/or their assessment in their report:</p> <ul style="list-style-type: none"> <li>• OHS assessment</li> <li>• power down/up workstation</li> <li>• clean and maintain the workstation</li> <li>• identify the interconnection between the computer and its peripherals and document in a schematic diagram</li> <li>• access and modify the control panel</li> <li>• internal and external hardware report</li> <li>• software report</li> <li>• recommendations for hardware and software upgrades</li> <li>• future maintenance schedule/checklist.</li> </ul>

Unit/Element of competency	Possible assessment strategy
<p><b>2 Establish location requirements for hardware and peripherals</b>                      2.1 Determine and apply suitable environmental conditions for hardware and peripherals</p> <p><b>3 Establish maintenance practices</b>                      3.1 Determine maintenance requirements specified by the equipment manufacturer                      3.2 Produce maintenance schedules, including the removal of dust and grease build-up</p> <p><b>4 Determine appropriate hardware quality standards</b>                      4.1 Consider and apply business requirements in respect of hardware matters</p>	
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>1 Identify computer hardware components</b>                      1.1 Identify external hardware components and peripherals                      1.2 Identify internal hardware components</p> <p><b>3 Use computer input equipment</b>                      3.1 Follow OH&amp;S standards and organisational policies and procedures when using computer input equipment</p> <p><i>ICAU2231A Use computer operating system</i></p> <p><b>1 Configure operating system</b>                      1.1 Configure operating system to suit the working environment, including but not limited to setting variables</p> <p><b>2 Use operating system</b>                      2.1 Install, upgrade and uninstall application software to suit the working environment                      2.2 Use both the graphical user interface and the command line interface to perform basic tasks</p> <p><b>3 Optimise operating system</b>                      3.2 Customise the graphical user interface</p> <p><b>4 Support input and output devices</b>                      4.1 Set up input and output devices and check functionality                      4.2 Install drivers as appropriate and check functionality</p> <p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b>                      1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware                      1.2 Determine, record and apply requirements specified by hardware</p>	<p><b>Task 2</b>    <i>Operate computer hardware</i></p> <p>Students are required to follow the appropriate procedures to install and operate computer hardware (a printer) for a group of users.</p> <p>Students follow appropriate OHS procedures to complete the following tasks:</p> <ul style="list-style-type: none"> <li>• select and arrange computers, printers and workstations</li> <li>• connect all hardware to a surge filter or UPS                             <ul style="list-style-type: none"> <li>- check for working order</li> <li>- replace suspect components where necessary</li> </ul> </li> <li>• use administrator privileges to create new user accounts</li> <li>• install, configure and test a printer using the latest available drivers from the manufacturer                             <ul style="list-style-type: none"> <li>- test the application</li> <li>- troubleshoot where necessary</li> </ul> </li> <li>• access the service log                             <ul style="list-style-type: none"> <li>- identify last service job</li> <li>- update log</li> </ul> </li> <li>• uninstall the printer and application</li> <li>• pack up and store all hardware and peripherals.</li> </ul>

Unit/Element of competency	Possible assessment strategy
<p>manufacturers</p> <p>1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements</p> <p><b>2 Establish location requirements for hardware and peripherals</b></p> <p>2.1 Determine and apply suitable environmental conditions for hardware and peripherals</p> <p>2.2 Determine and apply system protection devices</p> <p>2.3 Determine and apply requirements when moving hardware</p> <p>2.4 Determine and apply suitable storage principles for hardware and associated peripherals and media</p> <p><b>3 Establish maintenance practices</b></p> <p>3.3 Perform diagnostic functions, including replacing suspect components with other serviceable components and reloading of associated software</p> <p>3.5 Perform diagnostic functions using the operating system and third-party diagnostic tools</p>	
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>2 Understand the inter-relationship between computer hardware and software</b></p> <p>2.1 Describe the functions of computer hardware and associated OH&amp;S standards and environmental considerations around hardware use and disposal</p> <p>2.2 Describe the function of a computer operating system</p> <p>2.3 Describe the boot process</p> <p>2.4 State the relationship between an application program, the operating system and hardware</p> <p>2.5 State the general differences between the different computer platforms and their respective operating systems</p>	<p><b>Task 3</b>    <i>Research report</i></p> <p>Students undertake a research activity focusing on the interrelationship between computer hardware and software and produce a report using an appropriate software application.</p> <p>The research and report should address the following:</p> <ul style="list-style-type: none"> <li>• the functions of computer hardware</li> <li>• OHS standards and environmental considerations around hardware use and disposal</li> <li>• function of a computer operating system</li> <li>• boot process</li> <li>• command line interface</li> <li>• relationship between an application program, the operating system and hardware</li> <li>• general differences between the different computer platforms and their respective operating systems.</li> </ul>

Unit/Element of competency	Task 1	Task 2	Task 3
<b>ICAU2005A Operate computer hardware</b>			
<i>1 Identify computer hardware components</i>			
1.1 Identify external hardware components and peripherals	✓	✓	
1.2 Identify internal hardware components	✓	✓	
<i>2 Understand the inter-relationship between computer hardware and software</i>			
2.1 Describe the functions of computer hardware and associated OH&S standards and environmental considerations around hardware use and disposal			✓
2.2 Describe the function of a computer operating system			✓
2.3 Describe the boot process			✓
2.4 State the relationship between an application program, the operating system and hardware			✓
2.5 State the general differences between the different computer platforms and their respective operating systems			✓
2.6 Draw a simple block (schematic) diagram showing the interconnection of the various components of a computer	✓		
<i>3 Use computer input equipment</i>			
3.1 Follow OH&S standards and organisational policies and procedures when using computer input equipment	✓	✓	
<b>ICAU2231A Use computing operating system</b>			
<i>1 Configure operating system</i>			
1.1 Configure operating system to suit the working environment, including but not limited to setting variables	✓		
<i>2 Use operating system</i>			
2.1 Install, upgrade and uninstall application software to suit the working environment	✓	✓	
2.2 Use both the graphical user interface and the command line interface to perform basic tasks	✓	✓	
<i>3 Optimise operating system</i>			
3.1 Use operating system and third party utilities	✓		
3.2 Customise the graphical user interface	✓	✓	
3.3 Use techniques unique to the command line interface			✓
<i>4 Support input and output devices</i>			
4.1 Set up input and output devices and check functionality	✓	✓	
4.2 Install drivers as appropriate and check functionality	✓	✓	

Unit/Element of competency	Task 1	Task 2	Task 3
<b>ICAS3234A Care for computer hardware</b>			
<i>1 Establish safe work practices</i>			
1.1 Determine, record and apply relevant legal requirements and OH&S standards to the installation and maintenance of computer hardware	✓	✓	
1.2 Determine, record and apply requirements specified by hardware manufacturers	✓	✓	
1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements	✓	✓	
<i>2 Establish location requirements for hardware and peripherals</i>			
2.1 Determine and apply suitable environmental conditions for hardware and peripherals	✓	✓	
2.2 Determine and apply system protection devices		✓	
2.3 Determine and apply requirements when moving hardware		✓	
2.4 Determine and apply suitable storage principles for hardware and associated peripherals and media		✓	
<i>3 Establish maintenance practices</i>			
3.1 Determine maintenance requirements specified by the equipment manufacturer	✓		
3.2 Produce maintenance schedules, including removal of dust and grease build up	✓		
3.3 Perform diagnostic functions, including replacing suspect components with other serviceable components and reloading of associated software		✓	
3.4 Determine whether unserviceable components are replaceable through warranty, replacement or upgrade		✓	
3.5 Perform diagnostic functions using the operating system and third party diagnostic tools		✓	
<i>4 Determine appropriate hardware quality standards</i>			
4.1 Consider and apply business requirements in respect of hardware matters	✓		
4.2 Determine and apply quality standards to the selection of appropriate hardware and associated peripherals	✓	✓	

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAU2231A Use computer operating system</i></p> <p><b>1 Configure operating system</b>                      1.1 Configure operating system to suit the working environment, including but not limited to setting variables</p>	<p><b>Back to basics</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>Review section on ‘Operate a Personal Computer’ from Program 1.</p> <p>Dismantle a surplus computer (more than one if available) and identify:</p> <ul style="list-style-type: none"> <li>• major components as listed</li> <li>• external connectors                             <ul style="list-style-type: none"> <li>- identify those which are associated with input, and those with output devices.</li> </ul> </li> </ul> <p>Create a labelled diagram of:</p> <ul style="list-style-type: none"> <li>• the internal layout of the system</li> <li>• the external connectors to the system.</li> </ul> <p>Examine a range of CPU architecture schematics from the internet or computing magazines, discuss the features of each.</p> <p>Research the difference between ROM, RAM and flash memory and create a fact sheet.</p>
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>1 Identify computer hardware components</b>                      1.1 Identify external hardware components and peripherals                      1.2 Identify internal hardware components</p> <p><b>2 Understand the inter-relationship between computer hardware and software</b>                      2.1 Describe the functions of computer hardware and associated OH&amp;S standards and environmental considerations around hardware use and disposal</p>	<p><b>Computer hardware</b></p> <p>Difference between internal hardware components, external hardware components and peripherals.</p>	<p>Define the following terms:</p> <ul style="list-style-type: none"> <li>• internal hardware components</li> <li>• external hardware components</li> <li>• peripherals.</li> </ul> <p>Identify the basic computer hardware required to perform data entry tasks.</p> <p>Using the diagrams created previously, identify the peripheral devices that may be associated with:</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAU2231A Use computer operating system</i></p> <p><b>4 Support input and output devices</b> 4.1 Set up input and output devices and check functionality</p> <p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b> 1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware 1.2 Determine, record and apply requirements specified by hardware manufacturers 1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements</p>	<p>An understanding of the difference between an input and output device.</p> <p>Function and working knowledge of:</p> <ul style="list-style-type: none"> <li>• external hardware components <ul style="list-style-type: none"> <li>- work station</li> <li>- computer</li> <li>- network</li> <li>- server</li> </ul> </li> <li>• internal hardware components <ul style="list-style-type: none"> <li>- motherboard</li> <li>- complimentary metal oxide semi-conductor (CMOS) battery</li> <li>- CPU</li> <li>- interface cards</li> <li>- drives</li> <li>- fax/modem cards</li> <li>- RAM</li> </ul> </li> <li>• peripherals <ul style="list-style-type: none"> <li>- input device <ul style="list-style-type: none"> <li>▪ keyboard</li> <li>▪ mouse</li> <li>▪ scanner</li> </ul> </li> <li>- output device <ul style="list-style-type: none"> <li>▪ monitor</li> <li>▪ printer</li> </ul> </li> <li>- storage device <ul style="list-style-type: none"> <li>▪ including removable storage device</li> </ul> </li> <li>- communication device <ul style="list-style-type: none"> <li>▪ modem.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• external connectors (on the rear panel)</li> <li>• internal expansion slots.</li> </ul> <p>Discuss the difference between the purpose of an input and output device.</p> <p>Brainstorm a range of common input and output devices.</p> <p>Identify the components of a network system in the school or workplace and discuss the different functions of each component.</p> <p>Construct a computer hardware fact sheet using a word processing application:</p> <ul style="list-style-type: none"> <li>• create a table explaining the function of a range of computer components and utilities</li> <li>• classify and group the elements under the following headings: <ul style="list-style-type: none"> <li>- processing</li> <li>- storage (internal and external)</li> <li>- output</li> <li>- input</li> <li>- communication</li> <li>- operating system and utility programs.</li> </ul> </li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b></p> <p>1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware</p> <p>1.2 Determine, record and apply requirements specified by hardware manufacturers</p> <p>1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements</p>	<p><b>Hardware register</b></p> <p>Details recorded in a hardware register:</p> <ul style="list-style-type: none"> <li>• nature of business</li> <li>• CMOS settings</li> <li>• type and amount of computer memory</li> <li>• CPU type and speed</li> <li>• peripherals installed and their settings</li> <li>• operating system and version</li> <li>• software installed and version.</li> </ul>	<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• why would it be useful to keep a detailed hardware register in the workplace?</li> <li>• what would it need to contain?</li> </ul> <p>Link to task 1.</p> <p>Class demonstration (hands-on activity if access allows)</p> <ul style="list-style-type: none"> <li>• enter BIOS on system start-up and examine the various configurable CMOS settings</li> <li>• access system information to identify CPU type, speed and memory configuration</li> <li>• use a third party utility program to obtain more detailed information about system performance and settings</li> <li>• examine accessible settings for peripheral devices via the system control panel</li> <li>• use Operating System help files to determine the type and version of the OS used</li> <li>• use the ‘About’ section of an application’s ‘HELP’ menu to determine the version of software installed</li> <li>• discuss the difference between a software update and a patch</li> <li>• discuss why workstations are often ‘locked down’ to limit access to many of the demonstrated features.</li> </ul>
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>2 Understand the inter-relationship between computer hardware and software</b></p> <p>2.5 State the general differences between the different computer platforms and their respective operating systems</p> <p><i>ICAU2231A Use computer operating system</i></p>	<p><b>Computer platform</b></p> <p>General differences between computer platforms and their respective operating systems:</p> <ul style="list-style-type: none"> <li>• Apple Macintosh</li> <li>• PCs.</li> </ul> <p>An understanding of the following concepts:</p>	<p>Research activity – investigate the differences between Mac OS X and Windows XP</p> <ul style="list-style-type: none"> <li>• identify five differences in user interface between the two</li> <li>• identify 5 operational similarities between the two.</li> </ul> <p>Develop a glossary and define each of the terms listed.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><b>1 Configure operating system</b>                      1.1 Configure operating system to suit the working environment, including but not limited to setting variables</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>Discuss the similarities and differences between:</p> <ul style="list-style-type: none"> <li>• configure and optimise</li> <li>• install and upgrade.</li> </ul>
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>2 Understand the inter-relationship between computer hardware and software</b>                      2.2 Describe the function of a computer operating system                      2.3 Describe the boot process</p> <p><i>ICAU2231A Use computer operating system</i></p> <p><b>1 Configure operating system</b>                      1.1 Configure operating system to suit the working environment, including but not limited to setting variables</p> <p><b>2 Use operating system</b>                      2.1 Install, upgrade and uninstall application software to suit the working environment                      2.2 Use both graphical user interface and the command line interface to perform basic tasks</p> <p><b>3 Optimise operating system</b>                      3.1 Use operating system and third-party utilities                      3.3 Use techniques unique to the command line interface</p>	<p><b>Computer operating system</b></p> <p>A definition of:</p> <ul style="list-style-type: none"> <li>• operating system.</li> </ul> <p>An understanding of the purpose (function) of an operating system:</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> <li>- access and security</li> <li>- hard disk space</li> <li>- peripheral device(s)</li> </ul> </li> <li>• it is the foundation software on which other applications/ application programs depend.</li> </ul> <p>Describe the boot process.</p>	<p>Internet search for a range of definitions for the term ‘operating system’. Compare definitions to arrive at a shared meaning for the term.</p> <p>Make several observations of the boot up dialogue during system start-up.</p> <p>Brainstorm as many of the observed functions/events as possible. Classify this list according to the following categories:</p> <ul style="list-style-type: none"> <li>• boot-up processes</li> <li>• system management tasks</li> <li>• security tasks</li> <li>• peripheral management</li> <li>• utility functions</li> <li>• memory and storage.</li> </ul> <p>Review the following website and make a summary of the key points about the boot-up process  <a href="http://www.everythingcomputers.com/pc_startup_trouble.htm">http://www.everythingcomputers.com/pc_startup_trouble.htm</a></p> <p>Create a flowchart of the boot-up process for a stand alone machine.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
		Discuss how this process may differ on a network.
	<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>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> </ul> <p>An understanding of the different forms in which a user can interact with the operating system:</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>Create a table outlining the advantages and limitations of various categories of operating systems.</p> <p>Develop a time line showing the growth of:</p> <ul style="list-style-type: none"> <li>• Microsoft operating systems from DOS through to Windows XP</li> <li>• Apple operating systems from DOS/ProDOS through to OS X.</li> </ul> <p>Internet research – identify the differences between Windows XP Home Edition and Windows XP Professional Edition, in particular:</p> <ul style="list-style-type: none"> <li>• security features</li> <li>• hard disk management</li> <li>• networking and file sharing.</li> </ul> <p>Research activity – find examples of the following file formats and identify their application:</p> <ul style="list-style-type: none"> <li>• file formats that are transferable between operating systems (eg JPEG, MPEG, TXT)</li> <li>• file formats that are unique to particular platforms.</li> </ul> <p>Discuss command line instructions (machine oriented) and the development of GUI (User Oriented) interfaces.</p> <p><i>NOTE: Mac OS X users can use a command line type interface via TERMINAL in the UTILITIES folder. Local administrator password is required. Limited command line type instructions are also available through internet configuration (ping, traceroute etc)</i></p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>A basic understanding of the difference in operation of a GUI and a command line interface.</p> <p>A basic knowledge of command structure and syntax including the use of switches and parameters.</p> <p>A basic knowledge of the features of operating system utilities and third-party utilities:</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> <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> <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>Teacher demonstration of the use of command line instructions on an unrestricted machine (eg. DIR, pathnames, change directory (cd.)):</p> <ul style="list-style-type: none"> <li>• apply some of the basic switches and parameters to demonstrate control of the command line (eg DIR/p to page the directory, ping, config)</li> <li>• demonstrate the same functions using the windows explorer interface.</li> </ul> <p>Run a virus scan or spyware scan of a computer system. Observe the information that is generated and the default actions recommended.</p> <p>Discuss the importance of organisation in any system of data storage.</p> <p>Identify the directory structure of accessible drives on a student workstation.</p> <p>Construct a hierarchy table to describe the folder structure of a given drive (eg Students Home directory)</p> <p>Identify the path to a particular file by following its path name.</p> <p>Sequencing exercise – provide students with a randomly organised list of the events involved in logging on and logging off a networked computer. Students are to:</p> <ul style="list-style-type: none"> <li>• organise the list in the appropriate sequence for both logging on and off</li> <li>• compare solutions</li> <li>• discuss which events would be eliminated on a stand-alone computer.</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<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>	<p>Design a table to show the differences in necessary system access for a range of users. For each type of user consider the following:</p> <ul style="list-style-type: none"> <li>• ability to add, delete and change folders and files</li> <li>• access to local and networked hard drives</li> <li>• ability to reconfigure the desktop</li> <li>• adding and removing applications</li> <li>• ability to add users and change their security level</li> <li>• ability to access the work of others stored on the system.</li> </ul> <p>Brainstorm the differences between stand-alone and multi-user systems</p> <p>Link to Task 2.</p>
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>2 Understand the inter-relationship between computer hardware and software</b></p> <p>2.4 State the relationship between an application program, the operating system and hardware</p> <p>2.6 Draw a simple block (schematic) diagram showing the interconnection of the various components of a computer</p> <p><i>ICAU2231A Use computer operating system</i></p> <p><b>2 Use operating system</b></p> <p>2.1 Install, upgrade and uninstall application software to suit the working environment</p> <p><b>4 Support input and output devices</b></p> <p>4.1 Set up input and output devices and check functionality</p> <p><i>ICAS3234A Care for computer hardware</i></p>	<p><b>Relationship between computer operating system, hardware and application software</b></p> <p>Interconnection of the various components of a computer.</p> <p>An awareness of the difference between operating system software and application software.</p> <p>Relationship between operating system, hardware and application software.</p>	<p>Class discussion.</p> <p>Link to Task 1.</p> <p>Discuss the purpose of ‘application software’.</p> <p>Using a familiar application as an example (eg word processing or spreadsheet application) identify:</p> <ul style="list-style-type: none"> <li>• the differences between the application’s function and that of the operating system.</li> <li>• functions of the application that are: <ul style="list-style-type: none"> <li>- independent of the OS (eg formatting, tables, formulae)</li> <li>- dependent on the OS (eg load, save)</li> <li>- hardware dependent (usually via the OS) (eg printing).</li> </ul> </li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><b>4 Determine appropriate hardware quality standards</b></p> <p>4.1 Consider and apply business requirements in respect of hardware matters</p> <p>4.2 Install drivers as appropriate and check functionality</p>	<p>Basic knowledge of hardware and software interoperability.</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>	<p>Research activity – select an application program that is operable on more than one computing platform:</p> <ul style="list-style-type: none"> <li>• identify the minimum system requirements for each platform</li> <li>• list the requirements that are similar between platforms (eg memory and peripherals), and those that are platform-specific (eg processor, speed)</li> <li>• find any information on common file formats which will allow data interchange between platforms.</li> </ul> <p>Discuss the advantages of hardware and software that is operable on more than one platform.</p> <p>Internet search for the meaning and application of the term ‘driver’. Compare findings to arrive at a shared definition.</p> <p>Explain difference between generic drivers and custom vender drivers.</p> <p>Discuss the advantages and disadvantages of using each type of driver.</p> <p>Discuss reasons why drivers would need periodic updating and the potential consequences of not updating them.</p>
<p><i>ICAU2231A Use computer operating system</i></p> <p><b>1 Configure operating system</b></p> <p>1.1 Configure operating system to suit the working environment, including but not limited to setting variables</p> <p><b>2 Use operating system</b></p> <p>2.1 Install, upgrade and uninstall application software to suit the working environment</p>	<p><b>Selection of computer hardware and software for a company/organisation</b></p> <p>An awareness of the operating system supported by the company/organisation.</p>	<p>Make a list of the different hardware platforms supported by the school/workplace and identify the operating system used on each.</p> <p>Guest speaker – school/organisation technical support officer to discuss the training requirements for supporting the operating systems used.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>4 Determine appropriate hardware quality standards</b></p> <p>4.1 Consider and apply business requirements in respect of hardware matters</p> <p>4.2 Determine and apply quality standards to the selection of appropriate hardware and associated peripherals</p>	<p>Span of quality levels in common hardware.</p> <p>A knowledge of application software appropriate to the operating system.</p> <p>Selection of appropriate hardware and software taking into consideration business requirements:</p> <ul style="list-style-type: none"> <li>• nature of business</li> <li>• user requirement(s)</li> <li>• size of the company/organisation</li> <li>• cost</li> <li>• quality</li> <li>• robustness</li> <li>• industry standard components</li> <li>• capability for further system upgrade.</li> </ul>	<p>Activity – review a number of current Australian computing magazines and collect reviews on desktop computers in the \$900-\$1500 price range</p> <ul style="list-style-type: none"> <li>• create a table showing the standard features (processor, memory speed and type, VDU, storage, supported interfaces) of a range of the hardware</li> <li>• compare the overall reviews of the hardware</li> <li>• make and justify a recommendation as to which unit is best quality and which may be best value for money.</li> </ul> <p>Link to Task 1.</p> <p>Discuss the features of hardware and software that would be appropriate for:</p> <ul style="list-style-type: none"> <li>• an individual, home user</li> <li>• a small business (one person, limited budget)</li> <li>• a small business (up to 10 people and 1 or 2 offices/sites, limited budget)</li> <li>• a medium business (20-30 employees, multiple sites, moderate budget)</li> <li>• large business (many employees and sites, large budget).</li> </ul> <p>Link to Task 1.</p>
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b></p> <p>1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware</p> <p>1.2 Determine, record and apply requirements specified by hardware manufacturers</p> <p>1.3 Determine, record and apply safe work</p>	<p><b>OHS and safe work practices</b></p> <p>Knowledge of general occupational health and safety (OHS) principles and responsibilities.</p> <p>An awareness of safe work practices:</p> <ul style="list-style-type: none"> <li>• OHS induction training (general, work activity and location-specific)</li> <li>• selection of appropriate tools for the task</li> <li>• correct use, maintenance and storage of tools</li> </ul>	<p>Content covered in Program 1 – Safety in the workplace.</p> <p>Revise and contextualise to the installation and maintenance of computer hardware.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
practices, taking into account legal and manufacturer requirements	<ul style="list-style-type: none"> <li>• correct handling, application, transport and storage of materials</li> <li>• safe posture (sitting, standing, bending and lifting)</li> <li>• correct manual handling (lifting and transferring)</li> <li>• correct use of fire fighting equipment                             <ul style="list-style-type: none"> <li>- fire blanket</li> <li>- fire extinguishers</li> </ul> </li> <li>• hazard identification and risk control</li> <li>• access to first aid kits</li> <li>• procedures to follow in the event of an emergency</li> <li>• effective communication and teamwork</li> <li>• adherence to work instructions, organisation/company policy and standard operating procedures</li> <li>• housekeeping/clean-up procedures with due consideration to OHS and the environment.</li> </ul>	
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b></p> <p>1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware</p> <p>1.2 Determine, record and apply requirements specified by hardware manufacturers</p> <p>1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements</p>	<p><b>OHS principles</b></p> <p>OHS principles specific to:</p> <ul style="list-style-type: none"> <li>• equipment powered by mains</li> <li>• high impedance devices                             <ul style="list-style-type: none"> <li>- cathode-ray tube (CRT) monitor</li> <li>- system unit power supply</li> <li>- backup power supply</li> </ul> </li> <li>• hazardous materials.</li> </ul>	<p>Research the hazards associated with mains-powered equipment, radiation and hazardous material.</p> <p>Identify electrical and radiation hazards and hazardous materials in the classroom/workplace.</p> <p>Develop a list of OHS principles to apply to these hazards.</p> <p>Design a series of small safety posters to place near the identified equipment.</p>
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>2 Understand the inter-relationship between computer hardware and software</b></p> <p>2.1 Describe the functions of computer hardware and associated OH&amp;S standards and</p>	<p><b>OHS standards for hardware</b></p> <p>OHS standards for installation, use and maintenance of computer hardware:</p> <ul style="list-style-type: none"> <li>• posture</li> <li>• lighting</li> </ul>	<p>Revise and contextualise content covered in Program 1 – Safety in the workplace to the installation and maintenance of computer hardware.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p>environmental considerations around hardware use and disposal</p> <p><b>3 Use computer input equipment</b></p> <p>3.1 Follow OH&amp;S standards and organisational policies and procedures when using computer input equipment</p> <p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b></p> <p>1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware</p> <p>1.2 Determine, record and apply requirements specified by hardware manufacturers</p> <p>1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements</p>	<ul style="list-style-type: none"> <li>• ergonomic workstation</li> <li>• prevention of occupational overuse syndrome (OOS)</li> <li>• ventilation</li> <li>• manual handling</li> <li>• electrical safety</li> <li>• monitor time and exposure.</li> </ul>	<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• ergonomic principles to avoid back, wrist and eye strain.</li> <li>• procedures and exercises for avoiding strain and injury</li> <li>• work practices.</li> </ul>
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>2 Understand the inter-relationship between computer hardware and software</b></p> <p>2.1 Describe the functions of computer hardware and associated OH&amp;S standards and environmental considerations around hardware use and disposal</p> <p><b>3 Use computer input equipment</b></p> <p>3.1 Follow OH&amp;S standards and organisational policies and procedures when using computer input equipment</p> <p><i>ICAU2231A Use computer operating system</i></p> <p><b>4 Support input and output devices</b></p>	<p><b>Locating and installing hardware and peripherals</b></p> <p>Potential environmental effects of common types of hardware.</p> <p>Appropriate environmental conditions for hardware, including consideration of the following factors:</p> <ul style="list-style-type: none"> <li>• dust</li> <li>• temperature</li> <li>• air circulation</li> <li>• moisture.</li> </ul> <p>Correct manual handling techniques when:</p> <ul style="list-style-type: none"> <li>• moving</li> </ul>	<p>Discuss redundancy and disposal of obsolete equipment.</p> <p>Link to Task 3.</p> <p>Identify problems related to the work environment that effect hardware.</p> <p>Examine dust filter on system fan and make observations about the local environment.</p> <p>Discuss the effect environmental conditions can have on hardware.</p> <p>Review safe handling practices from Program 1 – Safety in the workplace.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p>4.1 Set up input and output devices and check functionality</p> <p><i>ICAS3234A Care for computer hardware</i></p> <p><b>1 Establish safe work practices</b></p> <p>1.1 Determine, record and apply relevant legal requirements and OH&amp;S standards to the installation and maintenance of computer hardware</p> <p>1.2 Determine, record and apply requirements specified by hardware manufacturers</p> <p>1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements</p> <p><b>2 Establish location requirements for hardware and peripherals</b></p> <p>2.1 Determine and apply suitable environmental conditions for hardware and peripherals</p> <p>2.3 Determine and apply requirements when moving hardware</p>	<ul style="list-style-type: none"> <li>• lifting/carrying</li> <li>• loading/unloading</li> <li>• working at heights</li> <li>• bending and twisting</li> <li>• using mechanical aids.</li> </ul> <p>An awareness of legal requirements for weight limits.</p> <p>Procedures for securing hardware and peripherals prior to move/relocation.</p> <p>Legal requirements:</p> <ul style="list-style-type: none"> <li>• licensing</li> <li>• placement of cabling and installation of fixed cabling</li> <li>• electrical installation</li> <li>• electronic performance</li> <li>• testing and tagging of electrical equipment on a regular basis.</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>Identify devices that might need to be lifted or moved around during maintenance. For each one:</p> <ul style="list-style-type: none"> <li>• record their weight</li> <li>• identifying appropriate manual handling techniques.</li> </ul> <p>Examine a range of packaging to identify:</p> <ul style="list-style-type: none"> <li>• key features to protect the items</li> <li>• safe handling, storage and stacking instructions.</li> </ul> <p>Discuss problems associated with objects being stored too high or low and identify appropriate safe handling practices.</p> <p>Brainstorm the hazards associated with electrical cabling and strategies to avoid/reduce the risk.</p> <p>Develop a set of guidelines for the use and placement of cabling in the school.</p> <p>Visit the WorkCover website and review the information on electrical safety requirements. Identify those relevant to the IT industry  <a href="http://www.workcover.nsw.gov.au/safebusiness/Business_Assistance_Unit/FAQs/Electrical.aspx">www.workcover.nsw.gov.au/safebusiness/Business_Assistance_Unit/FAQs/Electrical.aspx</a> .</p> <p>Discuss safe working practices involving powered and switched devices.</p> <p>Locate safety cut off switches and earth leakage safety switches in the classroom/workplace and discuss their use.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Interpretation of manufacturer’s user manuals and help functions.</p> <p>Siting requirements, set-up procedures and functionality checks for a range of system hardware and peripheral devices.</p> <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> <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>Organisational policies and procedures when using computer input equipment.</p>	<p>Identify the location in which manufacturers user manuals are stored.</p> <p>Locate the manual for a particular device and identify the installation and setup requirements.</p> <p>Write a simple procedure for installing a piece of hardware that could be used by a trainee.</p> <p>Demonstrate appropriate connections.</p> <p>Link to Task 1.</p> <p>Link to Task 2.</p> <p>Identify the location of driver software for a piece of hardware using a range of different methods:</p> <ul style="list-style-type: none"> <li>• with original documentation of packaging</li> <li>• from company website</li> <li>• from a third party website.</li> </ul> <p>Demonstrate installation techniques, emphasising safe work practice.</p> <p>Review sample policies and procedures for using computer input equipment. Discuss why there is a need for this type of policy.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAU2231A Use computer operating system</i></p> <p><b>1 Configure operating system</b>                      1.1 Configure operating system to suit the working environment, including but not limited to setting variables</p> <p><b>2 Use operating system</b>                      2.2 Use both graphical user interface and the command line interface to perform basic tasks</p> <p><b>3 Optimise operating system</b>                      3.1 Use operating system and third-party utilities                      3.2 Customise the graphical user interface                      3.3 Use techniques unique to the command line interface</p>	<p><b>Interacting with the computer operating system</b></p> <p>Use both GUI and command line interface to:</p> <ul style="list-style-type: none"> <li>• log in</li> <li>• log out</li> <li>• get online help</li> <li>• change passwords</li> <li>• retrieve and edit previous commands.</li> </ul> <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> <p>Configure, use and optimise the operating system to suit the working environment using available document(s) to assist:</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>Optimise the operating system:</p> <ul style="list-style-type: none"> <li>• use operating system and third party utilities</li> <li>• use control panel software tools to customise the GUI</li> <li>• use techniques unique to the command line interface.</li> </ul>	<p>Teacher demonstration and practical activities.</p> <p>Demonstrate use of PING command to check connection to a known computer address on the network, ping 127,0,0,1 and ping any other number.</p> <p>Discuss the data returned and its meaning.</p> <p>Demonstrate configuration of the work environment including:</p> <ul style="list-style-type: none"> <li>• setting default location for saved files</li> <li>• default printer</li> <li>• mouse pointer</li> <li>• icons</li> <li>• shortcuts</li> <li>• mapped resources</li> <li>• desktop and screensaver.</li> </ul>
<p><i>ICAU2231A Use computer operating system</i></p> <p><b>2 Use operating system</b>                      2.1 Install, upgrade and uninstall application software to suit the working environment</p>	<p><b>Application software</b></p> <p>Install, upgrade and uninstall application software to suit the working environment:</p> <ul style="list-style-type: none"> <li>• word processing</li> <li>• database</li> <li>• spreadsheet</li> <li>• system browser</li> </ul>	<p>Teacher demonstration – installation of application software.</p> <p>Link to Task 2</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• email</li> <li>• internet browser.</li> </ul>	
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>2 Establish location requirements for hardware and peripherals</b>                  2.2 Determine and apply system protection devices</p>	<p><b>System protection</b></p> <p>An awareness of the consequences of:</p> <ul style="list-style-type: none"> <li>• power surges and ‘brownouts’</li> <li>• interrupted power</li> <li>• viruses and destructive software</li> <li>• unauthorised access to computer system.</li> </ul> <p>System protection devices:</p> <ul style="list-style-type: none"> <li>• surge protection</li> <li>• uninterruptible power supply (UPS) devices</li> <li>• anti-virus protection</li> <li>• user authorisation procedures.</li> </ul>	<p>Brainstorm possible situations that could occur and cause damage to computers in various environments. Categorise into the following areas:</p> <ul style="list-style-type: none"> <li>• environmental issues</li> <li>• software problems</li> <li>• vandalism</li> </ul> <p>Discuss the potential implications for business and productivity.</p> <p>Identify a range of system protection methods:</p> <ul style="list-style-type: none"> <li>• electrical protection</li> <li>• access protection</li> <li>• software protection.</li> </ul> <p>Visit a computer supplier’s website and create a table outlining the specifications and prices for a range of electronic protection devices.</p>
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>2 Establish location requirements for hardware and peripherals</b>                  2.4 Determine and apply suitable storage principles for hardware and associated peripherals and media</p>	<p><b>Storing hardware, peripherals and media</b></p> <p>An awareness of possible consequences of inappropriate storage of hardware, peripherals and media.</p> <p>Points to consider when storing hardware, peripherals and media:</p> <ul style="list-style-type: none"> <li>• climatic effects</li> </ul>	<p>Brainstorm the possible negative effects of poor storage of hardware, peripherals and media on:</p> <ul style="list-style-type: none"> <li>• the equipment itself</li> <li>• productivity</li> <li>• the business.</li> </ul> <p>Examine the care and storage instructions on a range of media and consumables and list key considerations.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• OHS considerations</li> <li>• stability</li> <li>• security</li> <li>• ease of access.</li> </ul>	<p>Develop a table outlining the ideal storage conditions for a range of hardware, peripherals and media.</p>
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>3 Establish maintenance practices</b></p> <p>3.1 Determine maintenance requirements specified by the equipment manufacturer</p> <p>3.2 Produce maintenance schedules, including removal of dust and grease build-up</p> <p>3.3 Perform diagnostic functions, including replacing suspect components with other serviceable components and reloading of associated software</p> <p>3.5 Perform diagnostic functions using the operating system and third-party diagnostic tools</p>	<p><b>Maintenance of hardware and peripherals</b></p> <p>The importance of regular maintenance.</p> <p>Safe work practices specific to maintenance of computer hardware.</p> <p>An awareness of suggested maintenance schedules in user documentation or warranty conditions supplied by the manufacturer.</p> <p>Maintenance requirements:</p> <ul style="list-style-type: none"> <li>• tasks <ul style="list-style-type: none"> <li>- cleaning (inside and outside)</li> <li>- testing and functionality</li> <li>- diagnostic testing</li> <li>- replace/repair components</li> <li>- reloading/upgrading software</li> <li>- periodic physical checks for damaged cables</li> <li>- replacement of consumables</li> </ul> </li> <li>• frequency</li> <li>• appropriate tools and techniques.</li> </ul> <p>Establishment of maintenance schedules and practices for equipment.</p> <p>An awareness of details recorded in a maintenance report/ card:</p> <ul style="list-style-type: none"> <li>• job reference number</li> </ul>	<p>Brainstorm a range of problems that can occur if users fail to maintain hardware and peripherals.</p> <p>Revise from Program 1 – Safety in the workplace.</p> <p>Review the owners manual and create a maintenance schedule for a network laser printer.</p> <p>Link to Task 1.</p> <p>Undertake a ‘health check’ for a standard workstation. Develop a report outlining maintenance to be undertaken. Complete any necessary maintenance requirements.</p> <p>Link to Tasks 1 and 2.</p> <p>Link to Task 1.</p> <p>Brainstorm the information that should be included on a maintenance record.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• brief description of the problem</li> <li>• name of technician completing maintenance</li> <li>• date maintenance performed</li> <li>• time taken to complete the task</li> <li>• description of action to rectify the problem</li> <li>• description of follow-up action required</li> <li>• other comments.</li> </ul>	<p>Design a maintenance record card to be stored with a piece of hardware.</p>
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>3 Establish maintenance practices</b></p> <p>3.3 Perform diagnostic functions, including replacing suspect components with other serviceable components and reloading of associated software</p> <p>3.5 Perform diagnostic functions using the operating system and third-party diagnostic tools</p>	<p><b>Trouble shooting and testing of hardware and peripherals</b></p> <p>Signs of incorrect function of hardware components.</p> <p>Working knowledge of diagnostic testing to determine cause of hardware problems.</p> <p>General features, selection and use of diagnostic tools and software appropriate to the task:</p> <ul style="list-style-type: none"> <li>• tools/software supplied with the operating system</li> <li>• third party diagnostic software/tool</li> <li>• diagnostic card.</li> </ul> <p>Problem-solving process to identify root cause of the problem:</p> <ul style="list-style-type: none"> <li>• identify possible cause of the problem</li> <li>• remove hardware/software that may mask/confuse the issue</li> <li>• test theory by             <ul style="list-style-type: none"> <li>- replacing offending item</li> <li>- using diagnostic tool.</li> </ul> </li> </ul>	<p>Brainstorm a list of indicators of incorrect function.</p> <p>Link to Task 2.</p> <p>Internet search for diagnostic tests designed to help in a range of situations (eg network speed tests, hard disk diagnostics, task manager).</p> <p>Practical activity – undertake diagnostic testing for a range of faults.</p> <p>Link to Task 2.</p> <p>Discuss various approaches to problem-solving:</p> <ul style="list-style-type: none"> <li>• top down (decision tree)</li> <li>• bottom up (process of elimination)</li> <li>• progressive elimination of possible causes</li> <li>• substitution of suspect parts with serviceable items and re-testing.</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>3 Establish maintenance practices</b>                      3.2 Produce maintenance schedules, including removal of dust and grease build-up</p>	<p><b>Cleaning hardware and peripherals</b></p> <p>Materials required for cleaning:</p> <ul style="list-style-type: none"> <li>• lint-free cloth</li> <li>• glass-cleaning spray</li> <li>• small brush</li> <li>• can of compressed air</li> <li>• vacuum cleaner</li> <li>• antistatic wristband</li> <li>• damp cloth and mild detergent</li> <li>• specialised cleaning kit.</li> </ul> <p>Techniques for cleaning:</p> <ul style="list-style-type: none"> <li>• the monitor</li> <li>• a keyboard</li> <li>• a mouse</li> <li>• the system unit</li> <li>• printers                             <ul style="list-style-type: none"> <li>- laser</li> <li>- inkjet</li> </ul> </li> <li>• drives.</li> </ul>	<p>Compile a list of equipment that could be used to make a cleaning toolkit, identifying the appropriate use of each material.</p> <p>Identify materials and equipment not suitable for cleaning hardware and peripherals.</p> <p>Undertake routine cleaning/maintenance on a workstation/peripheral.</p> <p>Demonstrate appropriate cleaning methods for a range of computer hardware.</p>
<p><i>ICAS3234A Care for computer hardware</i></p> <p><b>3 Establish maintenance practices</b>                      3.3 Perform diagnostic functions, including replacing suspect components with other serviceable components and reloading of associated software                      3.4 Determine whether unserviceable components are replaceable through warranty, replacement or upgrade</p>	<p><b>Replacement of hardware components</b></p> <p>An awareness of:</p> <ul style="list-style-type: none"> <li>• warranty conditions</li> <li>• available component upgrades</li> <li>• source of replacement/upgrade.</li> </ul>	<p>Examine manufacturer’s documentation for a range of hardware/peripherals to identify the warranty conditions.</p> <p>Discuss the role of consumer protection laws in relation to warranties.</p> <p>Visit the manufacturer’s website for the school computers to determine if upgrades are available.</p> <p>Research a number of computer component resellers websites. Undertake a costing for basic upgrade of the following components:</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Company/organisation hardware replacement policy:</p> <ul style="list-style-type: none"> <li>• identifying supplier(s)</li> <li>• obtaining quote(s)</li> <li>• gaining purchase authority.</li> </ul> <p>Removal and replacement of hardware components.</p>	<ul style="list-style-type: none"> <li>• 1GB Memory</li> <li>• dual layer DVD writer</li> <li>• hard disk drive of at least 200GB.</li> </ul> <p>Guest speaker from an organisation’s IT support personnel to talk to students about:</p> <ul style="list-style-type: none"> <li>• cyclic replacement policies</li> <li>• approved suppliers</li> <li>• quotations</li> <li>• ordering procedures.</li> </ul> <p>Teacher demonstration.</p> <p>Students perform basic removal and addition of hardware components on surplus computers (if available).</p> <p>Discuss best practice safety procedures:</p> <ul style="list-style-type: none"> <li>• appropriate preparation (disconnecting equipment)</li> <li>• use of static wrist strap</li> <li>• care and placement of equipment</li> <li>• adequate lighting.</li> </ul>
<p><i>ICAU2005A Operate computer hardware</i></p> <p><b>2 Understand the inter-relationship between computer hardware and software</b></p> <p>2.1 Describe the functions of computer hardware and associated OH&amp;S standards and environmental considerations around hardware use and disposal</p>	<p><b>Disposal of hardware and peripheral components</b></p> <p>Environmental considerations for the disposal of:</p> <ul style="list-style-type: none"> <li>• redundant hardware and peripherals</li> <li>• packaging.</li> </ul>	<p>Discuss the environmental hazards associated with the disposal of redundant hardware and peripherals.</p> <p>Classify computer packaging into recyclable and non-recyclable product.</p> <p>Research local council or EPA guidelines/ recommendations on the disposal of surplus computing equipment.</p> <p>Students visit the following websites and make a summary of the key points about environmental disposal of IT</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
		<p>equipment.</p> <ul style="list-style-type: none"> <li>• <a href="http://www.deh.gov.au/settlements/publications/waste/electricals/computer-report/regulations.html">www.deh.gov.au/settlements/publications/waste/electricals/computer-report/regulations.html</a></li> <li>• <a href="http://www.agimo.gov.au/government/enviro_friendly_ict/responses/hp">www.agimo.gov.au/government/enviro_friendly_ict/responses/hp</a></li> <li>• <a href="http://www.computertakeback.com/">www.computertakeback.com/</a></li> </ul> <p>Discuss the responsibilities of manufacturers and end users with regard to the environmental effects of the disposal of ITC equipment and consumables.</p> <p>Design a poster outlining the life cycle of computer hardware (life cycle analysis).</p> <p>Design a pamphlet promoting recycling of old hardware.</p>

**Sample Program                      Communicating with clients**

**Rationale:**        This theme is intended to provide the opportunity for students to develop knowledge and skills required to communicate appropriately and effectively in their interactions with clients including providing advice and support in an information technology environment.

**Units of competency:**    ICAW2002A    Communicate in the workplace  
     ICAS3031A    Provide advice to clients

**HSC Requirements and Advice – Key terms and concepts:**

<b>Communicate in the workplace</b>	<b>Provide advice to clients</b>
<ul style="list-style-type: none"> <li>• access and equity principles</li> <li>• active listening</li> <li>• appropriate persons</li> <li>• audit trails</li> <li>• barriers to effective communication</li> <li>• benefits of good customer service</li> <li>• client base</li> <li>• client interaction protocols</li> <li>• communication methods and equipment</li> <li>• communication process/cycle</li> <li>• cultural differences</li> <li>• cultural groups in Australian society</li> <li>• current business practice for preparation of documentation</li> <li>• decision-making</li> <li>• enquiry</li> <li>• good customer service practices</li> <li>• internal and external client</li> <li>• lines of reporting</li> <li>• naming standards</li> <li>• negotiation</li> <li>• non-verbal communication</li> <li>• open, closed and reflective questions</li> <li>• organisational policies and procedures</li> </ul>	<ul style="list-style-type: none"> <li>• acceptable timeframes</li> <li>• advanced features and functions of software</li> <li>• advice and support</li> <li>• approval policies and procedures</li> <li>• audit trails</li> <li>• basic features and functions of operating system</li> <li>• benefits and limitations of solutions</li> <li>• benefits of client feedback</li> <li>• benefits of good customer service</li> <li>• client feedback</li> <li>• client needs analysis/assessment</li> <li>• client support issues</li> <li>• constraints</li> <li>• contract and service agreements with vendors</li> <li>• details to be documented</li> <li>• features of different types of hardware</li> <li>• good customer service</li> <li>• interaction with client</li> <li>• internal and external clients</li> <li>• investigation</li> <li>• investigation methods</li> <li>• known solutions to predictable problems</li> <li>• log</li> <li>• macros and templates</li> <li>• manuals and help documentation</li> <li>• methods to obtain client feedback</li> <li>• naming standards</li> <li>• paper-based and electronic records</li> <li>• personal attributes</li> <li>• problem-solving</li> <li>• report writing</li> <li>• research skills</li> <li>• review client feedback</li> <li>• security and network guidelines and procedures</li> <li>• sources of information</li> <li>• standards for workplace documentation</li> <li>• technical information</li> <li>• technical support</li> <li>• tracking process</li> <li>• verbal and non-verbal communication</li> <li>• version control.</li> </ul>

**Assessment:**

Unit/element of competency	Possible assessment strategy
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b></p> <p><b>2 Process information</b></p> <p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b></p> <p><b>2 Provide advice on software, hardware or network</b></p> <p><b>3 Obtain client feedback</b></p>	<p><b>Task 1</b>    <i>Simulated Online helpdesk</i></p> <p>Throughout the year the class will run a helpdesk operation for the school’s IT facilities including software, hardware and network support and advice. Individual students will be rostered on to support the helpdesk operation. Each student will be assessed on their ability to clearly and effectively provide advice and support to clients using effective communication techniques.</p> <p>All students are to maintain an electronic record of all help desk operations in a centralised database. Details to be recorded include:</p> <ul style="list-style-type: none"> <li>• client/contact details</li> <li>• the requests/enquiries/problems</li> <li>• support issues identified             <ul style="list-style-type: none"> <li>– software, hardware and/or network requirements</li> <li>– additional requirements identified during investigation</li> </ul> </li> <li>• progress of each task</li> <li>• authorisation procedures</li> <li>• action taken</li> <li>• technical support provided.</li> </ul> <p>Each student will keep a personal reflective journal for self-assessment including:</p> <ul style="list-style-type: none"> <li>• a hard copy record of all logged tasks</li> <li>• outline and evaluation of methods used to investigate support issues</li> <li>• outline of communication and interaction with clients.</li> </ul> <p>Students are to develop a simple client feedback mechanism covering:</p> <ul style="list-style-type: none"> <li>• effectiveness of communication             <ul style="list-style-type: none"> <li>– language</li> <li>– manner</li> </ul> </li> <li>• prompt and efficient service</li> <li>• informing client of the status of their request</li> <li>• quality of advice and support</li> <li>• level of customer service</li> <li>• follow-up support</li> <li>• client satisfaction.</li> </ul>

Unit/element of competency	Possible assessment strategy
	<p>This will be used to seek feedback from each client after support is provided. At the end of the task students will collate a report of the feedback they received and undertake a self-evaluation of their own performance identifying strengths and areas for improvement.</p>
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b>                      1.2 Use verbal and non-verbal communication to respond to the client requests and enquiries effectively</p> <p><b>2 Process information</b>                      2.1 Answer enquiries promptly and appropriately                      2.4 Investigate the organisational follow-up procedures or policy and record follow-up action taken in regard to the client request or enquiry</p> <p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b>                      1.1 Check for new problems logged by client                      1.3 Investigate and document the support issues affecting the client                      1.4 Notify client of the results of investigation and provide advice and support on findings</p> <p><b>2 Provide advice on software, hardware or network</b>                      2.2 Investigate and document a solution                      2.3 Document additional requirements discovered in the investigation and refer them to the client                      2.9 Provide manuals and help documentation to the client</p>	<p><b>Task 2</b>     <i>Hardware and software support case study</i></p> <p>Students are provided with a scenario outlining a hardware and software problem requiring support. They will be required to analyse this case study and report on the following</p> <ul style="list-style-type: none"> <li>• identification and description of the problem</li> <li>• analysis of the client’s support needs</li> <li>• investigation and research of the problem</li> <li>• possible solutions</li> <li>• outline of the course of action to be undertaken including                             <ul style="list-style-type: none"> <li>– advice to be provided</li> <li>– action to be undertaken</li> <li>– methods of communication</li> <li>– follow up strategies</li> </ul> </li> <li>• a written response to the client</li> <li>• a resource list relating to the particular problem to help support the client.</li> </ul>
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b>                      1.4 Accommodate cultural differences in the workplace</p>	<p><b>Task 3</b>     <i>Cultural diversity</i></p> <p>Students are to research a culture (different to their own) from their local community or one of Australia’s major trade partners (China, Japan, Indonesia, UK, USA, Saudi Arabia, United Arab Emirates, Turkey, Iran, Canada, Korea, Qatar, India) and compile a profile of the culture including:</p> <ul style="list-style-type: none"> <li>• traditions, customs, beliefs and values</li> <li>• demographic representation in Australia</li> <li>• methods of communicating with individuals from this background</li> <li>• potential cross-cultural misunderstandings and cultural issues that may arise in the workplace.</li> </ul>

**Assessment checklist:**

Unit/Element of Competency	Task 1	Task 2	Task 3
<b>ICAS3031A Provide advice to clients</b>			
<i>1 Analyse client support issues</i>			
1.1 Check for new problems logged by client	✓	✓	
1.2 Check previous logs for similar problems or requests from client	✓		
1.3 Investigate and document the support issues affecting the client	✓	✓	
1.4 Notify client of the results of investigation and provide advice and support on findings	✓		
1.5 Obtain client feedback and make changes	✓		
<i>2 Provide advice on software, hardware or network</i>			
2.1 Confirm software, hardware or network requirements with client	✓		
2.2 Investigate and document a solution	✓	✓	
2.3 Document additional requirements discovered in the investigation and refer them to the client	✓	✓	
2.4 Obtain approval from the client to implement the solution	✓		
2.5 Investigate and document the amount of technical support the client may require	✓		
2.6 Discuss and agree the level of technical support identified with the client	✓		
2.7 Arrange a time with the client when support will take place	✓		
2.8 Provide technical support as part of group or one to one instruction to the client	✓		
2.9 Provide manuals and help documentation to the client	✓	✓	
<i>3 Obtain client feedback</i>			
3.1 Create an appropriate evaluation or feedback form or other mechanism to gather feedback about the solution and support provided	✓		
3.2 Provide client with instructions on how to complete the form or use other means of providing feedback	✓		
3.3 Distribute the evaluation or feedback to the client	✓		
3.4 Review the feedback from the client to identify areas for improvement	✓		

Unit/Element of Competency	Task 1	Task 2	Task 3
<b>ICAW2002A Communicate in the workplace</b>			
<i>1 Establish contact with clients</i>			
1.1 Receive requests and enquiries from clients in a polite and appropriate manner	✓		
1.2 Use verbal and non verbal communication to respond to the client requests and enquiries effectively	✓	✓	
1.3 Use appropriate questioning and active listening techniques to understand client needs and determine support requirements	✓		
1.4 Accommodate cultural differences in the workplace	✓		✓
<i>2 Process information</i>			
2.1 Answer enquiries promptly and appropriately	✓	✓	
2.2 Record information or messages and refer client requests to the appropriate person in accordance with organisational procedures	✓		
2.3 Inform client of the progress of their request or enquiry and advise them of the organisational process for answering their request or enquiry	✓		
2.4 Investigate the organisational follow up procedure or policy and record follow up action taken in regard to the client request or enquiry	✓		

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b>                      1.1 Receive requests and enquiries from clients in a polite and appropriate manner                      2.1 Answer enquiries promptly and appropriately</p> <p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b>                      1.1 Check for new problems logged by client</p>	<p><b>Interacting with clients</b></p> <p>Importance of communication in an information and communication technology (ICT) industry or environment.</p> <p>Types of clients :</p> <ul style="list-style-type: none"> <li>• internal                             <ul style="list-style-type: none"> <li>- workmates/colleagues/employees</li> <li>- departments</li> </ul> </li> <li>• external.</li> </ul> <p>Personal attributes and work ethics of ICT staff:</p> <ul style="list-style-type: none"> <li>• attendance and punctuality</li> <li>• ethical behaviour</li> <li>• courtesy</li> <li>• honesty</li> <li>• work performance</li> <li>• taking directives</li> <li>• attention to detail</li> <li>• personal presentation and grooming</li> <li>• attitude</li> <li>• discretion</li> <li>• confidentiality</li> <li>• consistency of service</li> <li>• safe working practices.</li> </ul> <p>Personal attributes that will assist employees to be responsive to client needs:</p> <ul style="list-style-type: none"> <li>• sincerity</li> <li>• confidence</li> <li>• enthusiasm</li> <li>• efficiency</li> <li>• interest in other people.</li> </ul>	<p>Class discussion.</p> <p>Explore the definition of a client in the ICT industry.</p> <p>Discuss the differences between internal and external clients.</p> <p>Brainstorm the personal attributes and work ethics that are needed for employment in the ICT industry.</p> <p>Students discuss personal experiences where they have received poor service from an individual who has not displayed the personal attributes required by the industry. How did it make you feel as a client ?</p> <p>Discuss the importance of being responsive to clients.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Establishing good work habits through knowledge of the company/organisation:</p> <ul style="list-style-type: none"> <li>• product range and service(s) offered</li> <li>• client base</li> <li>• greeting and closing procedures</li> <li>• client interaction protocols</li> <li>• request/enquiry records and tracking</li> <li>• request/enquiry procedures.</li> </ul> <p>Broad knowledge of vendor applications and their features.</p> <p>A broad knowledge of organisational systems, values and code of conduct in relation to establishing contact with clients.</p>	<p>Identify the type company/organisation knowledge that will improve work habits and discuss ways of developing this knowledge.</p> <p>Brainstorm examples then create a mind map of vendor applications and their features.</p> <p>Review some sample codes of conduct and organisational systems. Students then develop an industry induction kit for new employees focusing on contact with clients.</p>
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b></p> <p>1.4 Accommodate cultural differences in the workplace</p>	<p><b>Cultural diversity</b></p> <p>A basic understanding of the concepts of:</p> <ul style="list-style-type: none"> <li>• cultural diversity</li> <li>• cultural differences</li> <li>• cultural awareness.</li> </ul> <p>An awareness of elements of cultural differences:</p> <ul style="list-style-type: none"> <li>• interpersonal relations</li> <li>• festival/celebrations</li> <li>• family structure/obligations</li> </ul>	<p>Class discussion considering cultural diversity and the cultural mix of the school and class.</p> <p>Share personal profile of cultural background:</p> <ul style="list-style-type: none"> <li>• place of birth</li> <li>• parents' birthplace(s)</li> <li>• language(s) spoken at home</li> <li>• food preferences</li> <li>• events celebrated through the year</li> <li>• family members' role and responsibilities</li> <li>• difficulties encountered.</li> </ul> <p>Small group discussion and feedback to class – discuss benefits of a multicultural society and workplace.</p> <p>Handout on the elements that contribute to cultural diversity.</p> <p>Link to Task 3.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• language</li> <li>• religion</li> <li>• customs</li> <li>• social values</li> <li>• work ethic</li> <li>• communication</li> <li>• product/service preference.</li> </ul> <p>The importance of respecting individual difference arising from:</p> <ul style="list-style-type: none"> <li>• culture</li> <li>• race</li> <li>• language</li> <li>• gender</li> <li>• age</li> <li>• religious beliefs</li> <li>• customs/traditions</li> <li>• people with special needs.</li> </ul> <p>General characteristics of the different cultural groups in Australian society.</p> <p>An understanding for the need for tolerance and respect in the workplace.</p> <p>Proactive strategies for promoting workplace diversity and accommodating individual differences in the workplace:</p> <ul style="list-style-type: none"> <li>• staff training</li> <li>• utilising an individual’s difference/skills</li> <li>• using a range of communication media and techniques</li> <li>• promoting cultural celebrations and celebrating differences</li> </ul>	<p>Handout and class discussion.</p> <p>Guest speaker – community member from a local cultural group.</p> <p>Define tolerance and respect.</p> <p>Reflect on how you would like to be treated in the workplace and as a team member.</p> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• identify how different cultures show respect</li> <li>• consequences of insensitivity.</li> </ul> <p>Handout.</p> <p>Brainstorm and record strategies to promote workplace harmony aimed at recognising and accepting differences in individuals and their beliefs.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• actively seeking to break down barriers</li> <li>• developing a workplace culture of empathy and tolerance.</li> </ul>	
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b>                      1.2 Use verbal and non-verbal communication to respond to the client requests and enquiries effectively</p>	<p><b>Communication</b></p> <p>Brief overview of the communication process/cycle:</p> <ul style="list-style-type: none"> <li>• sender</li> <li>• receiver</li> <li>• message</li> <li>• feedback.</li> </ul> <p>Barriers to effective communication:</p> <ul style="list-style-type: none"> <li>• bias and stereotyping</li> <li>• lack of empathy</li> <li>• negative subtext</li> <li>• gender issues</li> <li>• individual differences</li> <li>• inconsistency</li> <li>• emotions</li> <li>• physical barriers, eg noise</li> <li>• inattention</li> <li>• pressure of time.</li> </ul> <p>Types of communication:</p> <ul style="list-style-type: none"> <li>• verbal                             <ul style="list-style-type: none"> <li>- face-to-face</li> <li>- telephone</li> <li>- mobile phone</li> </ul> </li> </ul>	<p>Identify components of the communication process. Discuss the role and importance of each component.</p> <p>Observation of groups communicating in the school (eg social groups at the canteen). Discuss observations.</p> <p>Role-plays incorporating sending and receiving a message with and without feedback.</p> <p>Chinese whispers – on arrival at class students are told a story which they must convey to the next person entering the room. Observe what happens to the story as it progresses through the class.</p> <p>Stimulus material (eg comic strip, cartoon, snippets from a movie/TV show or video) to promote discussion of barriers to effective communication.</p> <p>Identify different forms of each type of communication.</p> <p>Class discussion of the advantages and disadvantages of a range of modes of communication.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>- answering machine</li> <li>- paging system</li> <li>- team meeting</li> <li>- daily conversation</li> <li>• non-verbal</li> <li>• written                             <ul style="list-style-type: none"> <li>- direct mail/letters (general correspondence)</li> <li>- messages</li> <li>- electronic mail</li> <li>- internet/intranet</li> <li>- memoranda</li> <li>- facsimiles</li> <li>- client records</li> <li>- workplace forms/documents</li> <li>- reports.</li> </ul> </li> </ul> <p>Effective communication techniques in relation to non-verbal communication:</p> <ul style="list-style-type: none"> <li>• understanding body language</li> <li>• interpreting                             <ul style="list-style-type: none"> <li>- subtext</li> <li>- gestures</li> </ul> </li> <li>• standards of dress</li> <li>• use of personal space.</li> </ul> <p>The importance of communicating in a language that is:</p> <ul style="list-style-type: none"> <li>• clear</li> <li>• concise</li> <li>• directive</li> <li>• purposeful</li> <li>• correct</li> <li>• courteous</li> <li>• culturally sensitive.</li> </ul>	<p>Role-play – a range of situations:</p> <ul style="list-style-type: none"> <li>• dealing with client face-to-face</li> <li>• dealing with a client via the telephone</li> <li>• dealing with a client via the internet.</li> </ul> <p>Discuss ‘netiquette’ and the implications of using email as a prime source of communication.</p> <p>Review samples of different written forms of workplace communication media and discuss their use in the workplace.</p> <p>Discuss the elements of non-verbal communication.</p> <p>Role-play – several situations where body language is consistent and inconsistent with the verbal communication. Students discuss their observations</p> <p>Class activity – students play a game where they have to give their partner instructions on how to draw a picture (eg a spotted dog) without telling or showing them what the picture is of.</p> <p>Discuss the effective and ineffective communication strategies they used in the activity and how they could have improved them.</p> <p>Identify appropriate language for a range of situations:</p> <ul style="list-style-type: none"> <li>• in the workplace (with both colleagues and customers)</li> <li>• at home</li> <li>• in public</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>The importance of the following to verbal communication:</p> <ul style="list-style-type: none"> <li>• appropriate language</li> <li>• clear voice</li> <li>• audible volume</li> <li>• courteous tone</li> <li>• active listening</li> <li>• asking questions or rephrasing to clarify or confirm understanding.</li> </ul> <p>The importance of the following skills in written communication:</p> <ul style="list-style-type: none"> <li>• accurate spelling, grammar and punctuation</li> <li>• appropriate tone, format and style</li> <li>• sentence construction (short, simple and correct)</li> <li>• legible handwriting</li> <li>• plain English</li> <li>• avoid jargon</li> <li>• technical detail accompanied by explanation</li> <li>• proofreading and editing.</li> </ul> <p>An awareness of access and equity principles when communicating with people from diverse backgrounds and those with special needs.</p>	<ul style="list-style-type: none"> <li>• with close friends and family</li> <li>• with acquaintances.</li> </ul> <p>Role-play situations where verbal communication is effective and ineffective. Compare the outcomes for both the client and server.</p> <p>Students demonstrate their understanding of the communication process using appropriate language and tone for a variety of situations, for example:</p> <ul style="list-style-type: none"> <li>• greeting clients</li> <li>• situations where there is distraction or noise</li> <li>• communicating with a client who has minimal IT knowledge</li> <li>• providing instructions to a colleague</li> <li>• handling a client complaint face-to-face and over the phone.</li> </ul> <p>Students to write a piece of prose using an agreed text type on a subject of their choice, and then peer-evaluate using the checklist in the content. Students are then to evaluate an external example of poor writing, proofread and edit it.</p> <p>Discuss the need for access and equity principles/guidelines in the workplace then develop a sample set of guidelines.</p>
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b> 1.2 Use verbal and non-verbal communication to</p>	<p><b>Communication methods</b></p> <p>General features, benefits and working knowledge of a range of communication methods and equipment.</p>	<p>Identify and list the communication media/equipment used in the ICT industry.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p>respond to the client requests and enquiries effectively</p>	<p>Factors affecting selection of particular communication methods/equipment:</p> <ul style="list-style-type: none"> <li>• technical and operational features</li> <li>• access of the sender and receiver to necessary equipment</li> <li>• technical skills required to use the medium</li> <li>• required format</li> <li>• degree of formality required</li> <li>• urgency and time frames.</li> </ul>	<p>Class discussion looking at communication needs:</p> <ul style="list-style-type: none"> <li>• delivery formats</li> <li>• time constraints</li> <li>• staff ability</li> <li>• training needs.</li> </ul> <p>Students select and correctly use a range of communication media in a variety of potential situations.</p>
<p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b></p> <p>1.1 Check for new problems logged by client</p> <p>1.4 Notify client of the results of investigation and provide advice and support on findings</p> <p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>2 Process information</b></p> <p>2.1 Answer enquiries promptly and appropriately</p>	<p><b>Customer Service</b></p> <p>An understanding of:</p> <ul style="list-style-type: none"> <li>• the relationship between client service and business success</li> <li>• the concept ‘client-focused’ company/organisation.</li> </ul> <p>Benefits of good customer service:</p> <ul style="list-style-type: none"> <li>• promoting goodwill</li> <li>• client loyalty/repeat business</li> <li>• new business</li> <li>• productivity</li> <li>• credibility</li> <li>• promoting company/organisation service ethic.</li> </ul> <p>Establishing good customer service:</p> <ul style="list-style-type: none"> <li>• knowledge of company/organisation product/service policies</li> <li>• use language that is targeted to the specific customer</li> <li>• present a friendly and courteous manner</li> <li>• use positive gestures and body language</li> <li>• ensure prompt response to enquiry/request</li> <li>• adopt a solutions-oriented approach</li> <li>• follow-up to maximise customer satisfaction.</li> </ul>	<p>Discuss the different types of relationships between clients and businesses.</p> <p>Outline the key features of a client-focussed organisation.</p> <p>Class debate – ‘IT businesses do not need to have a good relationship with their client to provide good service’.</p> <p>Discuss why customer service is important to the ICT industry and the benefits to the customer, employer and employee when quality service is provided.</p> <p>Discuss the consequences of poor customer service.</p> <p>Role-play a range of scenarios.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b>                      1.1 Check for new problems logged by client                      1.2 Check previous logs for similar problems or requests from client                      1.3 Investigate and document the support issues affecting the client</p> <p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b>                      1.3 Use appropriate questioning and active listening techniques to understand client needs and determine support requirements</p>	<p><b>Customer Needs</b></p> <p>An awareness of the difference between preferences, needs and expectations.</p> <p>An understanding of the differing needs of internal and external clients.</p> <p>An understanding of:</p> <ul style="list-style-type: none"> <li>• the purpose of background knowledge of client requirements</li> </ul> <p>Acknowledgement that in order to design a solution to a client’s problem you have to understand their need.</p> <p>Establishing customer preferences, needs and expectations through:</p> <ul style="list-style-type: none"> <li>• active listening</li> <li>• using open, closed and reflective questions</li> <li>• observation and recognition of non-verbal signs.</li> </ul>	<p>Define preferences, needs and expectations.</p> <p>Discuss the different needs of internal and external clients and explore why their needs are different.</p> <p>Discuss the potential consequences of not meeting internal and external client needs.</p> <p>Identify why it is necessary to identify client needs.</p> <p>Access and review the following websites and identify key factors for success and failure for a business in terms of its client service:</p> <ul style="list-style-type: none"> <li>• ‘Behaviours that foretell project trouble’  <a href="http://www.striderandcline.com/behaviors.shtml">http://www.striderandcline.com/behaviors.shtml</a></li> <li>• ‘Avoid failed projects – prevention is better than cure’  <a href="http://www.projectsmart.co.uk/pdf/avoid_failed_projects.pdf">http://www.projectsmart.co.uk/pdf/avoid_failed_projects.pdf</a></li> <li>• ‘Turning around a failing project’  <a href="http://www.prairienet.org/cil_stc/downloads/TurningAroundFailingProject-PresentationNotes.pdf">http://www.prairienet.org/cil_stc/downloads/TurningAroundFailingProject-PresentationNotes.pdf</a></li> </ul> <p>Discuss how a lack of understanding of client needs can contribute to the failure of projects.</p> <p>Discuss ways to determine customer needs.</p> <p>Using case studies categorise user requirements into preferences, needs and expectations.</p> <p>Role-play – use different questioning techniques to try and determine customer needs, preferences and expectations.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Client needs analysis/assessment to enable:</p> <ul style="list-style-type: none"> <li>• a clear understanding of the client request/problem</li> <li>• an evaluation of client requirements</li> <li>• the prioritisation of requirements as essential or optional.</li> </ul>	<p>Discuss collaborative approaches to setting and managing expectations.</p> <p>Create a matrix to summarise a client needs analysis.</p>
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b> 1.2 Use verbal and non-verbal communication to respond to the client requests and enquiries effectively</p> <p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b> 1.3 Investigate and document the support issues affecting the client</p>	<p><b>Workplace documentation</b></p> <p>A range of workplace documentation:</p> <ul style="list-style-type: none"> <li>• memorandum</li> <li>• email</li> <li>• letter</li> <li>• facsimile</li> <li>• report.</li> </ul> <p>Company/organisation/industry standards for workplace documentation:</p> <ul style="list-style-type: none"> <li>• format</li> <li>• style</li> <li>• language <ul style="list-style-type: none"> <li>- clear</li> <li>- concise</li> <li>- directive</li> <li>- purposeful</li> <li>- correct</li> <li>- culturally sensitive</li> <li>- jargon-free</li> </ul> </li> <li>• details required.</li> </ul> <p>Current business practice in relation to preparation of workplace documentation:</p> <ul style="list-style-type: none"> <li>• formatting</li> <li>• style guides</li> <li>• templates</li> <li>• wizards</li> </ul>	<p>Discuss the benefits and limitations of a range of workplace documentation.</p> <p>Create examples of each type of workplace documentation using a case study approach.</p> <p>Review good and bad examples of workplace documentation and compare the characteristics of each.</p> <p>Internet search – access a range of style guides and review their contents and how prescriptive they are.</p> <p>Discuss the different ways of preparing workplace documentation (eg large organisation versus a small organisation).</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>document naming and filing conventions</li> <li>header/footer, page/section break, margins and page numbering</li> <li>editing and proofing.</li> </ul>	<p>Class activity – develop class organisational standards for documents, including headers/footers, page/section breaks, margins, page numbering, font name and sizing, as well as other style considerations.</p>
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>2 Process information</b></p> <p>2.2 Record information or messages and refer client requests to the appropriate person in accordance with organisational procedures</p> <p>2.4 Investigate the organisational follow-up procedure or policy and record follow-up action taken in regard to the client request or enquiry</p> <p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b></p> <p>1.2 Check previous logs for similar problems or requests from client</p>	<p><b>Recording and reporting liaison with customers</b> <b>Recording and documenting</b></p> <p>Company/organisation/industry practices for recording and reporting:</p> <ul style="list-style-type: none"> <li>formal/informal</li> <li>verbal/written.</li> </ul> <p>Taking messages and sending them to the relevant person:</p> <ul style="list-style-type: none"> <li>information to be obtained</li> <li>repeating main points to ensure accuracy</li> <li>system to record message (paper or electronic).</li> </ul> <p>Company/organisation/industry practices for:</p> <ul style="list-style-type: none"> <li>tracking process</li> <li>audit trails</li> <li>naming standards</li> <li>version control.</li> </ul> <p>Understanding lines of reporting and communication with supervisor/team leader and colleagues within the workplace.</p>	<p>Discuss a range of procedures for recording and reporting communication.</p> <p>Discuss appropriate methods for storing written communication.</p> <p>Brainstorm the key elements of taking a message.</p> <p>Role-play a range of partially scripted business phone calls and compare the message taken with a model answer.</p> <p>Class discussion and handout.</p> <p>Link to Task 1.</p> <p>Using the school structure and other student work experiences, construct organisational charts and then map formal lines of reporting and informal lines of communication.</p>
<p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b></p> <p>1.3 Investigate and document the support issues affecting the client</p> <p>1.4 Notify client of the results of investigation</p>	<p><b>Service/support</b></p> <p>Company/organisation’s:</p> <ul style="list-style-type: none"> <li>contracts and service agreements with vendors</li> <li>available support                             <ul style="list-style-type: none"> <li>- in-house</li> </ul> </li> </ul>	<p>Using the school hardware and software agreements, or other available resources, review different types of agreements and levels of support found in the workplace.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p>and provide advice and support on findings</p> <p><b>2 Provide advice on software, hardware or network</b></p> <p>2.4 Obtain approval from the client to implement the solution</p> <p>2.5 Investigate and document the amount of technical support the client may require</p> <p>2.8 Provide technical support as part of group or one-to-one instruction to the client</p>	<ul style="list-style-type: none"> <li>- vendor</li> <li>- third party.</li> </ul> <p>Company/organisation approval policies and procedures:</p> <ul style="list-style-type: none"> <li>• services that can be provided on verbal approval from client</li> <li>• services that require written/signed approval                             <ul style="list-style-type: none"> <li>- workplace documentation to be completed</li> <li>- authorised person/s for signature.</li> </ul> </li> </ul> <p>The purpose for obtaining approval:</p> <ul style="list-style-type: none"> <li>• client verification of their requirements</li> <li>• to ensure                             <ul style="list-style-type: none"> <li>- solution is within company/organisation policy</li> <li>- costing of the solution is understood and allocated</li> <li>- timeframes for implementation of solution are acceptable.</li> </ul> </li> </ul> <p>A range of client support issues.</p> <p>Methods to investigate support issues:</p> <ul style="list-style-type: none"> <li>• interview the client using open, closed and reflective questions combined with active listening</li> <li>• on-site observation/examination</li> <li>• questionnaire</li> <li>• focus group</li> <li>• contacting vendor/maintenance organisation</li> <li>• existing documentation.</li> </ul> <p>Skills to investigate support issues:</p> <ul style="list-style-type: none"> <li>• research</li> <li>• problem-solving</li> <li>• report writing.</li> </ul> <p>Constraints that apply to provision of advice/support:</p> <ul style="list-style-type: none"> <li>• cost</li> <li>• time available</li> <li>• business policies and practices</li> </ul>	<p>Review sample agreements in order to summarise when it is most likely service can be provided on verbal approval and when formal signoff is needed.</p> <p>Link to Task 1.</p> <p>Discuss the repercussions of not obtaining approval.</p> <p>Link to Tasks 1 and 2.</p> <p>Discuss the qualities of a range of approaches.</p> <p>Link to Tasks 1 and 2.</p> <p>Brainstorm constraints.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• staff skills and training requirements</li> <li>• room or building geometry.</li> </ul> <p>Factors influencing the amount of technical support required:</p> <ul style="list-style-type: none"> <li>• skill level of client</li> <li>• complexity of solution being implemented.</li> </ul> <p>A range of possible advice and support:</p> <ul style="list-style-type: none"> <li>• provision of user documentation/manuals to assist client</li> <li>• one-to-one instruction/training</li> <li>• referral of training need to client’s supervisor/team leader</li> <li>• documentation from vendor</li> <li>• advice on hardware and software supported by the company/organisation.</li> </ul> <p>Benefits and limitations of providing support as:</p> <ul style="list-style-type: none"> <li>• one-on-one instruction</li> <li>• team/group training.</li> </ul>	<p>Discuss the differences between support requirements for:</p> <ul style="list-style-type: none"> <li>• an inexperienced and experienced client</li> <li>• a simple solution versus a complex one.</li> </ul> <p>Students given a range of different support requests. Students produce a report outlining the advice they would provide and how they would provide support.</p> <p>Investigate the costs of one-on-one instruction versus group training for the same course. Discuss the pros and cons of each approach.</p>
<p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>1 Establish contact with clients</b>            1.1 Receive requests and enquiries from clients in a polite and appropriate manner</p> <p><b>2 Process information</b>            2.1 Answer enquiries promptly and appropriately            2.2 Record information or messages and refer client requests to the appropriate person in accordance with organisational procedures            2.3 Inform client of the progress of their request or enquiry and advise them of the organisational process for answering their request or enquiry</p>	<p><b>Requests/enquiries</b></p> <p>Receiving requests and enquiries through:</p> <ul style="list-style-type: none"> <li>• telephone</li> <li>• workplace forms (paper and electronic)</li> <li>• electronic mail</li> <li>• face-to-face</li> <li>• memoranda</li> <li>• facsimiles</li> <li>• handwritten notes/letters.</li> </ul> <p>Skills required:</p> <ul style="list-style-type: none"> <li>• problem-solving               <ul style="list-style-type: none"> <li>- listen and acknowledge</li> <li>- identify problem</li> <li>- consider solutions</li> <li>- action</li> </ul> </li> </ul>	<p>Brainstorm the range of ways requests and enquiries may be received.</p> <p>Investigate the basic principles of problem-solving, decision-making, negotiating and prioritising.</p> <p>In groups student create a poster summarising the key elements of one of the listed skills for display in the classroom.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>- record</li> <li>- follow-up</li> <li>• decision-making</li> <li>• negotiating</li> <li>• prioritising.</li> </ul> <p>An understanding of:</p> <ul style="list-style-type: none"> <li>• the need for a continuous log/record of requests/problems.</li> </ul> <p>Standard operating procedures (SOP) for processing internal and external requests/enquiries:</p> <ul style="list-style-type: none"> <li>• recording initial request/enquiry</li> <li>• disseminating request/enquiry to appropriate person</li> <li>• respond to request/enquiry</li> <li>• inform client</li> <li>• record action</li> <li>• structured follow-up.</li> </ul> <p>Paper-based and electronic means for:</p> <ul style="list-style-type: none"> <li>• clients to record/log their requests/enquiries/problems</li> <li>• information and communications technology (ICT) staff to record client requests/enquiries/problems.</li> </ul> <p>Details to be documented by ICT staff:</p> <ul style="list-style-type: none"> <li>• client contact details</li> <li>• a description of the problem</li> <li>• progress of each task</li> <li>• actions taken (both successful and unsuccessful) to                             <ul style="list-style-type: none"> <li>- answer enquiry</li> <li>- fulfil request</li> <li>- solve the problem</li> </ul> </li> <li>• up-to-date list of outstanding or urgent tasks.</li> </ul> <p>Awareness of the scope of responsibility of personnel to enable referral of request/enquiry to the most appropriate person.</p>	<p>Discuss the benefits of maintaining a record of problems.</p> <p>Review the features of different helpdesk software for logging/recording requests.</p> <p>Create an SOP for the school’s helpdesk.</p> <p>Discuss the advantages and disadvantages of each.</p> <p>Brainstorm a list of the details that should be documented by ICT staff.</p> <p>Create a template for ICT staff to record client requests/enquiries/problems.</p> <p>Review the role descriptions of a range of IT positions. Identify the scope of responsibility for each</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Appropriate persons:</p> <ul style="list-style-type: none"> <li>• colleague</li> <li>• supervisor/team leader</li> <li>• technical expert</li> <li>• trainer</li> <li>• vendor representative</li> <li>• supplier</li> <li>• industry/regulatory body.</li> </ul> <p>The importance of acting within the level of authority in terms of:</p> <ul style="list-style-type: none"> <li>• taking initiative</li> <li>• problem-solving</li> <li>• decision-making.</li> </ul> <p>Effective responses to a range of potential enquiries and requests.</p> <p>An awareness of company/organisation standard turnaround times.</p>	<p>Class discussion about the authority and delegation and the implications of acting outside the appropriate level of authority.</p> <p>Role-play responses using questions previously collected.</p> <p>Discuss reasonable turnaround times.</p>
<p><i>ICAS3031A Provide advice to clients</i></p> <p><b>1 Analyse client support issues</b></p> <p>1.3 Investigate and document the support issues affecting the client</p> <p>1.4 Notify client of the results of investigation and provide advice and support on findings</p> <p>1.5 Obtain client feedback and make changes</p> <p><b>2 Provide advice on software, hardware or network</b></p> <p>2.1 Confirm software, hardware or network requirements with client</p> <p>2.2 Investigate and document a solution</p> <p>2.3 Document additional requirements discovered in the investigation and refer them to the client</p>	<p><b>Solutions</b></p> <p>A knowledge of the following supported by the client’s company/organisation:</p> <ul style="list-style-type: none"> <li>• basic features and functions of the operating system</li> <li>• features of the different types of hardware</li> <li>• advanced features and functions of the software</li> <li>• contract and service agreements with vendors</li> <li>• security and network guidelines and procedures.</li> </ul> <p>Interaction with the client to:</p> <ul style="list-style-type: none"> <li>• provide an overview of task, finding(s) and recommendation(s)</li> <li>• enable discussion of feasible alternative(s)</li> <li>• decide on best solution to enhance client efficiency</li> <li>• arrange implementation of course of action.</li> </ul>	<p>Discuss how having a breadth of knowledge can improve the quality of service to clients.</p> <p>Link to Task 1.</p> <p>Role-play interaction with a client using a selection of relevant helpdesk situations. Peer-evaluate the use of verbal and non-verbal communication skills used to convey technical information to the client.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p>2.6 Discuss and agree the level of technical support identified with the client</p> <p>2.7 Arrange a time with the client when support will take place</p> <p>2.9 Provide manuals and help documentation to the client</p> <p><i>ICAW2002A Communicate in the workplace</i></p> <p><b>2 Process information</b></p> <p>2.4 Investigate the organisational follow-up procedure or policy and record follow-up action taken in regard to the client request or enquiry</p>	<p>Verbal and non-verbal communication skills to convey comprehensive technical information to client in a clear, coherent, concise and jargon-free manner.</p> <p>An awareness of the importance of ICT staff and the client agreeing on what is to be done in regard to the request/problem.</p> <p>Sources of information and possible solutions:</p> <ul style="list-style-type: none"> <li>• colleagues</li> <li>• company/organisation policies and manuals</li> <li>• consultants</li> <li>• suppliers</li> <li>• personal/professional contacts</li> <li>• ICT industry publications</li> <li>• trade shows</li> <li>• the internet</li> <li>• technical manuals</li> <li>• help documentation.</li> </ul> <p>Benefits and limitations of a range of solutions:</p> <ul style="list-style-type: none"> <li>• hardware <ul style="list-style-type: none"> <li>- upgrades</li> <li>- new</li> </ul> </li> <li>• software <ul style="list-style-type: none"> <li>- upgrades</li> <li>- new</li> </ul> </li> <li>• user training</li> <li>• implementing a new system.</li> </ul> <p>A knowledge of the process for developing macros and templates:</p> <ul style="list-style-type: none"> <li>• analyse client requirements</li> <li>• design solutions</li> <li>• discuss solutions with the client and choose a solution</li> <li>• create and test solution</li> <li>• demonstrate solution to client</li> </ul>	<p>Link to Task 1.</p> <p>Discuss the implications for the client and the IT organisation if an action/solution hasn't been agreed to.</p> <p>Link to Tasks 1 and 2.</p> <p>Prepare a proposal to improve the IT facilities at the school or for a local business:</p> <ul style="list-style-type: none"> <li>• for both hardware and software, summarise the benefits and limitations of upgrading the existing or buying new</li> <li>• include discussion on the implications for training users.</li> </ul> <p>Select one of the following problems and develop and implement a macro and template:</p> <ul style="list-style-type: none"> <li>• printing specific cells in a spreadsheet that aren't contiguous</li> <li>• reformatting text in a specific manner</li> <li>• backup and restore procedures for a spreadsheet</li> <li>• standard formatting of pictures in a word processing</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• refine the solution</li> <li>• document the solution.</li> </ul> <p>Writing a range of macros and templates.</p> <p>Application of known solutions to a range of predictable problems.</p> <p>An awareness of the importance of:</p> <ul style="list-style-type: none"> <li>• implementing solutions within acceptable timeframes</li> <li>• minimising impact on client’s daily responsibilities.</li> </ul> <p>An awareness of the benefits of following up with clients post-resolution.</p>	<p>document.</p> <p>Link to Task 1 and 2.</p> <p>Class discussion.</p> <p>Class discussion on the benefits of client follow-up for both satisfied and dissatisfied clients.</p>
<p><i>ICAS3031A Provide advice to clients</i></p> <p><b>3 Obtain client feedback</b></p> <p>3.1 Create an appropriate evaluation or feedback form or other mechanism to gather feedback about the solution and support provided</p> <p>3.2 Provide client with instructions on how to complete the form or use other means of providing feedback</p> <p>3.3 Distribute the evaluation or feedback to the client</p> <p>3.4 Review the feedback from the client to identify areas for improvement</p>	<p><b>Feedback</b></p> <p>Types of feedback:</p> <ul style="list-style-type: none"> <li>• positive</li> <li>• negative</li> <li>• constructive.</li> </ul> <p>Recognition of the value of client feedback to the company/organisation:</p> <ul style="list-style-type: none"> <li>• improving business relationships</li> <li>• identifying and overcoming existing problems</li> <li>• eliminating entrenched work practices</li> <li>• improving productivity</li> <li>• enhancing output quality</li> <li>• future development of the company/organisation.</li> </ul> <p>Methods to obtain client feedback:</p> <ul style="list-style-type: none"> <li>• questionnaire <ul style="list-style-type: none"> <li>- paper</li> <li>- electronic</li> </ul> </li> <li>• interview</li> <li>• focus group.</li> </ul>	<p>Identify the different types of feedback and discuss the value of each.</p> <p>Brainstorm the benefits of receiving feedback for the company and for the client.</p> <p>Discuss ways to elicit constructive feedback.</p> <p>Investigate each of the methods listed for obtaining client feedback and evaluate them in terms of:</p> <ul style="list-style-type: none"> <li>• validity</li> <li>• cost</li> <li>• effectiveness.</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Points to consider when designing feedback mechanism:</p> <ul style="list-style-type: none"> <li>• use of language                             <ul style="list-style-type: none"> <li>- targeted to client</li> <li>- plain English</li> <li>- minimising technical/industry jargon</li> </ul> </li> <li>• questioning technique                             <ul style="list-style-type: none"> <li>- open, closed and/or reflective</li> <li>- avoiding bias/leading questions</li> </ul> </li> <li>• opportunity for ‘free-response’.</li> </ul> <p>How to interpret feedback in order to improve work practices.</p> <p>Reporting feedback to appropriate person(s):</p> <ul style="list-style-type: none"> <li>• supervisor/team leader</li> <li>• management</li> <li>• vendor</li> <li>• supplier</li> <li>• trainer</li> <li>• colleagues.</li> </ul>	<p>In groups review samples of both good and bad examples of client feedback mechanisms noting the features of each.</p> <p>Link to Task 1.</p> <p>In small groups analyse sample feedback for a range of situations and identify how the feedback can improve immediate and future work outcomes.</p> <p>Link to Task 1.</p> <p>Identify a range of methods for reporting feedback based on the feedback mechanism used.</p>

### **3.2 Programming Individual Units of Competency**

When programming individual units of competency:

- ensure that all elements of competency are addressed
- ensure that HSC requirements are addressed
- stress links with other units
- as far as possible, adopt an integrated assessment approach.

**Sample Program                      Working in the industry**

**Rationale:**        This program is intended to provide the opportunity for students to develop knowledge and skills required to work in an IT industry.

*Students will develop the specific knowledge and understanding to enable the skills to be developed and applied in the workplace*

**Units of competency:**    ICAW2001A    Work effectively in an IT environment

**HSC Requirements and Advice – Key terms and concepts:**

<b>Work effectively in an IT environment</b>	
<ul style="list-style-type: none"> <li>• anti-discrimination</li> <li>• awards, agreements and contracts</li> <li>• basic research skills</li> <li>• bullying and harassment</li> <li>• career opportunities and pathways</li> <li>• completion of work tasks</li> <li>• current industry practices</li> <li>• emerging technologies</li> <li>• employment conditions</li> <li>• equal employment opportunity (EEO)</li> <li>• equipment</li> <li>• equipment audits</li> <li>• information and communications technology (ICT)</li> <li>• ICT environment</li> <li>• ICT industry</li> <li>• ICT personnel</li> <li>• ICT roles</li> <li>• ICT specialist</li> <li>• ICT user</li> <li>• implementation of policies and procedure</li> </ul>	<ul style="list-style-type: none"> <li>• inappropriate conduct</li> <li>• interrelationship between ICT industry and other industries</li> <li>• key ICT bodies</li> <li>• knowledge of an organisation in relation to its ICT capacity, assets, services and staff</li> <li>• management of ICT</li> <li>• monitoring compliance of policies and procedures</li> <li>• operating systems</li> <li>• outsourcing</li> <li>• personal attributes</li> <li>• recording and reporting</li> <li>• rights and responsibilities</li> <li>• service areas</li> <li>• software</li> <li>• sources of current industry information</li> <li>• statistics and current trends</li> <li>• vendor</li> <li>• vocational specialisations</li> <li>• work ethics</li> <li>• workplace policies and procedures.</li> </ul>

**Assessment:**

Unit/Element of competency	Possible assessment strategy
<p>ICAW2001A Work effectively in an IT environment</p> <p><b>1 Identify IT in an organisation and related relevant policies and procedures</b></p> <p><b>2 Identify IT equipment, software and operating systems used by the organisation</b></p>	<p><b>Task 1</b>     <i>Work placement folio</i></p> <p>Students are to prepare a work placement folio describing policies, procedures and personnel involved in an ICT work environment using appropriate application software.</p> <p>The folio should include the following:</p> <ul style="list-style-type: none"> <li>• an organisational chart identifying key players in the work placement organisation</li> <li>• outline of the jobs and roles undertaken by those responsible for ICT and service areas in the organisation</li> <li>• description of one workplace policy and the procedures to implement that policy in the organisation</li> <li>• outline of the hardware and software available in the organisation and its use</li> <li>• the type and extent of ICT assets managed by the ICT area/staff</li> <li>• description of the procedures for asset management and maintenance undertaken by the organisation</li> <li>• personal evaluation of own performance in completing a range of tasks in the workplace in terms of compliance with safety procedures, following supervisor directions, adherence to workplace policies, maintaining work space and seeking advice.</li> </ul> <p>In addition students are to keep a log of tasks undertaken during work placement. This should outline how they:</p> <ul style="list-style-type: none"> <li>• compiled with safety procedures</li> <li>• followed supervisor directions</li> <li>• adhered to workplace policies</li> <li>• maintained work space</li> <li>• sought advice during the completion of workplace tasks.</li> </ul>

Unit/Element of competency	Possible assessment strategy
<p>ICAW2001A Work effectively in an IT environment</p> <p><b>2 Identify IT equipment, software and operating systems used by the organisation</b></p> <p>2.2 Establish that all of the equipment locations and service requirements are maintained according to organisational requirements and prevailing policies and procedures</p>	<p><b>Task 2</b> <i>IT resource audit</i></p> <p>Students complete a software/hardware audit of the IT classroom(s).</p> <p>Items for review should include:</p> <ul style="list-style-type: none"> <li>• computer name</li> <li>• asset number</li> <li>• supplier</li> <li>• model</li> <li>• purchase date</li> <li>• processor</li> <li>• memory</li> <li>• hard disk capacity</li> <li>• operating system</li> <li>• monitor</li> <li>• peripheral devices</li> <li>• location.</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAW2001A Work effectively in an IT environment</i></p> <p><b>1 Identify IT in an organisation and related relevant policies and procedures</b></p> <p>1.1 Identify IT roles in an organisation and briefly describe what services they perform</p> <p>1.2 Identify and describe <i>key players</i> from the IT service previously identified</p> <p>1.3 Identify IT policies and procedures and research whether they are used in practice</p> <p><b>2 Identify IT equipment, software and operating systems used by the organisation</b></p> <p>2.1 Identify IT <i>equipment, operating systems</i> and <i>software</i> used in the organisation and understand the importance and role within the organisation</p>	<p><b>Industry knowledge</b></p> <p>An awareness of the following in relation to the ICT industry:</p> <ul style="list-style-type: none"> <li>• current trends</li> <li>• interrelationship with other industries.</li> </ul> <p>An awareness of emerging technologies relevant to the ICT industry and their effect on:</p> <ul style="list-style-type: none"> <li>• current work practices</li> <li>• productivity</li> <li>• employment</li> <li>• education and training</li> <li>• market conditions</li> <li>• cost effectiveness.</li> </ul> <p>An awareness of the following in relation to the ICT industry:</p> <ul style="list-style-type: none"> <li>• statistics <ul style="list-style-type: none"> <li>- employment</li> <li>- income</li> </ul> </li> </ul> <p>Skills for:</p> <ul style="list-style-type: none"> <li>• basic research <ul style="list-style-type: none"> <li>- identification of relevant information</li> <li>- questioning techniques to obtain information</li> <li>- sorting, summarising and presenting information</li> </ul> </li> </ul>	<p>Discuss current trends in ICT industry including:</p> <ul style="list-style-type: none"> <li>• contract work</li> <li>• types of positions available</li> <li>• number of jobs and areas for employment</li> <li>• outsourcing</li> <li>• vendors</li> <li>• education and training opportunities</li> <li>• market conditions</li> <li>• productivity.</li> </ul> <p>Brainstorm the range of industries that have an interrelationship with the ICT industry.</p> <p>Students are to find a newspaper article about an emerging ICT technology and analyse its potential effect on the industry, examining each of the elements listed.</p> <p>Students collect newspaper, magazine or web articles over the course of the unit, regarding current employment trends in ICT.</p> <p>Guest speaker – school librarian – workshop introducing basic research skills.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• reading and writing at a level where workplace documents can be written and understood</li> <li>• clear and precise verbal communication.</li> </ul> <p>A basic understanding of the primary role/function of key ICT industry bodies:</p> <ul style="list-style-type: none"> <li>• industry stakeholders/associations                             <ul style="list-style-type: none"> <li>- NSW Communications ITAB</li> <li>- Innovation and Business Skills Australia (IBSA)</li> <li>- Australian Computer Society (ACS)</li> <li>- Australian Information Industry Association (AIIA)</li> <li>- CompTIA</li> <li>- Australian Telecommunications User Group (ATUG)</li> </ul> </li> <li>• government bodies                             <ul style="list-style-type: none"> <li>- Department of Commerce, Information Technology and the Arts (DCITA)</li> </ul> </li> <li>• unions/staff associations                             <ul style="list-style-type: none"> <li>- Australian Services Union (ASU)</li> <li>- Australian Workers Union (AWU)</li> </ul> </li> <li>• other lobbyists/interest groups                             <ul style="list-style-type: none"> <li>- software association</li> <li>- internet association</li> <li>- service providers association</li> <li>- users group.</li> </ul> </li> </ul> <p>Knowledge of service areas (non-trade area where ICT personnel work and provide a service/response, for example call centre, helpdesk, desktop publishing, e-business and website development/maintenance) within an ICT context:</p> <ul style="list-style-type: none"> <li>• the role and service(s) offered by each area</li> <li>• interrelationship between service areas.</li> </ul> <p>A broad knowledge of an organisation in relation to its ICT capacity and the type and extent of ICT assets managed by the ICT area/staff:</p> <ul style="list-style-type: none"> <li>• systems</li> </ul>	<p>Students select one organisation from the list. Review the organisation's website to identify its key role/function in the ICT industry, produce a handout and present findings to the class.</p> <p>Brainstorm service areas within an ICT context.</p> <p>In small groups students research a service area in ICT and present findings to the class in a two minute oral presentation. Topics may include call centres, help desk, e-business etc.</p> <p>Brainstorm the assets managed by ICT staff in an organisation.</p> <p>Guest speaker – school or local business computer</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• equipment</li> <li>• software</li> <li>• employees</li> <li>• policies</li> <li>• procedures</li> <li>• governance arrangements                             <ul style="list-style-type: none"> <li>- mission/mission statement, values and business objectives</li> <li>- code of conduct</li> <li>- management structure and lines of reporting.</li> </ul> </li> </ul>	<p>coordinator to discuss the roles and responsibilities they have in regard to ICT.</p> <p>Link to Task 1.</p> <p>Define the term governance and discuss governance arrangements for ICT asset management.</p>
<p><i>ICAW2001A Work effectively in an IT environment</i></p> <p><b>1 Identify IT in an organisation and related relevant policies and procedures</b></p> <p>1.1 Identify IT roles in an organisation and briefly describe what services they perform</p> <p>1.2 Identify and describe key players from the IT service previously identified</p>	<p><b>Working in the industry</b></p> <p>An awareness of the two broad categories for the ICT workforce:</p> <ul style="list-style-type: none"> <li>• ICT specialist</li> <li>• ICT user.</li> </ul> <p>An awareness of vocational specialisations in an ICT environment:</p> <ul style="list-style-type: none"> <li>• support</li> <li>• website development</li> <li>• networking</li> <li>• programming</li> <li>• testing</li> <li>• systems analysis and design</li> <li>• multimedia</li> <li>• project management</li> <li>• systems administration</li> <li>• database design and development</li> <li>• network security.</li> </ul> <p>An awareness of career opportunities and pathways within the ICT industry, as well as other industries where ICT services are required/provided.</p>	<p>Define the terms ‘specialist’ and ‘user’.</p> <p>Discuss the range of ICT vocational specialisations and identify the areas that they cover.</p> <p>Research to determine those specialisations in ITC in which there is an over-supply and under-supply considering Australia, the Asia-Pacific Region, and the World.</p> <p>Students select a career/job opportunity from those listed to investigate and do a presentation on it to the class.</p> <p>Class discussion about multi-skilling in the ICT industry.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>A basic understanding of the primary role(s) and duties/services performed of a range of ICT personnel:</p> <ul style="list-style-type: none"> <li>• help desk operator</li> <li>• network administrator</li> <li>• hardware technician</li> <li>• web designer</li> <li>• software developer</li> <li>• programmer</li> <li>• desktop publisher</li> <li>• ICT manager</li> <li>• ICT trainer.</li> </ul> <p>Personal attributes and work ethics of ICT workers:</p> <ul style="list-style-type: none"> <li>• attendance and punctuality</li> <li>• ethical behaviour</li> <li>• honesty</li> <li>• work performance</li> <li>• taking directives</li> <li>• attention to detail</li> <li>• personal presentation and grooming</li> <li>• attitude</li> <li>• confidentiality</li> <li>• consistency of service</li> <li>• safe work practices.</li> </ul> <p>An awareness of current industrial relations issues affecting the industry.</p> <p>A basic knowledge of industry employment conditions:</p> <ul style="list-style-type: none"> <li>• industrial award</li> <li>• enterprise agreement</li> <li>• workplace agreement</li> </ul>	<p>Collate information about each of the roles listed including outlining the duties/tasks performed, qualifications required, personal qualities, career paths, and related industries.</p> <p>Create a mind map using the information gathered using graphical organiser software such as <i>Inspiration</i>.</p> <p>Collect a file of IT careers advertised in the paper, noting required skills for the position.</p> <p>Select one position from the advertisements that have been collected, identify its roles and responsibilities, qualifications required and personal qualities and write a letter of introduction for it.</p> <p>Introduce or revise expectations of students on work placement. Discuss the importance of personal attributes and work ethics while on work placement.</p> <p>Guest speaker – union representative or employer representative to discuss industrial relations issues affecting workers.</p> <p>Worksheet outlining workplace employment conditions. Discuss the different employment conditions for the different types of workers in the ICT industry (eg contractors, permanent/casual staff).</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• contract.</li> </ul>	<p>Discuss the new industrial relation laws and their application to the ICT industry.</p>
<p><i>ICAW2001A Work effectively in an IT environment</i></p> <p><b>1 Identify IT in an organisation and related relevant policies and procedures</b></p> <p>1.2 Identify and describe <i>key players</i> from the IT service previously identified</p>	<p><b>Workplace relations</b></p> <p>Forms of bullying and harassment in the workplace:</p> <ul style="list-style-type: none"> <li>• sexual</li> <li>• verbal</li> <li>• physical</li> <li>• psychological.</li> </ul> <p>A basic understanding of the principles of equal employment opportunity (EEO) legislation:</p> <ul style="list-style-type: none"> <li>• <i>Equal Employment Opportunity (Commonwealth Authorities) Act 1987 (Cth)</i></li> <li>• <i>Equal Opportunity for Women in the Workplace Act 1999 (Cth).</i></li> </ul> <p>A basic understanding of the principles of anti-discrimination legislation:</p> <ul style="list-style-type: none"> <li>• <i>Anti-Discrimination Act 1977 (NSW)</i></li> <li>• <i>Sex Discrimination Act 1984 (Cth)</i></li> <li>• <i>Racial Discrimination Act 1975 (Cth)</i></li> <li>• <i>Disability Discrimination Act 1992 (Cth)</i></li> <li>• <i>Age Discrimination Act 2004 (Cth).</i></li> </ul>	<p>Class discussion about bullying:</p> <ul style="list-style-type: none"> <li>• what incidents of bullying/harassment have you observed (or experienced) at school and/or in a workplace?</li> <li>• could these situations have been prevented? How?</li> <li>• what is the difference between ‘direct’ and ‘indirect’ discrimination?</li> </ul> <p>Provide students with four case studies, one on each of the areas of harassment listed. Students divide into four ‘expert panels’ and discuss one of the case studies. The students then regroup with each new group containing at least one ‘expert’ from each panel who shares their panels discussions.</p> <p>Worksheet outlining the Acts listed. Students analyse the key features of each Act identifying the common elements and underlying principles of the legislation.</p> <p>Visit the NSW Premiers Department website and review the section on EEO.  <a href="http://www.eeo.nsw.gov.au/whatseeeo/whatseeeo.htm">http://www.eeo.nsw.gov.au/whatseeeo/whatseeeo.htm</a></p> <p>Create a summary of the principles and purpose of EEO legislation.</p> <p>Worksheet outlining the Acts listed. Students analyse the key features of each Act identifying the common elements and underlying principles of the legislation.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Reciprocal rights and responsibilities of employers and employees in relation to EEO and anti-discrimination.</p> <p>An awareness of:</p> <ul style="list-style-type: none"> <li>• workplace policies and procedures designed to prevent discrimination and harassment in the workplace</li> <li>• legal ramifications of inappropriate workplace conduct</li> <li>• recourse in the event of inappropriate conduct                             <ul style="list-style-type: none"> <li>- reporting complaints</li> <li>- grievance procedures</li> <li>- disciplinary action.</li> </ul> </li> </ul>	<p>Watch a video on discrimination in the work place (eg ‘Managing Discrimination in the workplace’ available from Videotrain <a href="http://www.videotrain.com.au/mdw.html">http://www.videotrain.com.au/mdw.html</a> )</p> <p>Students review a sample workplace EEO policy and procedure document. Consider the following:</p> <ul style="list-style-type: none"> <li>• how do the policy and procedures protect the worker?</li> <li>• how do I lodge a complaint?</li> <li>• what do I do if my complaint is dismissed by the boss without investigation?</li> </ul> <p>Develop a flow chart to outline grievance procedures in a workplace.</p> <p>Students develop an EEO and anti-discrimination policy for their ICT classroom.</p>
<p><i>ICAW2001A Work effectively in an IT environment</i></p> <p><b>2 Identify IT equipment, software and operating systems used by the organisation</b></p> <p>2.1 Identify IT <i>equipment, operating systems and software</i> used in the organisation and understand the importance and role within the organisation</p>	<p><b>IT equipment, operating systems and software</b></p> <p>A broad knowledge of a range of current industry-accepted:</p> <ul style="list-style-type: none"> <li>• hardware                             <ul style="list-style-type: none"> <li>- workstation</li> <li>- computer                                     <ul style="list-style-type: none"> <li>▪ personal and/or networked</li> </ul> </li> <li>- connectivity devices                                     <ul style="list-style-type: none"> <li>▪ modem</li> <li>▪ digital subscriber line (DSL) modem</li> <li>▪ switch</li> <li>▪ hub</li> </ul> </li> <li>- peripheral devices                                     <ul style="list-style-type: none"> <li>▪ printer</li> <li>▪ scanner</li> <li>▪ mouse</li> <li>▪ keyboard</li> </ul> </li> </ul> </li> <li>• storage device(s)</li> </ul>	<p>Brainstorm equipment used in IT.</p> <p>Students prepare a brochure or catalogue for a company outlining a variety of hardware, software and peripherals needed by an average organisation to complete daily ICT tasks. The brochure or catalogue should include:</p> <ul style="list-style-type: none"> <li>• product names</li> <li>• brands</li> <li>• models</li> <li>• main features of the products</li> <li>• uses and limitations.</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• operating system</li> <li>• software.</li> </ul> <p>General features, benefits, limitations and application use of a range of hardware and software products.</p> <p>Definition and understanding of primary role/function of:</p> <ul style="list-style-type: none"> <li>• vendor</li> <li>• current vendors</li> </ul> <p>Awareness of a range of commonly used vendor products and a broad knowledge of vendor product directions.</p>	<p>Define vendor.</p> <p>Brainstorm a list of vendors.</p> <p>Identify the vendors for school ICT equipment.</p> <p>Identify the support vendors provide, consider support from past vendors, current vendors and vendors who no longer supply product.</p> <p>Classify vendors according to products they provide (eg vendors for digital cameras, processors, monitors).</p>
<p><i>ICAW2001A Work effectively in an IT environment</i></p> <p><b>1 Identify IT in an organisation and related relevant policies and procedures</b></p> <p>1.2 Identify and describe <i>key players</i> from the IT service previously identified</p> <p>1.3 Identify IT policies and procedures and research whether they are used in practice</p> <p><b>2 Identify IT equipment, software and operating systems used by the organisation</b></p> <p>2.2 Establish that all of the equipment locations and service requirements are maintained according to organisational requirements and prevailing policies and procedures</p>	<p><b>Workplace practices</b></p> <p>A definition of:</p> <ul style="list-style-type: none"> <li>• outsourcing.</li> </ul> <p>An awareness of the possible need for ‘outsourcing’ to fulfil the ICT requirements of the organisation.</p> <p>Policies and procedures for management of ICT in an organisation:</p> <ul style="list-style-type: none"> <li>• acceptable use</li> <li>• internet and access to websites</li> <li>• sending emails</li> </ul>	<p>Define outsourcing.</p> <p>Discuss the advantages and disadvantages of an organisation outsourcing to fulfil ICT requirements.</p> <p>Identify business/organisation policies and procedures for</p> <ul style="list-style-type: none"> <li>• tendering</li> <li>• preferred vendors</li> <li>• outsourcing</li> <li>• preferred contractors.</li> </ul> <p>Brainstorm a range of areas in an ICT environment that may need organisational policies and procedures developed. Discuss why these particular areas require formal policies.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<ul style="list-style-type: none"> <li>• confidentiality</li> <li>• privacy</li> <li>• security</li> <li>• copyright</li> <li>• protection against computer viruses</li> <li>• equipment and consumables                             <ul style="list-style-type: none"> <li>- asset management</li> <li>- usage</li> </ul> </li> <li>• software licensing</li> <li>• site licences.</li> </ul> <p>An awareness of current industry practice(s) used to:</p> <ul style="list-style-type: none"> <li>• implement policies and procedures</li> <li>• monitor compliance of policies and procedures.</li> </ul> <p>A broad understanding of the importance of and standard procedures for:</p> <ul style="list-style-type: none"> <li>• conducting hardware and software audits</li> <li>• maintaining equipment inventories and service/ maintenance schedules and logs (documentation).</li> </ul> <p>Points to consider when completing work tasks:</p> <ul style="list-style-type: none"> <li>• adherence to safety procedures</li> <li>• following directions from supervisor</li> <li>• maintaining personal presentation standards</li> <li>• adherence to workplace policies                             <ul style="list-style-type: none"> <li>- maintaining personal work space contributing to</li> </ul> </li> </ul>	<p>Review a range of sample policies and procedures from a variety of organisations.</p> <p>Create a sample confidentiality agreement at <a href="http://www.lawdepot.com/contracts/confid/?loc=AU&amp;ad=from_drop_down#questions">http://www.lawdepot.com/contracts/confid/?loc=AU&amp;ad=from_drop_down#questions</a></p> <p>Investigate school policies and procedures for management of assets, software licensing and virus protection.</p> <p>Class discussion.</p> <p>Introduction to the concept of audits:</p> <ul style="list-style-type: none"> <li>• what are they?</li> <li>• how are audits conducted?</li> <li>• why are they important?</li> </ul> <p>Link to Task 2.</p> <p>Build a database to act as a hardware/software register for the school or an organisation.</p> <p>Investigate maintenance procedures at school and determine compliance with school policy.</p> <p>Students design a sample maintenance schedule and prepare a maintenance log.</p> <p>Overhead – points to remember when completing work tasks.</p> <p>Link to Task 1.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>productive work environment by accepting responsibility for own work and assisting co-workers as required</p> <ul style="list-style-type: none"> <li>• checking required materials and equipment are available and meet requirements of the task</li> <li>• seeking advice/obtain information as required from                             <ul style="list-style-type: none"> <li>- co-workers and supervisor/team leader</li> <li>- trade personnel</li> <li>- contractors</li> <li>- suppliers</li> <li>- industry/regulatory bodies.</li> </ul> </li> </ul>	
<p><i>ICAW2001A Work effectively in an IT environment</i></p> <p><b>1 Identify IT in an organisation and related relevant policies and procedures</b>                      1.1 Identify IT roles in an organisation and briefly describe what services they perform</p> <p><b>2 Identify IT equipment, software and operating systems used by the organisation</b>                      2.1 Identify IT equipment, operating systems and software used in the organisation and understand the importance and role within the organisation</p>	<p><b>Ongoing learning</b></p> <p>Recognition of learning as an ongoing process and the need to remain current in terms of knowledge, skills and qualifications.</p> <p>An awareness of sources for current industry information:</p> <ul style="list-style-type: none"> <li>• industry associations and organisations</li> <li>• unions/staff associations</li> <li>• industry journals</li> <li>• the internet</li> <li>• libraries</li> <li>• reference manuals</li> <li>• policy and procedure manuals</li> <li>• personal observations and experience</li> <li>• industry contacts, mentors and advisors</li> <li>• colleagues, supervisors/team leaders and managers</li> <li>• professional development opportunities</li> <li>• industry functions.</li> </ul>	<p>Guest speaker – school careers adviser</p> <p>Assess materials available through the school and local library that can support life long learning.</p> <p>Collate a dossier of information about an emerging IT technology.</p>

**Sample Program                      Build a basic website**

**Rationale:**        This program provides the opportunity for students to build a basic website consistent with design and technical requirements and business expectations.

**Units of competency:**    ICAB4169A        Use development software and IT tools to build a basic website

**HSC Requirements and Advice – Key terms and concepts:**

<b>Use development software and IT tools to build a basic website</b>	
<ul style="list-style-type: none"> <li>• accuracy checks</li> <li>• audit website</li> <li>• basic website</li> <li>• business specifications</li> <li>• client review</li> <li>• client sign-off</li> <li>• consistency in design</li> <li>• copyright approval</li> <li>• design principles</li> <li>• develop/build a website</li> <li>• diverse user groups</li> <li>• feedback and evaluation</li> <li>• feedback mechanism</li> <li>• general features, benefits and limitations of development software and software tools</li> <li>• hypertext markup language (HTML)</li> <li>• HTML code</li> <li>• HTML compliance</li> <li>• navigation flow</li> </ul>	<ul style="list-style-type: none"> <li>• planning of web pages</li> <li>• principles of web design</li> <li>• proofreading and review of website</li> <li>• read and interpret design documentation</li> <li>• recording test results</li> <li>• selection and working knowledge of development software and software tools appropriate for the task</li> <li>• site structure</li> <li>• technical requirements/needs</li> <li>• tracking processes</li> <li>• user approval</li> <li>• user input</li> <li>• validate information and content</li> <li>• version control</li> <li>• web development standards</li> <li>• website specifications</li> <li>• website testing</li> <li>• writing content.</li> </ul>

Note: *ICAB4169A Use development software and IT tools to build a basic website* has **prerequisite** requirements (see Section 8 in Part A of the Syllabus and Section 2.2.1.2 in this document). Students must have achieved competence in the prerequisite units of competency **prior to commencing** study of *ICAB4169A*.

While *ICAB4169A* is compulsory for the Information Technology Curriculum Framework, if students have not achieved the prerequisite units of competency they **should not** commence learning for this unit. It is appropriate for students to spend more time working towards competency in the prerequisite units in lieu of *ICAB4169A*. It is **not appropriate** for students to be deemed competent in any unit of competency in order to enable them to commence study of *ICAB4169A*.

If students have met all other HSC course requirements, except that they did not undertake *ICAB4169A* as a part of the 240-hour course because they had not met prerequisite requirements, they should be considered to have satisfactorily completed the course.

**Assessment:**

Unit of competency/Performance criteria	Possible assessment strategy
<p><i>ICAB4196A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p> <p>1.4 Review design documentation and integrate design work with site structure and navigation, in accordance with web development standards</p>	<p><b>Task 1</b>     <i>Website analysis portfolio</i></p> <p>1. Students visit the website of the olympic movement (<a href="http://www.olympic.org">www.olympic.org</a>).</p> <p>Analyse its accessibility to diverse users considering a range of elements including:</p> <ul style="list-style-type: none"> <li>• target audience</li> <li>• language versions</li> <li>• page layout and different reading patterns</li> <li>• colour</li> <li>• attempt to target audiences with special needs.</li> </ul> <p>Evaluate site in terms of the following principles:</p> <ul style="list-style-type: none"> <li>• best practice communication</li> <li>• accessibility</li> <li>• equity principles.</li> </ul> <p>Students produce a report outlining their analysis and evaluation of the website and develop a proposal for improvements that could be made to the site.</p> <p>2. Develop a portfolio of websites that meet the needs of diverse user groups. Annotate the websites to identify their effective and ineffective design elements and their accessibility to diverse groups.</p>

<p><i>ICAB4196A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p><b>2 Begin site construction</b></p> <p><b>3 Complete and validate website construction and content</b></p>	<p><b>Task 2</b>     <i>Website development</i></p> <p>Students are to build a basic website from concept to completion that meets the client’s needs and adheres to processes involved in the development of a quality product.</p> <p>Depending on the individual student they will be assigned to either a real external client or be provided with a simulated client scenario for the task.</p> <p>Students will hand in a portfolio of evidence including:</p> <ul style="list-style-type: none"><li>• analysis of websites for like products/organisations</li><li>• outline of industry standards that will impact on the development of the site</li><li>• design specifications</li><li>• steps in the development of the site<ul style="list-style-type: none"><li>- site planning and preparation</li><li>- content development and validation</li><li>- creative development</li><li>- technical requirements at development and host level</li><li>- site testing and delivery</li></ul></li><li>• storyboards and prototypes</li><li>• how the site caters for diverse user groups</li><li>• selection of development software and IT tools</li><li>• use of templates, cascading style sheets (CSS) or other means for consistency</li><li>• statistical data measuring website performance</li><li>• evaluation and revision of the site</li><li>• third party evaluation</li><li>• liaison and negotiation with the client (for the real external client scenario).</li></ul>
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Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p>	<p><b>Effective websites</b></p> <p>An awareness of the characteristics of effective websites.</p>	<p>Conduct an analysis of a range of websites to identify their:</p> <ul style="list-style-type: none"> <li>• purpose</li> <li>• good and bad features</li> <li>• elements of design</li> </ul> <p>Create a list of the characteristics of effective and ineffective websites.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p>	<p><b>Specifications and principles of design</b></p> <p>A basic knowledge of:</p> <ul style="list-style-type: none"> <li>• basic website specifications</li> <li>• basic design principles</li> <li>• principles of web design.</li> </ul>	<p>Discuss the concepts of website specifications, design principles and principles of web design.</p> <p>Students visit the ‘Web Style Guide’ website and review Chapter 1 – Process.  <a href="http://www.webstyleguide.com">www.webstyleguide.com</a></p> <p>Handout on design principles</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.4 Review design documentation and integrate design work with site structure and navigation, in accordance with web development standards</p>	<p><b>Web development standards</b></p> <p>A basic knowledge of standards in relation to building a basic website:</p> <ul style="list-style-type: none"> <li>• industry <ul style="list-style-type: none"> <li>- standard generalised mark-up language (SGML)</li> <li>- Web Content Accessibility Guidelines 1.0 (WCAG)</li> <li>- Authoring Tool Accessibility Guidelines 1.0 (ATAG).</li> </ul> </li> </ul>	<p>Discuss what is a standard and the purpose of common standards.</p> <p>Visit the following websites and identify the key features and use of each of the following industry standards:</p> <ul style="list-style-type: none"> <li>• SGML <ul style="list-style-type: none"> <li>- <a href="http://en.wikipedia.org/wiki/SGML">http://en.wikipedia.org/wiki/SGML</a></li> <li>- <a href="http://www.w3.org/TR/html4/intro/sgmltut.html#h-3.1">www.w3.org/TR/html4/intro/sgmltut.html#h-3.1</a></li> </ul> </li> <li>• WCAG <ul style="list-style-type: none"> <li>- <a href="http://www.w3.org/TR/WAI-WEBCONTENT/">www.w3.org/TR/WAI-WEBCONTENT/</a></li> </ul> </li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>An awareness of:</p> <ul style="list-style-type: none"> <li>• the benefits of standards</li> <li>• the result if standards are not used.</li> </ul>	<ul style="list-style-type: none"> <li>- <a href="http://www.nils.org.au/ais/web/resources/toolbar/WCAG_c_hecklist.html">www.nils.org.au/ais/web/resources/toolbar/WCAG_c_hecklist.html</a></li> <li>• ATAG</li> <li>- <a href="http://www.w3.org/TR/ATAG20/">http://www.w3.org/TR/ATAG20/</a></li> </ul> <p>Class discussion.</p> <p>Class debate – standards are essential in the ICT industry.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p>	<p><b>Diverse user groups</b></p> <p>An understanding of the following in relation to building a website for diverse user groups:</p> <ul style="list-style-type: none"> <li>• best practice communication</li> <li>• accessibility</li> <li>• equity principles.</li> </ul>	<p>Brainstorm the range of diverse users that may access a website and identify their particular needs.</p> <p>Discuss the considerations for website design that will meet the needs of these diverse groups.</p> <p>Review the <i>Easy English writing style guide</i> and make a summary of the key points to consider when preparing written information for diverse user groups</p> <ul style="list-style-type: none"> <li>• <a href="http://www.scopevic.org.au/Easy%20English%20writin g%20style%20guide%20August%202005.pdf">http://www.scopevic.org.au/Easy%20English%20writin g%20style%20guide%20August%202005.pdf</a></li> </ul> <p>Link to Task 1.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p>	<p><b>Analysis and evaluation of websites</b></p> <p>Analysis and evaluation of website development and effectiveness:</p> <ul style="list-style-type: none"> <li>• site structure</li> <li>• complexity</li> <li>• performance</li> <li>• ease of access and navigation</li> <li>• content.</li> </ul>	<p>Access a range of websites created for different purposes. Analyse and evaluate their development and effectiveness.</p> <p>Review the following website about evaluating information on the web to identify points to look out for:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.lib.flinders.edu.au/services/infolit/web/eval.html">http://www.lib.flinders.edu.au/services/infolit/web/eval.html</a></li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
		<p>Use the tools available at the following website to review a number of the sites evaluated in the previous activity:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.websiteoptimization.com/services/analyze/">www.websiteoptimization.com/services/analyze/</a></li> </ul>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p>	<p><b>Building a basic website</b></p> <p>An understanding of the following concepts:</p> <ul style="list-style-type: none"> <li>• business specifications</li> <li>• technical requirements</li> <li>• design specifications.</li> </ul> <p>Steps involved in the development/building of a basic website:</p> <ul style="list-style-type: none"> <li>• site planning</li> <li>• site preparation</li> <li>• content development</li> <li>• creative development</li> <li>• technical development</li> <li>• site testing</li> <li>• site delivery</li> <li>• site maintenance.</li> </ul>	<p>Create a mind map identifying the elements of business specifications, technical requirements and design specifications.</p> <p>Discuss the purpose of each of these and the benefit to the client and the developer.</p> <p>Discuss the elements and terms of internet development agreements and software development agreements.</p> <p>Review the examples of standard internet development agreements and software development agreements and identify their key features at the following websites:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.datalink.com.au/company/legal/agreement">www.datalink.com.au/company/legal/agreement</a></li> <li>• <a href="http://www.infodiv.unimelb.edu.au/telars/mltc/pdf_files/SoftwareDevelAgree.pdf">http://www.infodiv.unimelb.edu.au/telars/mltc/pdf_files/SoftwareDevelAgree.pdf</a></li> </ul> <p>Discussion of the processes contained in each step in the development of a basic website and the consequences of poorly completing one or more of the steps.</p> <p>Investigate a number of web developer's websites to identify the variety of tools used in the development/building of a website.</p> <p>Discuss the purpose of a range of software tools required in the development of a website.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p>	<p><b>Plan the website project</b></p> <p>Site planning and preparation.</p> <p>Business specification, technical requirements and design specifications in order to produce an effective website.</p>	<p><i>The remainder of this program follows a project-based approach.</i></p> <p><i>Each of the learning experiences and practical activities directly relate to Task 2, and would be undertaken as a part of this task.</i></p> <p>Investigate and research the individual, company/ organisation or group for whom the website is being developed.</p> <p>Confirmation of the main purpose of the website being developed.</p> <p>Determine business specifications, technical requirements and design specifications.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>2 Begin site construction</b></p> <p>2.1 Take action to ensure user input during website construction</p> <p>2.2 Validate existing information and basic content when incorporating data on website</p>	<p><b>Content development</b></p> <p>Points to consider when writing the content for the website:</p> <ul style="list-style-type: none"> <li>• active voice</li> <li>• correct spelling, grammar and punctuation</li> <li>• concise information</li> <li>• simple words, sentences and paragraphs</li> <li>• defined technical terms and jargon</li> <li>• positive language</li> <li>• supplementing with diagrams and pictures.</li> </ul> <p>Methods/techniques for validating information and content.</p>	<p>Identify the content that is to be included in the website and logically group the content under headings and subheadings.</p> <p>Review the information on the following websites about web writing and identify the key considerations when writing for the web:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.monash.edu.au/staff/web/content/writing.html">www.monash.edu.au/staff/web/content/writing.html</a></li> <li>• <a href="http://www.clickz.com/experts/archives/design/onl_edit/article.php/833861">www.clickz.com/experts/archives/design/onl_edit/article.php/833861</a></li> </ul> <p>Draft text for the content of the website. Edit the text giving consideration to the points listed.</p> <p>Discuss the importance of content validation when constructing a website.</p> <p>Identify methods/techniques for validating information</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Knowledge of where material/content for the website was sourced to enable:</p> <ul style="list-style-type: none"> <li>• accuracy checks</li> <li>• copyright approval for inclusion in the site.</li> </ul>	<p>and content considering the following:</p> <ul style="list-style-type: none"> <li>• responsibility of client providing content</li> <li>• responsibility of web developer in validating content, both text and images, and sourcing content that is original or free of copyright restrictions.</li> </ul> <p>Discussion of the need to source all website content.</p> <p>Research the process to be followed to obtain copyright approval and the consequences of a breach of copyright.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.3 Identify site structure and navigation flow and demonstrate understanding of functionality</p>	<p><b>Information architecture and creative development</b></p> <p>Planning of web page(s):</p> <ul style="list-style-type: none"> <li>• location of text and images</li> <li>• role of external and internal links</li> <li>• links within a page, image links and hotspots</li> <li>• navigation options</li> <li>• relationships between pages (where applicable).</li> </ul>	<p>Identify the elements of design.</p> <p>In small groups research in detail one element and present findings to the class.</p> <p>Discuss the term ‘functionality’ in relation to building a basic website.</p> <p>Identify the importance of the use of templates and cascading style sheets (CSS) in the development of consistency across the website.</p> <p>Create storyboards for a number of alternative layouts displaying textual and graphical content for the website being developed considering user-centred and client-centred design, and taking into account:</p> <ul style="list-style-type: none"> <li>• site purpose</li> <li>• web resources</li> <li>• file naming protocols.</li> </ul> <p>Identify the navigational elements of each alternative layout.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	Development of site structure and navigation flow to: <ul style="list-style-type: none"> <li>• meet business and technical requirements</li> <li>• ensure ease of access and navigation for the user.</li> </ul>	Create a tree diagram indicating the site structure and navigation flow.  Students identify technical requirements at: <ul style="list-style-type: none"> <li>• the website development level</li> <li>• the host level.</li> </ul>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p> <p>1.1 Analyse business specification and select appropriate software</p> <p>1.2 Identify technical needs for the website and select appropriate software tools</p>	<p><b>Technical development</b></p> <p>General features, benefits and limitations of a range of development software and software tools:</p> <ul style="list-style-type: none"> <li>• Word pad</li> <li>• Notepad</li> <li>• Dreamweaver</li> <li>• Flash</li> <li>• file transfer protocol (FTP) programs</li> <li>• FrontPage.</li> </ul> <p>Points to consider when selecting development software and software tools:</p> <ul style="list-style-type: none"> <li>• user needs</li> <li>• appropriateness to task</li> <li>• usability</li> <li>• budget</li> <li>• time constraints.</li> </ul>	<p>In small groups develop a multimedia presentation on one of the development software or software tools listed, identifying:</p> <ul style="list-style-type: none"> <li>• general features</li> <li>• benefits</li> <li>• limitations</li> <li>• cost</li> <li>• ease of use.</li> </ul> <p>Discuss the influence of a range of factors on the selection of development software and software tools.</p> <p>Identify three common industry-standard tools used for each of the following and discuss their cost, features, similarities and differences:</p> <ul style="list-style-type: none"> <li>• HTML code production</li> <li>• graphics manipulation</li> <li>• e-commerce.</li> </ul> <p>Case studies – showing the variety of tools used to solve particular cases.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>1 Select and analyse website structure and development tools</b></p>	<p><b>Site construction</b></p> <p>Selection and working knowledge of development software appropriate to build the basic website.</p>	<p>Construct a number of single-page sample sites using:</p> <ul style="list-style-type: none"> <li>• website development software and tools</li> <li>• HTML code.</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p>1.1 Analyse business specification and select appropriate software</p> <p>1.2 Identify technical needs for the website and select appropriate software tools</p> <p>1.4 Review design documentation and integrate design work with site structure and navigation, in accordance with web development standards</p> <p><b>2 Begin site construction</b></p> <p>2.1 Take action to ensure user input during website construction</p> <p>2.3 Apply consistent design specifications to all aspects of the website</p>	<p>Development and validation of hypertext markup language (HTML) and HTML code.</p> <p>Selection and working knowledge of software tools appropriate to build the basic website.</p> <p>Reading and interpretation of design documentation, including specifications and guidelines.</p> <p>Use selected development software and software tools to build the website consistent with:</p> <ul style="list-style-type: none"> <li>• the design specifications</li> <li>• the technical requirements</li> <li>• the client’s expectations</li> <li>• company/organisation standards</li> <li>• project-specific standards.</li> </ul> <p>An awareness of the importance of regular user input and client review throughout the website development process to minimise the need for reworking of the website.</p>	<p>Evaluate each of the development software and software tools used.</p> <p>Select software and tools appropriate for the construction of the students website which meet the design specifications determined in consultation with the client.</p> <p>Produce a report justifying the selection of specific tools.</p> <p>Case studies – students access the following websites to identify the design specifications and guidelines:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.newsgator.com/casestudies/Dykema_Case_Study.pdf">www.newsgator.com/casestudies/Dykema_Case_Study.pdf</a></li> <li>• <a href="http://www.archimuse.com/mw2001/papers/bogomazova/bogomazova.html">www.archimuse.com/mw2001/papers/bogomazova/bogomazova.html</a></li> </ul> <p>Construction of models (prototypes) of student’s websites which meet identified requirements and standards.</p> <p>Class discussion.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>2 Begin site construction</b></p> <p>2.4 Gather feedback from user on web design, content, accessibility and structure, using appropriate feedback mechanism</p>	<p><b>Client and user feedback</b></p> <p>Recognition of the value of user/client evaluation/feedback to the company/organisation.</p>	<p>Discuss the value of constant feedback for:</p> <ul style="list-style-type: none"> <li>• meeting standards and specifications</li> <li>• keeping design and development on track</li> <li>• keeping costs to budget</li> <li>• identifying changes in requirements or scope, assessing</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Types of feedback:</p> <ul style="list-style-type: none"> <li>• positive</li> <li>• negative</li> <li>• constructive.</li> </ul> <p>A range of methods to obtain client feedback:</p> <ul style="list-style-type: none"> <li>• questionnaire                             <ul style="list-style-type: none"> <li>- paper</li> <li>- electronic</li> </ul> </li> <li>• interview</li> <li>• focus group.</li> </ul> <p>Points to consider when designing feedback mechanism:</p> <ul style="list-style-type: none"> <li>• use of language                             <ul style="list-style-type: none"> <li>- targeted to user</li> <li>- plain English</li> <li>- minimise technical/industry jargon</li> </ul> </li> <li>• questioning technique                             <ul style="list-style-type: none"> <li>- open, closed and/or reflective</li> <li>- avoid bias/leading questions</li> </ul> </li> <li>• opportunity for ‘free-response’.</li> </ul> <p>A range of methods to distribute/enable feedback/evaluation mechanism to the client:</p> <ul style="list-style-type: none"> <li>• written                             <ul style="list-style-type: none"> <li>- mail</li> <li>- electronic mail</li> <li>- internet/intranet</li> <li>- facsimile</li> </ul> </li> <li>• verbal                             <ul style="list-style-type: none"> <li>- telephone</li> <li>- one-on-one</li> <li>- meeting.</li> </ul> </li> </ul>	<p>these against the original project plan</p> <ul style="list-style-type: none"> <li>• ensuring project is meeting user/client expectations.</li> </ul> <p>Discuss the impact of different types of feedback in the development of a website.</p> <p>Brainstorm tools that may be used to collect feedback.</p> <p>Evaluate the feedback tools identified with respect to the quality of feedback that would be collected.</p> <p>Discuss the benefits and limitations of different methods of feedback for different development projects.</p> <p>Review a range of sample feedback tools examining their use of:</p> <ul style="list-style-type: none"> <li>• language</li> <li>• questioning techniques</li> <li>• free-response items.</li> </ul> <p>Identify the characteristics of high quality and poorer quality feedback tools.</p> <p>Discuss the suitability of a range of methods to enable client feedback.</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
	<p>Points to be reviewed:</p> <ul style="list-style-type: none"> <li>• standards</li> <li>• style</li> <li>• design</li> <li>• accessibility</li> <li>• structure</li> <li>• consistency</li> <li>• content                             <ul style="list-style-type: none"> <li>- clarity/readability</li> <li>- plain English</li> <li>- explanation of technical terms/jargon</li> <li>- accuracy</li> <li>- spelling, grammar and punctuation</li> </ul> </li> <li>• usability/ease of navigation</li> <li>• completeness.</li> </ul> <p>Proofreading and review of website content by:</p> <ul style="list-style-type: none"> <li>• appropriate company/organisation person(s):                             <ul style="list-style-type: none"> <li>- team leader/supervisor</li> <li>- editor</li> <li>- technical expert</li> <li>- trainer</li> <li>- experienced colleague</li> </ul> </li> <li>• client</li> <li>• representatives of the user/target audience.</li> </ul> <p>How to interpret feedback in order to improve the website.</p> <p>Company/organisation practices for:</p> <ul style="list-style-type: none"> <li>• version control</li> <li>• tracking processes.</li> </ul>	<p>Develop and undertake an evaluation process for the website solutions reviewing the points listed. The evaluation should include:</p> <ul style="list-style-type: none"> <li>• self-evaluation</li> <li>• peer evaluation</li> <li>• client evaluation.</li> </ul> <p>Students arrange for their website content to be reviewed by individual or group stakeholders.</p> <p>Write a report on the feedback from the review and the steps that will be taken to respond to the feedback.</p> <p>Students maintain documentation of version control and tracking in the development of the website.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p>	<p><b>Site testing</b></p> <p>Auditing the website against business and technical</p>	<p>Students undertake testing of their website for:</p>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><b>3 Complete and validate website construction and content</b></p> <p>3.1 Undertake an evaluation of the website against technical requirements and design specification</p> <p>3.2 Test each function and process of the website</p> <p>3.3 Conduct navigation tests and HTML compliance with website standards</p> <p>3.4 Stress test the website to meet design criteria and user load</p> <p>3.5 Record testing results to ensure website meets user requirements</p>	<p>requirements and design specifications.</p> <p>Debugging and error handling techniques.</p> <p>An understanding of how to troubleshoot basic web links and HTML code errors.</p> <p>Stress test the website to meet design criteria and user load.</p> <p>Company/organisation standards and workplace documentation for recording test results.</p>	<ul style="list-style-type: none"> <li>• structural quality – links and images work</li> <li>• content – accuracy and consistency of page content</li> <li>• response time and latency – website server responds to browser request within performance specifications</li> <li>• performance – Browser-&gt;Web-&gt;Website-&gt;Web-&gt;Browser connection is reliable irrespective of load or usage.</li> </ul> <p>Develop a report on the impact of website quality on satisfying client needs.</p> <p>Students test each function and process of the website.</p> <p>Conduct website validation:</p> <ul style="list-style-type: none"> <li>• structural – matching links and anchors</li> <li>• gross statistics – page statistics (eg line, word, byte-count, checksum)</li> <li>• selected images/fragments – images match during subsequent renditions.</li> </ul> <p>Students conduct navigation tests and HTML compliance with website standards.</p> <p>Students stress test their website using a software tool such as:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.loadtestingtool.com/download.shtml">www.loadtestingtool.com/download.shtml</a></li> <li>• <a href="http://www.soft.com/eValid/">www.soft.com/eValid/</a></li> </ul> <p>Review site testing and document test results. Report on the following:</p> <ul style="list-style-type: none"> <li>• verifying files are organised correctly</li> <li>• checking basic elements – spacing, tables, graphics, font size, type and colours, backgrounds, etc.</li> <li>• document structure</li> <li>• image links</li> <li>• meta tags</li> <li>• table analysis</li> </ul>

Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
		<ul style="list-style-type: none"> <li>• browser support</li> <li>• HTML code analysis/optimisation</li> <li>• font support.</li> </ul>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p><b>3 Complete and validate website construction and content</b></p> <p>3.6 Obtain sign-off/approval of user</p>	<p><b>Site delivery and maintenance</b></p> <p>Company/organisation practices for:</p> <ul style="list-style-type: none"> <li>• user approval</li> <li>• client sign-off</li> <li>• release of website ('live')</li> <li>• maintenance/review of website.</li> </ul>	<p>Identify company policies for signing-off projects.</p> <p>Discuss processes used to determine that the site architecture, decision logic and functionality:</p> <ul style="list-style-type: none"> <li>• meet client/business requirements – features, functionality, content</li> <li>• meet technical requirements – display and function reliably, integration with servers and legacy systems</li> <li>• meet user expectations – users intuitively and reliably complete tasks.</li> </ul> <p>Visit the Australian Domain Name Administrator (ADNA) website and review domain name registration and hosting options for a business/organisation</p> <ul style="list-style-type: none"> <li>• <a href="http://www.ada.org.au">www.ada.org.au</a></li> </ul> <p>Students upload website to a host using a free hosting site.</p>

## 4 Assessment

### 4.1 The Purposes of Assessment within Industry Curriculum Frameworks

Assessment for Higher School Certificate VET courses within industry curriculum frameworks has two distinct purposes.

1. Assessment for Australian Qualifications Framework (AQF) VET qualifications. This is competency-based assessment which:
  - applies to all courses within frameworks
  - provides industry recognition.
2. Assessment for the Universities Admissions Index (UAI) which:
  - is for 240-hour courses only
  - involves a written HSC examination<sup>1</sup>.

### 4.2 Assessment for AQF VET Qualifications

Assessment for AQF VET qualifications:

- is competency-based
- must be reliable, flexible, fair and valid. Judgements are made on the basis of evidence, which may be in a variety of forms
- must be conducted by qualified assessors and be consistent with Training Package Assessment Guidelines
- assesses students as competent or not yet competent.

An integrated or holistic approach to competency-based assessment should be adopted.

#### 4.2.1 Guiding principles for assessment materials

The following information (pp 127–133) is reproduced from the *Assessment Guidelines* of the *Information and Communications Technology Training Package (ICA05)*<sup>2</sup> incorporating the *AQTF Standards for RTOs*<sup>3</sup>.

##### 4.2.1.1 Australian Quality Training Framework assessment requirements

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the Standards for Registered Training Organisations.

##### Registration of Training Organisations

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering/Course Accrediting Body in accordance with the Standards for Registered Training Organisations. The RTO must have the specific units of competency and/or AQF qualifications on its scope of registration. See Section 1 of the Standards for Registered Training Organisations.

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<sup>1</sup> Refer to Section 11.4 and 11.5 in Part A of the Syllabus.

<sup>2</sup> DEST, 2005, *Information and Communications Technology Training Package (ICA05)* Volume One Section 1.5, pp 1-119 – 1-125. The *Assessment Guidelines* of *Information and Communications Technology Training Package* may also be accessed via the National Training Information Service website ([www.ntis.gov.au](http://www.ntis.gov.au)).

<sup>3</sup> The *Australian Quality Training Framework Standards for RTOs* can be accessed via the Australian Government Department of Education, Science and Training website ([http://www.dest.gov.au/sectors/training\\_skills/policy\\_issues\\_reviews/key\\_issues/nts/aqtf/standards\\_2005.htm](http://www.dest.gov.au/sectors/training_skills/policy_issues_reviews/key_issues/nts/aqtf/standards_2005.htm)).

### **Quality Training and Assessment**

Each RTO must have systems in place to plan for and provide quality training and assessment across all its operations. See Standard 1 of the Standards for Registered Training Organisations.

### **Assessor Competency Requirements**

Each person involved in training, assessment or client service must be competent for the functions they perform. See Standard 7 of the Standards for Registered Training Organisations for assessor competency requirements. Standard 7 also specifies the competencies that must be held by trainers.

### **Assessment Requirements**

The RTO's assessments must meet the requirements of the endorsed components of Training Packages within its scope of registration. See Standard 8 of the Standards for Registered Training Organisations.

### **Assessment Strategies**

Each RTO must identify, negotiate, plan and implement appropriate learning and assessment strategies to meet the needs of each of its clients. See Standard 9 of the Standards for Registered Training Organisations.

### **Mutual Recognition**

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See Standard 5 of the Standards for Registered Training Organisations.

### **Access and Equity and Client Services**

Each RTO must apply access and equity principles, provide timely and appropriate information, advice and support services that assist clients to identify and achieve desired outcomes. This may include reasonable adjustment in assessment. See Standard 6 of the Standards for Registered Training Organisations.

### **Partnership Arrangements**

RTOs must have, and comply with, written agreements with each organisation providing training and/or assessment on its behalf. See Standard 1.6 of Standards for Registered Training Organisations.

### **Recording Assessment Outcomes**

Each RTO must have effective administration and records management procedures in place, and must record AQF qualifications and Statements of Attainment issued. See Standards 4 and 10.2 of the Standards for Registered Training Organisations.

### **Issuing AQF qualifications and Statement of Attainment**

Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the AQF Implementation Handbook and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package are met. A Statement of Attainment is issued where the individual is assessed as competent against fewer units of competency than required for an AQF qualification. See Standard 10 and Section 2 of the Standards for Registered Training Organisations.

### **Licensing/Registration Requirements**

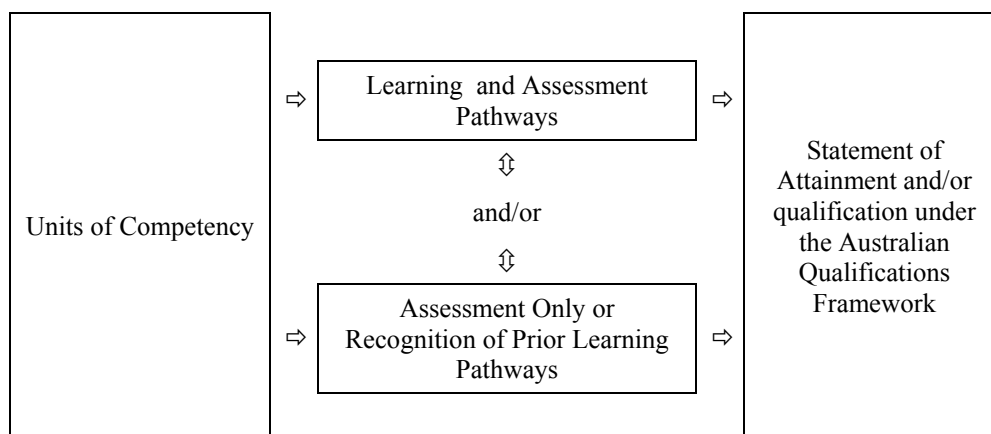
The developers of this Training Package, and DEST, consider that no licensing or registration requirements apply to RTOs, assessors or candidates with respect to this Training Package. Contact the relevant State or Territory Department(s) to check if there are any licensing or registration requirements with which you must comply.

#### 4.2.1.2 Pathways

The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, an assessment-only or recognition pathway, or a combination of the two as illustrated in the following diagram.



Each of these assessment pathways leads to full recognition of competencies held – the critical issue is that the candidate is competent, not how the competency was acquired.

Assessment, by any pathway, must comply with the assessment requirements set out in the *Standards for Registered Training Organisations*.

#### Learning and Assessment Pathways

Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit New Apprenticeships have a mix of formal structured training and structured workplace experience with formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

#### Assessment-Only or Recognition of Prior Learning Pathway

Competencies already held by individuals can be formally assessed against the units of competency in this Training Package, and should be recognised regardless of how, when or where they were achieved.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, and oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of Standard 8.2 of the *Standards for Registered Training Organisations* must be met.

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed unit of competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, and work samples. The onus is on candidates to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the relevant endorsed unit of competency)
- reliable (shows that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed unit of competency), and
- sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills, and job/role environment skills).

The assessment only or recognition of prior learning pathway is likely to be most appropriate in the following scenarios:

- candidates enrolling in qualifications who want recognition for prior learning or current competencies
- existing workers
- individuals with overseas qualifications
- recent migrants with established work histories
- people returning to the workplace, and
- people with disabilities or injuries requiring a change in career.

### **Combination of Pathways**

Where candidates for assessment have gained competencies through work and life experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

#### **4.2.1.3 Assessor requirements**

This section identifies the mandatory competencies for assessors, and clarifies how others may contribute to the assessment process where one person alone does not hold all the required competencies.

Each person involved in training, assessment or client service must be competent for the functions they perform. See Standard 7 of the Standards for Registered Training Organisations for assessor competency requirements. Standard 7 also specifies the competencies that must be held by trainers.

The standards identify the mandatory minimum qualifications for those conducting assessments. They also clarify how more than one person may contribute to the assessment process where all the required assessor competencies are not held by one person.

There are mandatory requirements that must be met by individual assessors or collectively by the members of an assessment team or panel conducting assessments against this Training Package. The AQTF requires that assessors must be competent in the relevant vocational competencies, at least to the level being assessed.

They should also have appropriate interpersonal and communication skills and knowledge of language, literacy and numeracy issues in the context of assessment. Skills, knowledge and attributes of assessors may be developed and demonstrated through at least one of the following:

- participation in professional development;
- relevant work experience in information technology;
- participation in professional/industry networks;
- recent planning and review of assessment activities in information technology;
- participation in assessment moderation/validation processes; and

- recent workplace assessment and/or training activities.

All assessors who are engaged in assessing against this Training Package or units of competency from this Training Package must be:

- employed by an RTO, or
- acting under the registration of an RTO (for example, an assessor working in an enterprise that has a partnership arrangement with the RTO).

This Training Package provides a range of options for meeting these assessor requirements. Assessments can be undertaken in a variety of workplace and institutional contexts by individual assessors, partnerships involving assessors and technical experts, and teams of assessors.

In information technology, competence of assessors in the relevant standards should ideally be complemented by relevant industry experience. This may be demonstrated by work experience in more than one enterprise over a period of at least two years. Supervisory and/or management experience may also be of benefit.

In addition to the above, it is recommended that assessors have comprehensive current knowledge of information technology and the likely job or role against which performance is being assessed.

#### **Options for meeting the requirement to use qualified assessors**

The options listed below show how the requirement to use qualified assessors can be met.

<b>Options</b>	<b>Assessors, Technical Experts, Workplace Supervisors and Assessment Teams</b>
<p><b>Single Assessor</b></p> <p><b>An individual assessor conducts the assessment</b></p>	<p>An Assessor is:</p> <ul style="list-style-type: none"> <li>• required to hold formal recognition of competence in the relevant units in the Training and Assessment Training Package;</li> <li>• deemed competent and, where possible, holds formal recognition of competence in the specific units of competency in this Training Package, at least to the level being assessed.</li> </ul> <p>In addition, it is recommended that the assessor is able to:</p> <ul style="list-style-type: none"> <li>• demonstrate current knowledge of the industry, industry practices, and the job or role against which performance is being assessed;</li> <li>• demonstrate current knowledge and skill in assessing against this Training Package in a range of contexts; and</li> <li>• demonstrate the necessary interpersonal and communication skills required in the assessment process.</li> </ul>

Options	Assessors, Technical Experts, Workplace Supervisors and Assessment Teams
<p><b>Partnership arrangement</b></p> <p><b>An assessor works with a technical expert to conduct the assessment</b></p>	<p>An Assessor is required to:</p> <ul style="list-style-type: none"> <li>• hold formal recognition of competence in the relevant units in the Training and Assessment Training Package.</li> </ul> <p>In addition, it is recommended that the assessor is able to:</p> <ul style="list-style-type: none"> <li>• demonstrate current knowledge and skill in assessing against this Training Package in a range of contexts; and</li> <li>• demonstrate the interpersonal and communication skills required in the assessment process.</li> </ul> <hr/> <p>A technical expert shall be a person who:</p> <ul style="list-style-type: none"> <li>• is deemed competent and, where possible, hold formal recognition of competence in the specific units of competency from this Training Package, at least to the level being assessed.</li> </ul> <p>In addition, it is recommended that the technical expert is able to:</p> <ul style="list-style-type: none"> <li>• demonstrate current knowledge of the industry, industry practices, and the job or role against which performance is being assessed;</li> <li>• communicate and liaise with the assessor throughout the assessment process.</li> </ul>
<p><b>Partnership arrangement</b></p> <p><b>An assessor works with workplace supervisor in collecting evidence for valid assessment</b></p>	<p>An assessor is required to:</p> <ul style="list-style-type: none"> <li>• hold formal recognition of competence in the relevant units in the Training and Assessment Training Package; and</li> <li>• make the assessment decisions.</li> </ul> <p>In addition, it is recommended that the assessor is able to:</p> <ul style="list-style-type: none"> <li>• demonstrate current knowledge and skill in assessing against this Training Package in a range of contexts;</li> <li>• demonstrate the interpersonal and communication skills required in the assessment process;</li> <li>• communicate and liaise, where appropriate, with the workplace supervisor throughout the assessment process.</li> </ul> <hr/> <p>A workplace supervisor is required to:</p> <ul style="list-style-type: none"> <li>• be deemed competent and, where possible, is to hold formal recognition of competence in the specific units of competency from this Training Package, at least to the level being assessed.</li> </ul> <p>In addition, it is recommended that the workplace supervisor is able to:</p> <ul style="list-style-type: none"> <li>• demonstrate current knowledge of the industry, industry practices, and the job or role against which performance is being assessed;</li> <li>• communicate and liaise, where appropriate, with the assessor throughout the assessment process; and</li> <li>• use agreed practices to gather and record evidence for the assessor to use in making a valid judgment on competency.</li> </ul>

Options	Assessors, Technical Experts, Workplace Supervisors and Assessment Teams
<p><b>Assessment team/panel</b></p> <p><b>A team or panel working together to conduct the assessment</b></p>	<p>Members of an assessment team or panel that comprises assessment and industry experience and expertise works together in the collection of evidence and in making judgments about competency. The members of the team must include at least one person who:</p> <ul style="list-style-type: none"> <li>• holds formal recognition of competence in the relevant units of the Training and Assessment Training Package;</li> <li>• is deemed competent and, where possible, holds formal recognition of competence in the specific units of competency from this Training Package, at least to the level being assessed.</li> </ul> <p>In addition, it is recommended that members of the assessment team or panel involved in the assessment are able to:</p> <ul style="list-style-type: none"> <li>• demonstrate current knowledge of the industry, industry practices, and the job or role against which performance is being assessed;</li> <li>• demonstrate current knowledge and skill in assessing against this Training Package in a range of contexts;</li> <li>• demonstrate the interpersonal and communication skills required in the assessment process and liaise with other team/panel members throughout the assessment process.</li> </ul>

## 4.2.2 Integration of key competencies in Training Packages

The following information (pp 133–135) is reproduced from the *Competency Standards of the Information and Communications Technology Training Package (ICA05)*<sup>4</sup>.

### 4.2.2.1 The key competencies in the Information and Communications Technology Training Package

All Training Packages require the integration of Key Competencies either in each unit of competency, or across a qualification, depending on industry needs and preferences.

The Key Competencies were first defined in 1992 in the project report, *Putting General Education to Work: The Key Competencies Report* (Mayer Committee 1992). The skills and knowledge they describe are essential for effective workplace participation and involve the sorts of capabilities commonly used by employers as selection criteria. They underpin the ability of employees to adapt to technological, organisational, societal and functional change.

The Key Competencies are generic, in that they apply to work in general, rather than to particular occupations or industries. They focus on the application of knowledge and skills in an integrated way in workplace situations. The seven Key Competencies are:

#### 1 Collecting, analysing and organising information

The capacity to locate, sift and sort information in order to select what is required and to present it in a useful way, and evaluate both the information itself and the sources and methods used to collect it.

#### 2 Communicating ideas and information

The capacity to communicate effectively with others using the range of spoken, written, graphic and other non-verbal means of expression.

<sup>4</sup> DEST, 2005, *Information and Communications Technology Training Package (ICA05)* Volume One Section 1.5, pp 1-174 – 1-176. The *Assessment Guidelines of Information and Communications Technology Training Package* may also be accessed via the National Training Information Service website ([www.ntis.gov.au](http://www.ntis.gov.au))

### **3 Planning and organising activities**

The capacity to plan and organise one's own work activities, including making good use of time and resources, sorting out priorities and monitoring one's performance.

### **4 Working with others in teams**

The capacity to interact effectively with other people both on a one-to-one basis and in groups, including understanding and responding to the needs of a client and working effectively as a member of a team to achieve a shared goal.

### **5 Solving problems**

The capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and the solution are clearly evident and in situations requiring creative thinking and a creative approach to achieve a desired outcome.

### **6 Using mathematical ideas and techniques**

The capacity to use mathematical ideas, such as number and space, and techniques such as estimation and approximation, for practical purposes.

### **7 Using technology**

The capacity to apply technology, combining the physical and sensory skills needed to operate equipment with the understanding of scientific and technological principles needed to explore and adapt systems.

### **Performance Levels**

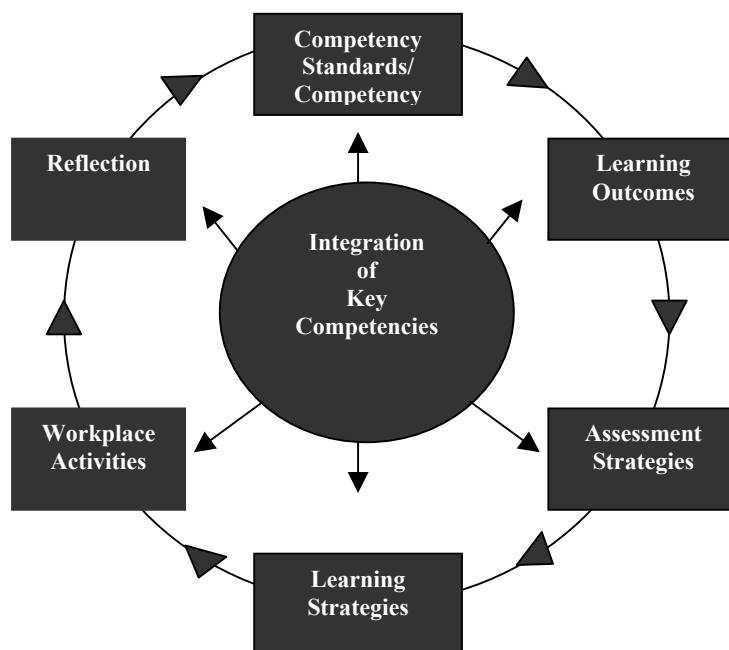
There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

- **Performance Level 1** is concerned with the level of competence needed to undertake activities efficiently with sufficient self-management to meet the explicit requirements of the activity, and to make judgements about the quality of outcomes against established criteria.
- **Performance Level 2** describes the competence needed to manage activities requiring the selection, application and integration of a number of elements, and to select from established criteria to judge quality of process and outcome.
- **Performance Level 3** describes the competence needed to evaluate and reshape processes, to establish and use principles in order to determine appropriate ways of approaching activities, and to establish criteria for judging quality of process and outcome.

However, relating performance to the specific industry or workplace context may be more useful than interpreting the somewhat abstracted performance levels provided above. Also, in evaluating the level of performance for the Key Competencies, consider the performance expectations at the AQF qualification level involved.

### **Delivery and Assessment of Key Competencies**

The Key Competencies are integral to workplace competency, and, as such must be explicitly considered in the design, customisation, delivery and assessment of vocational education and training programs as represented diagrammatically below:



#### 4.2.2.2 Implications for vocational education and training

The key competencies need to be explicitly developed and applied in vocational education and training delivery and assessment in order to ensure the ongoing flexibility and adaptability of the Australian workforce.

This means that the key competencies cannot be considered as supplementary to vocational competency but integral to it. They are part of good learning and essential to good practice. It is critical, therefore, that Training Package developers, support material developers, teachers and trainers deliberately incorporate the key competencies into the design, customisation, delivery and assessment of vocational education and training programs.

The traditional training focus has been on technical skills. However, these skills must be developed in ways that enable them to be transferable across different applications and work contexts. This requires a conscious and deliberate effort to incorporate the key competencies explicitly into every stage of the training cycle through units of competency and Training Package development, delivery, learning, assessment and reflection.

There is a need to move from an approach centred on the classroom to a contextualised problem-solving approach in which the learner is central to the process and the learning reflects the realities, processes and procedures of the workplace.

Such an approach is characterised by:

- a focus on the development of thinking skills in relation to vocational competency
- assessment integrated with training
- collaborative learning reflecting work-based teams
- competencies learnt and assessed in the context of real problems in actual or closely simulated workplace environments
- learner-centres with teachers/trainers/work supervisors as facilitators and mentors
- the explicit development of the key competencies to enhance competency in reasoning and making sound and defensible judgements.

The move to a problem-solving approach means recognising the learner and his/her learning and vocational contexts as central to the learning process. Achieving competency should not be viewed as a progression through learning and assessment activities, but rather as an individual interacting in a structured way with knowledge, skill and vocational contexts in order to better understand and work with them.

### 4.2.3 Principles for designing and conducting assessments

This section (pp 136–144) is reproduced from the *Assessment Guidelines of the Information and Communications Technology Training Package (ICA05)*<sup>5</sup>

#### 4.2.3.1 Designing assessment tools

##### Use of Assessment Tools

Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

##### Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure these are benchmarked, or mapped, against the current version of the relevant unit of competency. This can be done by checking that the materials are listed on the National Training Information Service ([www.ntis.gov.au](http://www.ntis.gov.au)). Materials on the list have been noted by the National Training Quality Council as meeting their quality criteria for Training Package support materials.

##### Developing Assessment Tools

When developing their own assessment tools, assessors must ensure that the tools:

- are benchmarked against the relevant unit or units of competency
- are reviewed as part of the validation of assessment strategies as required under 9.2i of the Standards for Registered Training Organisations, and
- meet the assessment requirements expressed in the Standards for Registered Training Organisations, particularly Standards 8 and 9.

A key reference for assessors developing assessment tools is TAA04 Training and Assessment Training Package.

#### 4.2.3.2 Checklist for developing assessment materials

The following checklist is offered as guidance for developing assessment materials.

##### Checklist

- ***Select the unit/s of competency to be assessed***

Identify the unit of competency in this Training Package that is to be assessed. The assessment resource may focus on a single unit of competency or a cluster or group of related units of competency.

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<sup>5</sup> DEST, 2005, *Information and Communications Technology Training Package (ICA05)* Volume One Section 1.5, pp 1-125 – 1-158. The *Assessment Guidelines of Information and Communications Technology Training Package* may also be accessed via the National Training Information Service website ([www.ntis.gov.au](http://www.ntis.gov.au))

- **Analyse the unit of competency**

The unit of competency describes the work and the required standards of performance. Read the full unit of competency carefully and familiarise yourself with the:

- *Unit Description* – this outlines the aspect of work to be assessed
- *Elements and Performance Criteria* – these describe the nature of the task to be assessed and the standard of performance that is expected of the candidate
- *Range of Variables* – this describes the conditions under which the task must be performed
- *Evidence Guide* – this provides information on the key tasks which a candidate must be able to do [critical aspects of competency], the underpinning knowledge and skills required to perform the task [underpinning knowledge and skill] and units of competency that may be grouped for assessment purposes [interdependent assessment of unit].

Identify the key skills that the candidate will require to perform the work activity described in the unit of competency. These are:

- *Task Skills* – these involve performing the task to the required standard as described in the unit of competency
- *Task Management Skills* – these involve managing a number of different tasks within the job
- *Contingency Management Skills* – these involve fulfilling the responsibilities and expectations of the workplace.

- **Identify the type and amount of evidence to be collected**

Prepare a list of the evidence that might be collected to show that the candidate is able to perform the work activity described in the unit of competency. There are three broad categories of assessment evidence that may be used in conducting competency assessments. These are:

- *Product* – this refers to an item that is constructed or a service that is delivered
- *Process* – this refers to the way in which a product is produced or achieved
- *Knowledge* – this refers to the information that is required to perform the aspect of work described in the unit(s) of competency. This may include knowledge of specific information, knowledge of specific laws, regulations and Codes of Practice and knowledge of principles, processes and procedures.

This evidence may be collected through a variety of methods. These include:

*Direct*

- observation of workplace activities
- demonstration of specific tasks
- observation of activities under simulated workplace conditions.

*Indirect*

- questioning – oral questioning, written tests, interviews.

*Supplementary Evidence*

- supervisor reports
- employer references
- documentation about past or prior achievements
- portfolios.

The assessor must determine the type and amount of evidence that is required and how this will be collected.

- **Plan the assessment activity**

Prepare a brief written description of the assessment activity that will be used to collect the required evidence. For example, this may be an observation of workplace activity, a simulation, a test or some other form of evidence gathering technique. The description does not have to be detailed but should at least describe, in broad terms, the nature of the activities to be undertaken. The description should detail the:

- type of evidence gathered under each evidence requirement (direct, indirect, supplementary)
- tasks which the candidate is required to do.

In planning the activity consideration should be given to using evidence gathering methods that:

- are appropriate to the industry context
- are gender and culturally inclusive

- take into account the language, literacy and numeracy skills of both the assessor and the candidate
  - minimise the cost of assessment
  - involve the collection of a variety of forms of evidence
  - may be customised to take into account local conditions, site requirements and enterprise specific practices
  - utilise industry and enterprise reference materials, such as standard operating procedures and quality systems
  - allow for updating of evidence requirements and work practices in line with changes to legislation, regulations and Codes of Practice
  - take account of safety considerations and the assessment environment, especially for New Apprenticeship pathways, which are likely to have first time workers and for assessment of high-risk operations or in high-risk industries.
- **Prepare the assessment materials**

The assessment materials are developed in accordance with the plan for the assessment activity. The assessment materials should:

    - address the relevant unit[s] of competency
    - require the candidate to demonstrate the five key components of competency
    - identify the evidence requirements and evidence collection methods
    - include the resources needed to conduct the assessment activity/activities
    - include instructions for candidates and those involved in administering the assessment activity/activities
    - be checked for ease of use, validity, reliability, fairness and flexibility
    - incorporate allowable adjustments to the assessment procedure.
  - **Validate the assessment materials**

The assessment materials should be piloted with a small sample of assessors. Information gathered through this process should be analysed to establish any amendments that may be required. The assessment materials are redrafted incorporating suggested amendments as appropriate.
  - **Prepare the final version of the assessment materials**

The assessment materials are published in an appropriate format, either print or electronic, and made available to assessors within the relevant organisation. Arrangements are put in place for the ongoing maintenance and cyclic review of the assessment resource.

#### 4.2.3.3 Conducting assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

#### **Mandatory Assessment Requirements**

Assessments must meet the criteria set out in Standard 8 from the *Standards for Registered Training Organisations*.

#### 4.2.3.4 Formative and summative assessment

Some competencies within the ICT Training Package contain references to formative and summative assessment. The following text provides an explanation of these terms.

Assessment can be done at various times throughout a learning/assessment process and a comprehensive assessment plan should include both formative and summative assessment. The point at which the assessment occurs in a program distinguishes these two categories of assessment.

#### **Formative Assessment**

Formative assessment refers to assessment tasks that occur regularly throughout the learning program and one of its primary objectives is to provide constructive feedback to the learner and guide their learning.

Formative assessment is often done at the beginning or during a learning program, thus providing the opportunity for immediate evidence for student learning in a particular element, unit or course or at a particular stage in an overall program.

It gives students the opportunity to demonstrate a selection of Performance Criteria for the purpose of self-assessment, or to receive feedback on their progress and identify gaps in their knowledge or skills. It is also a method for the collection of evidence (of either individual Performance Criteria or a complete Unit of Competency), and a determination of a candidate's readiness for final assessment. Formative assessment is more a process than an event, allowing students the opportunity to gain confidence through practice and application, ideally in an environment that is conducive to the achievement of competence without fear of failure.

The case study approach allows students to develop competencies by completing simulated work-based projects and receiving guidance and feedback. This work, along with the feedback received, could serve the purpose of a type of formative assessment as it assists in development of the required competencies and in the formation of the final performance.

Classroom assessment is a common formative assessment technique in institutional delivery. The purpose of this technique is to aid and improve quality of student learning and should not be evaluative or involve grading students. This can also lead to curricular modifications when specific courses have not met the student learning outcomes. Classroom assessment can also provide important program information when multiple sections of a qualification are taught because it enables programs to examine if the learning goals and objectives are met across the qualification. It also can improve instructional quality by engaging the trainer or assessor in the design and practice of the goals and objectives.

### **Summative Assessment**

Summative assessment requires learners to demonstrate the knowledge, skills and competencies they have learned throughout the learning program.

Summative assessment is the final assessment of competence, and is only applied when the student feels confident of his or her ability to perform the task successfully. A student who is ready for summative assessment possesses skills and knowledge that are sufficiently developed to a point where they can be demonstrated as an assessment 'event' or 'situation', either in the workplace or in a simulated environment. Summative assessment requires the assessor to make a final judgement as to whether the student is 'competent' or 'not competent'.

Summative assessment is comprehensive in nature, provides accountability and is used to check the level of learning at the end of the program. For example, if upon completion of a program learners will have the knowledge to pass an accreditation test, taking the test would be summative in nature since it is based on the cumulative learning experience. Program goals and objectives often reflect the cumulative nature of the learning that takes place in a program. Thus the program would conduct summative assessment at the end of the program to ensure students have met the program goals and objectives. Attention should be given to using various methods and measures in order to have a comprehensive plan. Ultimately, the foundation for an assessment plan is to collect summative assessment data and this type of data can stand-alone. Formative assessment data, however, can contribute to a comprehensive assessment plan by enabling trainers and assessors to identify particular points in a program to assess learning (i.e. entry into a program, impact of specific units etc.) and monitor the progress being made towards achieving learning outcomes.

#### **4.2.3.5 An industry assessment model**

The following notional industry assessment model offers a valuable checklist plus generic methodology for conducting assessments against units of competency in this Training Package. This process can potentially apply to all assessments conducted for the purposes of national recognition in both institutional and workplace contexts.

Assessment resources provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency. In some cases, assessors may use prepared assessment materials, such as those specifically developed to support this Training Package. Alternatively, they may develop their own assessment materials to meet the needs of their clients.

If using prepared materials, assessors should ensure that the materials are benchmarked, or mapped, against the current version of the relevant unit/s of competency. This can be done by checking that the materials are listed on the National Training Information Service website ([www.ntis.gov.au](http://www.ntis.gov.au)).

<p><b>Step 1</b> <b>Establish the assessment context</b></p>	<p>The assessor:</p> <ul style="list-style-type: none"> <li>• establishes the context and purpose of the assessment;</li> <li>• identifies the relevant units of competency, assessment guidelines and qualification framework in this Training Package;</li> <li>• identifies any NTQC noted support materials that have been developed to facilitate the assessment process;</li> <li>• analyses the competency standards and identifies the evidence requirements; and</li> <li>• identifies potential evidence collection methods.</li> </ul>
<p><b>Step 2</b> <b>Prepare the candidate</b></p>	<p>The assessor meets with the candidate to:</p> <ul style="list-style-type: none"> <li>• explain the context and purpose of the assessment and the assessment process;</li> <li>• explain the competency standards to be assessed and the evidence to be collected;</li> <li>• advise on self-assessment, including processes and criteria;</li> <li>• outline the assessment procedure, the preparation the candidate should undertake, and answer any questions;</li> <li>• assess the needs of the candidate and, where applicable, negotiate reasonable adjustment for assessing people with disabilities without compromising the integrity of the units of competency;</li> <li>• seek feedback regarding the candidate’s understanding of the units of competency, evidence requirements and assessment process;</li> <li>• determine if the candidate is ready for assessment and, in consultation with the candidate, decide on the time and place of the assessment; and</li> <li>• develop an assessment plan.</li> </ul>
<p><b>Step 3</b> <b>Plan and prepare the evidence gathering process</b></p>	<p>The assessor must:</p> <ul style="list-style-type: none"> <li>• establish a plan for gathering sufficient quality evidence about the candidate’s performance in order to make the assessment decision (and involve industry representatives in the development of plans for the validation of assessment);</li> <li>• source or develop assessment materials to assist in the evidence gathering process;</li> <li>• organise equipment or resources required to support the evidence gathering process;</li> <li>• coordinate and brief other personnel involved in the evidence gathering process.</li> </ul>
<p><b>Step 4</b> <b>Collect the evidence and make the assessment decision</b></p>	<p>The assessor must:</p> <ul style="list-style-type: none"> <li>• establish and oversee the evidence gathering process to ensure its validity, reliability, fairness and flexibility;</li> <li>• collect appropriate evidence and assess this against the elements, Performance Criteria, Range Statement and Evidence Guide in the relevant units of competency;</li> <li>• evaluate evidence in terms of the four dimensions of competency – task skills, task management skills, contingency management skills, and job/role environment skill;</li> <li>• incorporate allowable adjustments to the assessment procedure without compromising the integrity of the competencies;</li> <li>• evaluate the evidence in terms of validity, consistency, currency, equity, authenticity and sufficiency;</li> <li>• consult and work with other staff, assessment panel members or technical experts involved in the assessment process;</li> <li>• record details of evidence collected; and</li> <li>• make a judgement about the candidate’s competency based on the evidence and the relevant unit(s) of competency.</li> </ul>

<p><b>Step 5</b> <b>Provide feedback on the assessment</b></p>	<p>The assessor must provide advice to the candidate about the outcomes of the assessment process. This includes providing the candidate with:</p> <ul style="list-style-type: none"> <li>• clear and constructive feedback on the assessment decision;</li> <li>• information on ways of overcoming any identified gaps in competency revealed by the assessment;</li> <li>• the opportunity to discuss the assessment process and outcome; and</li> <li>• information on reassessment and the appeals process.</li> </ul>
<p><b>Step 6</b> <b>Record and report the result</b></p>	<p>The assessor must:</p> <ul style="list-style-type: none"> <li>• record the assessment outcome according to the policies and procedures of the RTO;</li> <li>• maintain records of the assessment procedure, evidence collected and the outcome according to the policies and procedures of the RTO;</li> <li>• maintain the confidentiality of the assessment outcome;</li> <li>• organise the issuing of qualifications and/or Statements of Attainment according to the policies and procedures of the RTO.</li> </ul>
<p><b>Step 7</b> <b>Review the assessment process</b></p>	<p>On completion of the assessment process, the assessor must:</p> <ul style="list-style-type: none"> <li>• review the assessment process;</li> <li>• report on the positive and negative features of the assessment to those responsible for the assessment procedures;</li> <li>• if necessary, suggest to appropriate personnel in the RTO ways of improving the assessment procedures.</li> </ul>
<p><b>Step 8</b> <b>Participate in the reassessment and appeals process</b></p>	<p>The assessor must:</p> <ul style="list-style-type: none"> <li>• provide feedback and counsel the candidate, if required, regarding the assessment outcome or process, including guidance on further options;</li> <li>• provide the candidate with information on the reassessment and appeals process;</li> <li>• report any disputed assessment decision to the appropriate personnel in the RTO; and</li> <li>• participate in the reassessment or appeal according to the policies and procedures of the RTO.</li> </ul>

#### 4.2.3.6 Holistic or integrated assessment

Learning for the development of competencies in the Information and Communications Technology Training Package is directly related to the working environment, and, as such, should be demonstrated either on the job, or in a simulated working environment. In the workplace, individual competencies are seldom demonstrated in isolation; therefore, any given task may contain a variety of units. Where present, these related competencies are identified in the Assessment Guide of each ICA05 unit.

When related competencies are assessed simultaneously or through a task that requires the student to integrate them, this is called a ‘holistic’ or ‘integrated’ assessment. This form of assessment relates to the whole unit or grouping of units, and requires observation of performance, questioning, and in some cases, review of documentation or other forms of evidence.

Competency includes the ability to manage and organise a normal workload and work environment and to manage contingencies which arise, as well as the ability to complete each individual task making up a job. As far as possible, the underpinning knowledge, the skills and the attributes required of a competent performer should be incorporated into one holistic assessment event. Although integration of appropriate competencies is important, it is still essential that evidence is gathered to meet Performance Criteria for each competency involved, and that achievement is identified and recorded for each individual competency.

To support these principles, the preferred approach to assessment in ICA05 is project-based assessment. That is, students are assessed over the duration of a project that is work-based or closely simulates the need to manage and organise themselves and to handle contingencies in applying their knowledge and skills, as they would in an actual ICT work environment. Case studies and scenarios

provided in some supporting resources are a good starting point for simulating actual workplace projects.

The project method of assessing competence usually requires students to compile a portfolio of work and other documents as evidence of what they can do, but they might also be assessed in other ways for some competencies, or to concentrate on underpinning knowledge or skills. Other methods may include observation checklist, interview or written test, oral presentation or third-party report.

Holistic or integrated assessment may apply in a variety of ways depending on where assessment occurs and at what qualification level.

#### **4.2.3.7 Key players in assessment**

For the assessment system to work efficiently, the process must be coordinated with each participant being aware of his or her role.

##### **The Candidate**

The candidate is at the centre of the process. The candidate will initially determine his or her own readiness for assessment. This involves undertaking an initial self-assessment to determine if they are ready for an assessment. An individual may wish to be assessed for a range of reasons such as, advanced standing in a course, for recognition of current competencies (RCC) to gain a qualification or a statement of attainment or for career purposes.

##### **Self-Assessment**

Self-assessment provides the candidate with an opportunity to assess his or her own performance. It also allows them to understand more clearly what is considered effective performance in their current and other similar work environments. The candidate is given the competency standards on which they will be assessed. They will decide which normal day to day work processes provide the best opportunity to demonstrate the performance criteria. This increases the candidate's likelihood of being able to transfer the effective use of the competencies to other work places and new contexts. Self-assessment promotes the candidate's ability to undertake continual improvement of their own work, by introducing them to a process of self-review

The candidate may wish to document the process and outcome of their self-assessment. If they consider that they are ready for a formal assessment, the candidate will discuss their self-assessment with the assessor. This discussion should consider why a particular process was chosen, and whether this affected competent performance. This process helps the candidate decide whether they are ready for an assessment. It also reduces the number of potential appeals and provides the assessor with some information on the candidate's underpinning knowledge and skills for the units being assessed. Additional tools to aid this process are contained in the non-endorsed part of this Training Package.

The self-assessment process may:

- clarify the purpose and goal of the assessment;
- identify processes which lead to effective demonstration of the performance criteria;
- produce an outcome (product or role process) which successfully demonstrates competency;
- enable the candidate to evaluate the process and outcome; and
- enable the candidate to critically reflect on the process and outcome.

This means the candidate will become more practised in evaluating their own processes and standard of work.

##### **The Employer**

The assessment system provides employers with a valid and reliable process for appraising the skill levels of their current and future work force. An employer may request an individual to be assessed for a range of reasons such as, training and development purposes, internal recruitment and promotion, and external recruitment. The employer requesting an assessment must ensure that the candidate has access to all information relating to the assessment process. This should include as a minimum what is going to be assessed and what the appeals process involves. An employer may also be an assessor, but must be working under the auspices of a Registered Training Organisation (RTO) if a credential is to be issued.

## The Assessor

The integrity of the assessment system relies on the assessor providing a fair, valid and reliable assessment. The assessor will ensure that the candidate understands what the assessment process involves and what will be assessed. The assessor also informs the candidate and employer of the appeal process. The appeal process is the responsibility of the Registered Training Organisation and information on the appeal system will be provided to assessors working for or in affiliation with the RTO. The assessor should assess in the workplace wherever practical, and attends to assessment administration tasks. An important aspect of the assessor's role is to provide the candidate with feedback on competency gaps.

Feedback is an important role of the assessor, and should provide information on where and how performance can be improved. An assessor may also be able to provide information on resources, such as training programs, that can be undertaken to become competent. It is important that feedback is provided in a positive and informative manner rather than a negative or punitive way.

Assessment against ICA05 units should be as holistic and integrated as possible. One option is for assessment to cover a range of interconnected or linked units of competency. Natural linkages between units in ICA05 are reflected in the text of each unit where relevant.

Assessments which occur outside a training program or which do not use integrated assessment should ensure that:

- assessment procedures are the most effective for the context and purpose of the assessment;
- assessment materials developed for the assessment, conform to the guidelines in the non-endorsed section of this training package;
- evidence is gathered in an integrated manner;
- assessment is conducted as a holistic practice;
- the time frame for assessment is kept to a minimum;
- feedback is provided in a positive and timely manner; and
- the assessment is not seen as punitive.

### 4.2.3.8 Code of practice

*The Assessors Code of Practice* detailed below is based on international standards and included for guidance.

#### Assessors Code of Practice

- The differing needs and requirements of the person being assessed, the local enterprise and/or industry are identified and handled with sensitivity.
- Potential forms of conflict of interest in the assessment process and/or outcomes are identified and appropriate referrals are made, if necessary.
- All forms of harassment are avoided throughout the planning, conduct, reviewing and reporting of the assessment outcomes.
- The rights of the candidate are protected during and after the assessment.
- Personal or interpersonal factors that are not relevant to the assessment of competency must not influence the assessment outcomes.
- The candidate is made aware of right and process of appeal.
- Evidence that is gathered during the assessment is verified for validity, reliability, authenticity, sufficiency and currency.
- Assessment decisions are based on available evidence that can be produced and verified by another assessor.
- Assessments are conducted within the boundaries of the assessment system policies and procedures.
- Formal agreement is obtained from both the candidate and the assessor that the assessment was carried out in accordance with agreed procedures.
- Assessment tools, systems, and procedures are consistent with equal opportunity legislation.
- The candidate is informed of all assessment reporting processes prior to the assessment.
- The candidate is informed of all known potential consequences of decisions arising from an assessment, prior to the assessment.
- Confidentiality is maintained regarding assessment outcomes.

- Outcomes of the assessment are only released with the written permission of the candidate.
- The assessment outcomes are used consistently with the purposes explained to the candidate.
- Self-assessments are periodically conducted to ensure current competencies against the Training and Assessment Training Package.
- Professional development opportunities are identified and sought.
- Opportunities for networking among assessors are created and maintained.
- Opportunities are created for technical assistance in planning, conducting and reviewing assessment procedures and outcomes.

#### 4.2.4 Diversity, equity and accessibility

This section (pp 144-151) is reproduced from the *Assessment Guidelines of the Information and Communications Technology Training Package (ICA05)*<sup>6</sup>.

##### Diversity and Equity

The information and communications technology (ICT) industry is characterised by a global workforce, diverse clientele and international relationships. The issue of diversity is a reality in most if not all workplaces and managed effectively can provide opportunity for market growth and access to the widest possible range of available skills and expertise.

A useful definition of diversity is ‘the quality of being different and unique at an individual or group level’. Diversity is often discussed in relation to ethnicity, culture, gender, race, age, functional diversity, personality and learning styles. Recognising and valuing diversity means creating and sustaining an environment in which everyone can achieve their full potential. This may include removing systemic barriers and creating new ways of doing business.

In appropriately acknowledging the needs of all individuals engaged in learning or assessment processes, several principles of best practice in working with members of equity groups should be kept in mind:

- the learning and assessment environment should not disadvantage the candidate
- practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English and where appropriate and possible communication in languages other than English needs to be allowed for
- language and literacy demands of the assessment task should not be higher than those of the work role
- the demands of assessment and the methods used need to take into account the key competencies performance level of the unit in question
- adjustments to assessment practices are considered ‘reasonable’ if they do not impose an unjustifiable hardship on a training provider or employer and do not change the competency outcomes.

##### 4.2.4.1 Information on training and assessment for people with special needs

Good vocational training and assessment, like customer service, is often about making adjustments to what we do to meet individual needs. When learning to work, every person has slightly different needs. Rarely do stereotypes, clichés or generalisations hold true. This section is intended to assist ICT employers, trainers and assessors to meet the reasonable adjustment needs of learners with disabilities.

##### What is a Disability?

A disability presents some impairment to everyday activity. In practice, some people with a disability do not have any impairments resulting from their disability. For example, a person who has a hearing impairment that is compensated for by a hearing aid may function without any adjustments.

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<sup>6</sup> DEST, 2005, *Information and Communications Technology Training Package (ICA05)* Volume One Section 1.5, pp 1-125 – 1-158. The *Assessment Guidelines of Information and Communications Technology Training Package* may also be accessed via the National Training Information Service website ([www.ntis.gov.au](http://www.ntis.gov.au))

Disabilities may affect or relate to a range of human functions including mobility, stamina, lifting ability, memory, vision, hearing, speech, comprehension and mood swings. This may be due to accidents, illness or birth.

Detailed information on how to adjust training and assessment for each of these areas cannot be provided within this section, however, there are additional resources available, many of which are listed [in the *Information Technology Resource List*].

#### 4.2.4.2 Adjustments in training and assessment

An individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities. Adjustments include any changes to the assessment process or context that meet the individual needs of the person with a disability, but do not change competency outcomes. Such adjustments are considered 'reasonable' if they do not impose an unjustifiable hardship on a training provider or employer. When assessing people with disabilities, assessors are encouraged to apply good practice assessment methods with sensitivity and flexibility.

The Disability Discrimination Amendment (Education Standards) define disability as:

- total or partial loss of the person's bodily or mental function; or
- total or partial loss of a part of the body; or
- the presence in the body of organisms causing disease or illness; or
- the presence in the body of organisms capable of causing disease or illness;
- the malfunction, malformation or disfigurement of a part of the person's body; or
- a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour.

Training Package developers and Registered Training Organisations are required under the Standards to take reasonable steps to ensure that Packages are designed in such a way that the learner is, or any learner with a disability is, able to participate in the learning experiences (including assessment and certification requirements) of the program, and any relevant supplementary program, on the same basis as a learner without a disability, and without experiencing discrimination.

There are a number of practical things that can be done as part of providing reasonable adjustment to employees and learners with special needs to enable them to undertake their training and assessment. Some suggestions are included below.

Type of Disability	Reasonable Adjustments
Mobility impairment	Provision of wheelchair accessibility, access to aids such as for holding documents, adjustable tables, note taking support, oral rather than written presentations or exams, use of a personal computer, lifting limits
Vision impairment or people who are blind	Use of audio tapes, enlarged text and images, enlarged computer screen images, use of voice synthesisers on computers, good lighting or reading lamps, Braille translations, provision for guide dogs, avoid moving furniture without informing the person, provision of additional writing time for assignments/tests
Hearing impairment or people who are deaf	Use of telephone typewriters, audio loops for people using hearing aids, use of Plain English documents, sign language interpreters for training and assessment, fire and alarm systems fitted with flashing lights.

Type of Disability	Reasonable Adjustments
Intellectual disability	Practical learning sessions, repetition of learning exercises, use of Plain English, use of mentors, assessment that is appropriate to the skill, i.e. avoiding written test for practical tasks, providing additional time
Psychiatric disability	Use of reflective listening skills, identification and avoidance of stresses, use of on-going rather than formal assessments, providing 'time-out' breaks in assessment
People with acquired brain injury	Providing time and patience during training and assessment, using reflective listening skills, providing memory aids, e.g. posters, notes, minimisation of stress
Speech impairment	Provision of time and patience, paraphrasing, getting them to put things in writing, minimising stress

Clearly, each case will be different and will need to be discussed with the learner, and in many cases expert help may be needed, at least in the initial stages. There are many sources of help to assist in employment, training and assessment of a person with a disability.

#### 4.2.4.3 Information on training and assessment for people from Aboriginal or Torres Strait Islander backgrounds

The ICA05 Information and Communications Technology Training Package has very broad application across all community and workforce areas in Australia. Indigenous communities are finding increasing value in accessing and using information technology resources and online services as part of their work and non-work lives. The 'tyranny of distance' is being overcome through the innovative use of technology and the internet. In the context of this Training Package, it is expected that an individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the specific outcomes required by this package.

Where ICA05 or elements of it are being used in Aboriginal or Torres Strait Islander communities, local stakeholders should be involved in the development and implementation of its training and assessment arrangements. When considering the rollout of information technology training in indigenous communities, some of the issues to be considered include the need for effective training and assessment planning, appropriateness of delivery approaches, suitability of venues, availability of resources and the development of appropriate learning exemplars and activities. Suggestions for consideration against a number of these issues are provided in the following sections.

#### General Cultural Issues that May Impact Training

There are hundreds of Aboriginal or Torres Strait Islander cultures and languages and therefore training and assessment should be encouraged to have a local focus to maximise effectiveness. Individual Aboriginal or Torres Strait Islander communities need to be involved in the development and implementation of training and assessment and in some circumstances communication in languages other than English may need to be allowed for. This could be particularly relevant for those people completing qualifications in remote communities.

Some of the issues to be considered include:

- ownership and/or custodial rights and responsibilities within Aboriginal or Torres Strait Islander cultures and nations, including the rights of people to 'identify with' people and Country and exercise affiliations, even where these have not been previously known, recognised or exercised
- cross-cultural issues, not only in terms of Aboriginal or Torres Strait Islander/non- Aboriginal or Torres Strait Islander interactions but also between and within Aboriginal or Torres Strait Islander cultures, nations and sub-groupings where inter-relationships can be extremely complex and sensitive
- 'rights' of people to speak on behalf of and represent groupings, these being generally invested in Elders or other Aboriginal or Torres Strait Islander people who are recognised by their community as custodians of cultural knowledge

- attitudes towards cultural heritage aspects that can be shared without compromise and the ways in which this can be achieved. For example, this may impact on who teaches knowledge, who studies units and the cultural protocols that govern the ways in which this is done
- recognition that Aboriginal or Torres Strait Islander arts and cultures are dynamic and are continually growing and developing and not fixed in a particular view of the past
- respect for the rights of Aboriginal or Torres Strait Islander peoples to refuse to pass on information, including details about family history, kinship systems, Country, significant sites and other cultural knowledge
- awareness of the sensitivities that may be felt by some Aboriginal or Torres Strait Islander people when researching their own culture, Country and family systems, particularly when such research impacts on personal identity.

### **Planning for Training and Assessment**

There are a number of issues that should be considered when planning for the delivery of training or the assessment of individuals, these include:

- consulting Elders or other Aboriginal or Torres Strait Islander people who are recognised by their community as custodians of cultural knowledge about appropriate methods for accessing and using local knowledge
- inviting the involvement of the local Aboriginal or Torres Strait Islander community, particularly Elders, at all stages of the planning, development, training and assessment process. Elders are the custodians of knowledge, as well as the authorities from whom permissions must be sought for in relation to issues such as which knowledge can be shared, the ways in which this sharing must occur and how its application can be best assessed
- setting up local Aboriginal or Torres Strait Islander reference groups to advise on training development (may include organisations such as Local Aboriginal Land Council, local community arts centre, Aboriginal Education Consultative Group)
- allowing time to develop rapport and trust, to develop and explore viewpoints, on-going consultation, communication and problem-solving
- ensuring participation of local Elders – sitting in on sessions/activities, as presenters, mentors, advisors and ‘supporters’, providing context and ‘grounding’. This ‘authority’ aspect is very important and in many instances, the mere presence of key Elders, even if they are not taking an active role, lends both authority and permission
- locating training and development activities in the local community and promoting and ensuring a sense of community ownership, involvement, partnership and control.

### **Approaches to Training and Assessment**

In order to ensure that Aboriginal or Torres Strait Islander people are not disadvantaged in ICT VET processes, a number of ideas could be considered where appropriate, including:

- orally-based training and assessment with explanation and demonstration
- working in pairs for training and assessment
- small or large group work for training and assessment: assessment dimensions for Aboriginal or Torres Strait Islander peoples may include a ‘group’ component as well as an ‘individual’ component
- culturally appropriate presentations for training and assessment, e.g. presentations or art pieces in a medium appropriate to local culture
- using artwork or illustrated oral presentations/talks, for presentation and assessment
- consulting learners about preferences and how they feel they can best demonstrate their competence
- taking a flexible approach to time and achievement of outcomes
- flexible delivery and assessment processes
- identifying culturally appropriate and sensitive trainers and assessors with a demonstrated ability to work effectively with local Aboriginal or Torres Strait Islander communities
- training external trainers in appropriate and localised approaches and providing essential community and cultural background information/support
- developing all training as part of an overall empowerment and confidence-building program
- accommodating priorities and obligations within local communities to avoid conflict with training and assessment activities
- exploring perceptions and understandings ‘in community’
- allowing multiple, holistic and personalised assessment opportunities

- identifying appropriate materials/methods through community and potential learner consultations
- tailoring training and assessment for specific communities rather than applying ‘blanket’ solutions/methods, recognising that there are many localised Aboriginal or Torres Strait Islander ‘cultures’ and not a single one
- personalising training materials with appropriate, local illustrations and applications
- training and assessment integrated with work activities as much as possible
- structuring training and assessment as on-going work experience.

### **Training and Assessment Venues**

A number of basic operational issues should also be considered, including:

- What are locally familiar, appropriate, preferred and available venues?
- Are ‘classrooms’ or other interior settings available or appropriate?
- Is an outdoors location preferred/more appropriate/feasible?
- What innovative technologies (e.g. mobile and wireless) could be used in the field?
- Are assistive technologies needed and available?
- Is on-the-job training and assessment most appropriate and how is this best organised?
- Are occupational health and safety issues addressed?
- Do local climatic conditions affect training and assessment locations and approaches?

### **Training and Assessment Resources**

The appropriateness of resources can be pivotal to the success or failure of training and assessment activities, particularly where cultural differences may be present. The presentation of training and assessment of individuals against ICT competencies may present considerable challenges in this regard, particularly in remote communities. The following ideas should be considered when selecting or developing resources:

- selection of appropriate trainers and assessors
- availability, accessibility and appropriateness of written, audio-visual, photographic, electronic or other resource materials such as necessary equipment
- development or adaptation of appropriate resource materials
- availability of electricity or availability at required times in remote training and assessment locations
- availability of internet access for online research, training and assessment, where appropriate.

The actual materials, exemplars and activities utilised in ICT VET training and assessment should be carefully reviewed with the following issues taken into consideration:

- Do existing training resources meet the needs of Aboriginal or Torres Strait Islander candidates or is there a need for additional material?
- Are learners going to meet visitors from outside local cultural groupings?
- Can activities be developed that bridge traditional cultural needs and obligations and those of varied outside visitors who also have great cultural diversity?
- Are activities contained completely within a limited cultural world sufficient to achieve the outcomes required by the standards?
- Do set activities enable learners to demonstrate their competence and satisfy the requirements of the competency standard/qualification level? The challenge is in balancing local situations and needs with national competency standards and qualifications. Qualifications are national and therefore ‘portable’ and these aspects must be considered
- Are existing activities within resources relevant, able to be adapted according to local needs or do they need replacing with your own or others?

Clearly, each case or set of circumstances will be different and will need to be discussed with the learner(s). In some case expert help may be needed, at least in the initial stages. There are sources of help to assist in training and assessment of Aboriginal or Torres Strait Islander candidates, some are listed [in the *Information Technology Resource List*].

#### **4.2.4.4 Language, literacy and numeracy**

In everyday workplace tasks it is common for a person to use and respond to spoken and written language and use numeracy skills at the same time. These skills are applied within a cultural context that needs to be interpreted and responded to appropriately.

When designing workplace learning and assessment tasks, the trainer and assessor should be aware of this interlinking of language, literacy and numeracy. However there will also be situations in which only one of these skills is the focus of the training, for example calculation skills for analysing the characteristics of website traffic.

Although you will find the terms ‘language, literacy and numeracy’ generally used together they are not interchangeable or always linked. The terms are defined below.

### **Language**

In its broadest sense, language involves the words, verbal structures and gestures we use to convey meaning. In using language we generally use a combination of communication forms such as speaking, listening, reading, writing and visual communication. Visual communication skills underpin the agreed language of the Australian deaf community, Australian Sign Language (AUSLAN).

Language can also refer to individual languages such as English, Mandarin, Warlpiri. Our workplaces often involve a mix of language groups and sometimes workers can hold technical competency without English language competency.

Language changes over time and context. Industries have their own vocabulary, including jargon, technical terms and acronyms that workers must understand. This can be very challenging for some people, particularly those for whom English is not their first language. Take the word ‘cookie’ for example. A baker may bake it, a photographer may attach it to a light stand and an ICT specialist may stop it being transmitted over the internet.

Effective cross-cultural communication requires a range of skills including the ability to appreciate that there may be variations in the value placed on the communication forms of language. For example, while written language is highly regarded in the English language, Indigenous languages place higher value on verbal and visual communication forms.

### **Literacy**

Literacy is the ability to read and use written information as well as to write appropriately, in a range of contexts. Literacy involves the integration of speaking, listening, and critical thinking with reading and writing. Literacy skills enable us to interact with one another to achieve particular purposes: to explain, debate, retrieve and provide information, explore issues, entertain and create.

Literacy is about our social application of language, for example in our homes, communities, schools and workplaces. Like language, literacy practices change over time and context. We have seen this over the last decade with emerging multimedia and information technologies and our multi cultural society.

The literacy demands placed on individuals also change throughout their lifetimes. As we experience new situations we need to continually adapt and extend our literacy skills.

### **Numeracy**

Numeracy involves the practical application of mathematical skills to absorb, use and critically evaluate information in numerical or graphical form.

Depending on the context this can include basic number skills, spatial and graphical concepts, the use of measurement and problem solving. Numeracy may also involve literacy, for example when extracting mathematical information from written text.

In the workplace the methods used to achieve certain numeracy tasks will differ according to the workplace requirements, technology and culture.

Once again it is important to reiterate several important principles:

- the learning and assessment environment should not disadvantage the candidate

- practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English and where appropriate and possible communication in languages other than English needs to be allowed for
- language and literacy demands of the assessment task should not be higher than those of the work role
- the demands of assessment and the methods used need to take into account the key competencies performance level of the unit in question
- adjustments to assessment practices are considered ‘reasonable’ if they do not impose an unjustifiable hardship on a training provider or employer and do not change the competency outcomes.

### **LLN in ICA05**

Individual units within the ICA05 Training Package have considered the issue of language, literacy and numeracy skills in the context within which the competencies are expected to apply in the workplace. Where these aspects are central to the competency, appropriate text has been provided in Elements, Performance Criteria, Knowledge and Skills and Key Competencies.

As a rule, the LLN skills listed are more broad than definitive statements and rely on the trainer and assessor to use the content and context of the whole unit as a guide. Aspects such as the level of the unit, its context within a qualification, whether there are prerequisite units that apply, other knowledge and skills listed and the level of the respective key competency are all relevant in this regard.

This package does however, contain a significant proportion of content of a highly technical nature, a characteristic most evident in qualifications from Certificate IV upwards. In view of this, the package now specifically includes a number of lower level ‘prerequisite’ type units in the application of mathematical techniques, for example *ICAB4225A Automate processes* and *ICAB4224A Apply mathematical techniques for software development*. The incorporation of these new units clearly underpins streams of higher order units that require underpinning arithmetic and related skills. Care should be taken in the learning and assessment processes for such units to ensure that methods are used which do not disadvantage particular equity groups while still maintaining the rigour and robustness of the competency.

#### **4.2.4.5 Schools and institutional contexts**

A number of issues facing learning and competency assessment organisations that operate predominantly within an institutional environment are discussed here.

Following are some practical suggestions around ICT work placements and the use of simulated environments for learning and assessment.

#### **ICA05 in a School Environment**

Schools in particular face challenges around ICT competency based learning and assessment processes.

Vocational education and training ‘(VET) in schools’ is nationally recognised training made available to senior students as part of their normal school curriculum. Students can select options and programs that range from a couple of hours a week to part-time school-based apprenticeships, where students actually become trainees and employees. They have the opportunity to complete their secondary education with all of these:

- a senior secondary certificate qualification,
- university entrance score or equivalent, and
- practical work skills and a VET qualification.

Within school sectors nationally, many ICA05 units are taught and assessed either separately or in conjunction with senior secondary school curriculum. A number of these ICT units are only offered individually and may result in Statements of Attainment. However, there are a significant and growing number of complete qualifications being issued, particularly at the lower package levels of Certificates I and II.

The issuing of full qualifications at Certificates I and II is consistent with the prevailing national VET in Schools policy and generally supports state/territory government initiatives in ICT literacy, fluency, connectivity and 'job readiness' agendas.

Furthermore, skills at these levels are generally well accepted in the workplace either as basic ICT 'user' skills or as the foundation for more advanced ICT user or the more junior technical specialist tasks. In fact the ICT Training Package has specified the 8 core units from *ICA20105 Certificate II in Information Technology* as containing the essential underpinning knowledge and skills for all Certificate III and above qualifications in the package.

A number of excellent operational resources are available from those agencies that support VET in Schools programs at State and Territory level. It is recommended that these be accessed and utilised in support of ICA05 delivery in schools.

While much of the following discussion specifically addresses and references VET in Schools and the school as a particular type of 'institutional' delivery, the broad guidance offered apply equally to other delivery sectors most notably vocational education and training (both public and private providers) as well as the adult and community education sector (ACE). In these contexts the same or similar issues are present where there is an institutional delivery model operating within a 'workplace competency' philosophy.

### **4.3 List of Assessment Resources**

A list of resources and organisations is provided in the *Information Technology Resource List* ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au)) to assist assessors in planning, designing, conducting and reviewing assessments against the Information and Communications Technology Training Package.

### **4.4 Programming Assessment**

An integrated approach to assessment, in which a number of elements or units of competency are assessed together, should be adopted. This accords with the idea that competence involves the integration of a wide range of skills, knowledge and attitudes.

This approach also reduces the danger of over-assessment, which can easily occur if units and elements of competency are assessed individually.

In addition, it is preferable that assessment be integrated with training delivery.

Some forms of assessment will be ongoing. Evidence of competence gathered through the observation of student performance in the classroom, in the workplace or in a simulated work environment will provide one means of ongoing assessment. Questioning of students in the course of teaching and learning activities, self-assessment and peer assessment and reports from workplace supervisors will also allow evidence of competence to be gathered on an ongoing basis.

Other evidence may be collected through specific assessment tasks and events such as projects and assignments, portfolios, written and practical tests and presentations, role-plays and simulations.

It is advisable for teachers and assessors to decide in advance on the forms of assessment and evidence-gathering methods to be used for various units or groups of units and devise a planned program of assessment.

Where specific assessment events are to be used these should be scheduled well in advance, keeping in mind the assessment demands placed on students in their other HSC subjects. As with other HSC courses, students should be informed in writing of school (or other RTO) requirements for assessment in each course.

#### **4.5 Recording Assessment**

It is advisable that a competency record be maintained containing information about units and elements of competency. The *Information Technology Competency Record* developed by the Board of Studies as part of the syllabus documentation may be used for this purpose. Alternatively, Registered Training Organisations (RTOs) may use records designed by themselves or by industry bodies. Schools and other RTOs will be required to report to the Office of the Board of Studies on units of competency for which students have been assessed as competent.

A sample record sheet for an individual unit of competency from the Board of Studies competency record is shown below.

The competency record also contains the following proformas:

- forms for recording student, school, RTO and work placement host employer details
- a summary list of units of competency for each available (or partly available) AQF VET qualification
- a verification statement.

**4.5.1 Competency Record – sample unit of competency record sheet**

ICAU1128A Operate a personal computer

Element of Competency	Competent (Assessor Signature)
1 Start the computer	
2 Access basic system information	
3 Navigate and manipulate desktop environment	
4 Organise basic directory/folder structure and files	
5 Organise files for user and/or organisation requirements	
6 Print information	
7 Shut down computer	

**VERIFICATION OF ACHIEVEMENT OF UNIT OF COMPETENCY**

I, \_\_\_\_\_, of \_\_\_\_\_  
 (name of assessor) (Registered Training Organisation)

certify that

\_\_\_\_\_  
 (name of student)

has demonstrated competence in the unit of competency

***ICAU1128A Operate a personal computer***

Signature \_\_\_\_\_ Date \_\_\_\_\_

## 4.6 Sample Assessment Items

It is preferable that assessment be integrated with training delivery. The programs provided in Section 3 of this document provide samples of integrated approaches to programming and assessment.

Each of the sample programs in Section 3 of this document include sample assessment tasks.

It should be noted that this is **NOT** the only way to organise assessment for the Information Technology Curriculum Framework; rather, it is *one possibility*. The performance criteria to be assessed by the sample tasks will *depend on the teacher's interpretation, development and delivery* of each task.

Some additional sample assessment items include the following:

### Task 1 Industry file

Throughout the course, students collect newspaper and other articles that refer to careers and current issues in the IT industry, and emerging technologies. Students annotate their articles, categorise them and keep them in a file.

### Task 2 Asset management

Students investigate policies and procedures for IT asset management within the school and do the following:

- build an assets register database to store data on hardware and software in the school
- design an audit data collection form
- conduct a hardware and software audit of the school
- update the database.

### Task 3 Industry specialisation presentation

Students prepare a written report and verbal presentation for the class. Each student is allocated a different specialisation area as the focus of their discussion. Students will address the career and work aspects of the specialisation in their presentation.

### Task 4 Workstation configuration

Students configure a workstation to meet the specific needs of an identified client:

- identify requirements with the client
- format and install the operating system
- install applications to meet the client's requirements
- configure the desktop to the client's requirements
- apply security settings
- follow up with the client.

### Task 5 Workstation design

Students design a workstation to meet the special needs and OHS standards for a person with limited mobility.

### **Task 6 OHS induction**

Develop an OHS induction package for a new employee.

### **Task 7 Maintenance manual**

Design a maintenance manual for a specified piece of hardware outlining an appropriate maintenance schedule, tasks to be undertaken and instructions on how to maintain the hardware.

### **Task 8 Workplace documentation**

Use an appropriate application to design a set of workplace document templates following agreed principles of document design. Documents to be developed are to include a memo, report, letterhead and fax cover sheet.

### **Task 9 Mail merge**

Create a client contact list using appropriate software and using appropriate field characteristics. Design a form letter and mail-merge the list with the form letter.

The following tasks might also be used for assessment:

- Year 11 half-yearly examination
- Year 11 yearly examination
- Year 12 half-yearly examination
- Year 12 trial examination.

## **4.7 The HSC Examination**

The HSC examination:

- is independent of the competency-based assessment requirements for AQF VET qualifications
- is optional for students of Information Technology (240 indicative hours) and is intended for Universities Admission Index (UAI) purposes only
- is a two-hour written paper.

### **4.7.1 Internal examinations**

Teachers and trainers need to be aware that students enrolled in Information Technology (240 indicative hours) may elect to undertake the optional written HSC examination. These students should have the opportunity to practise appropriate written tasks under examination conditions. As far as possible internal examinations set for this purpose should reflect the specifications and conditions of the HSC examination.

For this reason, it is highly recommended that students undertake at least a trial HSC examination.

Schools must provide an estimated examination mark for all students entered for the optional HSC examination. This mark will be an estimate of likely performance in the Higher School Certificate examination and will be used only in the case of a successful illness/misadventure appeal.

Note that a trial HSC or other written internal examination may also be used as a source of evidence of competency in some units and elements of competency and may therefore contribute to the competency-based assessment program.

## 5 Work Placement

The Board of Studies has formally endorsed the following principles for HSC VET courses.

### 5.1 Principles Underpinning Work Placement in the Higher School Certificate

#### Preamble

Industry curriculum frameworks have been developed to provide students with the opportunity to gain credit towards the NSW Higher School Certificate and credit towards national vocational qualifications under the Australian Qualifications Framework.

Industry curriculum frameworks are derived from national Training Packages. Courses within the frameworks specify the range of industry-developed units of competency from the relevant Training Packages that have been identified as suitable for the purposes of the Higher School Certificate. VET courses in industry curriculum frameworks are aligned to national vocational qualifications.

**Although not all Training Packages mandate work placement it is a mandatory HSC requirement of each course within the frameworks. Indicative hours have been assigned to the work placement requirement for each course.**

Learning in the workplace will enable students to:

- progress towards the achievement of industry competencies
- develop appropriate attitudes towards work
- learn a range of behaviours appropriate to the industry
- practise skills acquired in the classroom or workshop
- develop additional skills and knowledge, including the key competencies.

Under some circumstances, students' part-time work in an appropriate workplace may be used to fulfil work placement requirements. For further details, teachers and principals should consult the *Assessment, Certification and Examination (ACE) Manual* or relevant Board of Studies Official Notices.

The following principles should be read in conjunction with any system's documentation relating to work placement, for example the Industry Curriculum Frameworks Information Package (ICFIP).

#### Principle 1

**Work placement must have a clearly articulated and documented purpose. The structure of the work-based learning experience needs to be planned and developmental.**

A range of purposes are possible including, for example:

- learning about a particular industry, workplace culture and career opportunities
- practising skills learnt off the job
- developing new skills
- improving work-related skills
- developing skills including key competencies such as teamwork, using technology, problem-solving

- achieving entry-level competencies
- achieving workplace performance of particular competency standards
- assessing in a realistic environment or allowing for holistic assessment
- providing opportunities to build skills in a developmental manner from the simple to the complex
- providing opportunities for the learner to reflect on the workplace learning experience in the context of individual current knowledge and understanding
- encouraging students to undertake further education and training.

## **Principle 2**

**The scheduling of the work placement should reflect student readiness and should complement off-the-job learning programs.**

The scheduling of the work placement should take account of:

- whether or not students are workplace-ready in terms of the competencies they will need to develop and demonstrate in the workplace
- how the timing of the work placement links to overall course planning
- the degree of flexibility available at both the workplace and the school
- how the alignment of both on-the-job and off-the-job competencies can be best achieved.

An individual work placement program focusing on a developmental approach should be negotiated with the workplace supervisor/employer. This approach should focus on students moving from simple to more complex tasks. Dependence on supervision should reduce over time as students move towards greater independence in the workplace. The ultimate goal of a work placement should be competence and autonomy in the range of tasks required for the job being undertaken.

## **Principle 3**

**Work placement should be relevant to the VET courses being undertaken.**

The ‘real’ tasks being undertaken in the workplace should complement the tasks and learning being undertaken by the students in their VET courses at school. Work placement may also provide students with the opportunity of having learning outcomes/units of competency assessed in the workplace by accredited trainers and assessors.

## **Principle 4**

**Work placement can provide opportunities for work-based assessment.**

Not all industry curriculum frameworks specify that it is mandatory for competencies to be assessed in the workplace. Assessment events should relate to overall course planning and the purpose of the work placement. In a competency-based course, assessment of competencies is criterion-referenced. This means that a participant’s performance is judged against a prescribed standard – not against the performance of other participants.

The purpose of assessment is to judge competence on the basis of performance against the performance criteria set out under each element of competency. A participant is judged either **competent** or **not yet competent**.

Competency-based assessment is based on the requirements of the workplace. Competence incorporates all aspects of work performance, including problem-solving and the capacity to apply skills and knowledge in both familiar and new situations. Assessment of competence involves the assessment of skills and knowledge combined.

Assessors should adopt an **integrated** or **holistic** approach to assessment. This means that a number of elements of competency or even several units of competency are assessed together. This method of assessment is encouraged in line with the concept of competence as the integration of a wide range of skills, knowledge and attitudes.

## 5.2 Work Placement for Information Technology Courses

HSC courses in Information Technology are designed to provide participants with the skills, knowledge and work-related attitudes required to perform the role of an entry-level employee in a range of information and communication technology enterprises.

Teachers should use their professional judgement in the selection of relevant work placements in related industry areas and the mix of information technology-specific and more general workplace experience undertaken by each student.

The scheduling of work placement should reflect student readiness and complement off-the-job learning programs. It is recommended that the learning experiences for the HSC in the following units of competency be addressed before students undertake work placement:

BSBCMN106A	Follow workplace safety procedures
ICAU30004A	Apply occupational health and safety procedures
ICAU1128A	Operate a personal computer.

### 5.2.1 Models of work placement for Information Technology courses

The following information (pp 159–166) is reproduced from the *Assessment Guidelines* of the *Information and Communications Technology Training Package (ICA05)*<sup>1</sup>.

Work placements provide a valid means of both learning and demonstrating competence (subject to ‘quality aspects’) and are actively encouraged<sup>2</sup> by this Training Package as part of any institutional model of training delivery. Appropriately structured simulated environments may also provide a valid means of learning and assessment where a ‘real’ workplace environment is not available<sup>3</sup>.

#### Work Placements

One means of overcoming some of the competency assessment difficulties inherent in institutional training delivery and assessment models is through appropriately structured work placement programs. Some of the following information has been extracted from the project *ICT Work Placement Models and Tools for VET in Schools*. While this project particularly focused on *VET in Schools*, the general principles have much wider applicability and could be employed in any competency-based institutional delivery and assessment model.

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<sup>1</sup> DEST, 2005, *Information and Communications Technology Training Package (ICA05)* Volume 1 Section 1.5, pp 1-158 – 1-171.

<sup>2</sup> Work placement is a **mandatory** HSC requirement within the Information Technology Curriculum Framework. Refer to Sections 8 and 10 in Part A of the Syllabus ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au))

<sup>3</sup> It is permissible for up to 50% of the mandatory HSC work placement requirement to be undertaken in a simulated work placement. Refer to Section 10 in Part A of the Syllabus ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au))

The significance of this information is in the range and variety of work placement options which may be useful in introducing 'live' workplace activities into what might otherwise be a relatively static learning and assessment environment.

### **Introduction**

Structured work placements, in the senior secondary school context require students to spend time in a workplace setting in a manner that is recognised and accredited as a part of their formal studies. Work placement usually involves students spending an extended period of time in a workplace, gaining experience, skills and undergoing an assessment process related to the attainment of a qualification in a specific occupational field. Workplace learning is different to classroom learning in a number of fundamental respects in that the former is usually focused on behaviour and the latter is usually focused on cognitive processes.

An Australian study by Smith (2000) identified the following major ways students learnt in the workplace:

- being trained in formal situations;
- asking questions;
- having a go – not being 'pushed aside';
- learning from mistakes;
- being shown how to do tasks while an explanation was given;
- carrying out simple tasks;
- watching and copying other workers, and
- copying a role model.

An essential feature of school–industry programs is that they involve students spending some time learning in a workplace.

### **VET in Schools**

It is important to distinguish between structured workplace learning, contracted training and work experience. In a structured work placement, the time and activities spent in the workplace have been structured, through consultation between teachers, students and the host employer, to enable the student to develop and demonstrate some of the competencies that make up the training program otherwise being delivered off the job. Assessment of these competencies can be recorded to count towards completion of a qualification.

### **Issues in ICT Work Placements**

During the development of the IT&T/ICT Work Placement project a number of practical issues were raised by work placement coordinators and teachers, these are outlined below and should be considered and resolved in any work placement program.

#### *Privacy issues surround student access to employer client records*

Privacy is a serious legal issue for all organisations. Students can be asked to sign a privacy statement, which requires them to maintain the privacy of a company and the integrity of data. If privacy is still an issue for a business then the student could work on a computer that is not part of a network and does not contain the relevant records.

#### *Many firms use custom built software that is not suitable for students*

Most customised software shares similarities with off the shelf applications. Students should be familiar with a range of software applications, as this will help them to readily transfer their skills to new products. Students should request an induction on customised applications. Identifying differences between applications will enhance their understanding of software applications generally.

*Many enterprises, particularly small businesses often do not have spare computer resources to allocate to students*

The student may have access to a laptop or the model of work placement may be changed to a model where the student can work off site.

*Students that express a preference for networking and software applications are the most difficult to place*

Many employers are nervous about letting students near their networks, as a crashed network can cost businesses a lot of time and money. It is important to work with the employer to identify what they will let the student do. The employer must have final say on what the student will be expected to do.

*The skill level represented by the Certificate II is too low to attract employers to participate in a work placement program*

ICT companies will find the Certificate II in Information Technology not relevant to their workplace but businesses that work in other industry sectors will find the skills gained through the Certificate II in Information Technology useful.

*ICT employers identify systems security as an impediment to work placement*

Security, like privacy, is a major concern for most businesses. Students should be made aware of the serious legal issues surrounding privacy and security before they commence any work placement. It is important to work with the employer to identify what they will let the student do. The employer must have final say on what the student will be expected to do.

*Fluctuations in the fortunes of the ICT industry affect employer willingness to participate in work placement programs*

Many industry sectors use ICT to do their work. Fluctuations in the 'specialist' ICT industry will not necessarily affect other industry sectors.

### **ICA05 position**

The ICT Training Package strongly recommends that all students undertaking learning against an ICA05 qualification in an institutionalised setting, particularly schools, be provided with the opportunity to participate in work placement<sup>4</sup> which is characterised by:

- clearly articulated and documented purpose
- relevance to the VET qualification being undertaken
- development of competence in designated industry skills
- regular and frequent use of ICT hardware and software
- development of appropriate attitudes towards work
- learning in a range of behaviours appropriate to the ICT industry
- facility for on-the-job practice of skills acquired in a classroom
- development of additional skills and knowledge including the key competencies
- recognition of student readiness
- activities that complement off-the-job learning programs
- opportunities for work-based assessment
- flexibility
- has the support of industry partners.

Beyond the above, a number of other provisions are necessary for a successful workplace program involving ICT competencies. The credibility of work placements and any resultant recognition of competency requires a degree of 'seriousness' if the outcomes are to be valued by individuals and industry clients of the VET system.

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<sup>4</sup> Work placement is a **mandatory** HSC requirement within the Information Technology Curriculum Framework. Refer to Sections 8 and 10 in Part A of the Syllabus ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au))

It is suggested that stakeholders involved in the planning and management of work placements involving ICA05 qualifications or units carefully consider and implement the following general principles:

1. That the RTO<sup>5</sup> assume responsibility for finding placements and validating the arrangements.
2. That the work place has the appropriate resources, tools and staff to conduct the placement with compliance to any legislative requirements.
3. That there be regular validation by the RTO that the student and assessor, where relevant, are operating according to RTO AQTF standards.
4. That a student on work placement must be covered by injury insurance.
5. That there is a formal contract setting out each party's responsibilities and obligations.
6. That the work place must have on site a qualified workplace trainer and assessor in 'direct line' control of the student (to avoid training and assessment by 'proxy').
7. That if the placement is for assessment only then there must be clearly documented assessment tasks specifically related to the performance criteria being assessed and evidence retained to support achievement of competence (for both best practice recording purposes and audit/appeal).
8. That if the placement also includes training then any 'academic pass' cannot be bestowed prior to the placement as clearly all of the learning components have not been undertaken nor can they be assessed in advance if they have not been learned.
9. That the training be directly related to achievement of ICT competence while recognising the likely acquisition of other skills and knowledge.
10. That where assessment occurs it be clearly related to a unit of competency (or possibly single performance criteria [PC]) relevant to the work placement.
11. That where more than one performance criteria (possibly over more than one unit) is being assessed there must be a clearly linked and documented relationship between the assessment and the PC.
12. That the qualifications level be appropriate in context i.e. if it is advanced programming OO there must be an advanced OO programming task observed and assessed.
13. That the actual variables of the PC be documented for audit purposes and for verification of appropriateness of the range in the work placement.

It is noted that in some state/territory school systems, students' part-time work in an appropriate workplace may be used to fulfill work placement requirements, while virtual/simulated ICT work placements are also seen as a legitimate source of work placement in some instances<sup>6</sup>.

### **Twelve Models of ICT Work Placement for VET in Schools**

In the course of completing the project *ICT Work Placement Models and Tools for VET in Schools*, the IT&Titab developed a suite of 12 models of ICT work placement. Some of these models correspond to traditional notions of work placement, while others do not. However, each model is a worthwhile and meaningful solution to the current challenge of work placement in the Australian ICT industry. Additionally, they potentially have value and application beyond their initial target audience of VET in School students.

The models vary from structured work placements to school based simulation and have been grouped into three 'clusters' based on several differentiating characteristics. These include:

- location of the work placement experience (i.e. in an employer's premises or elsewhere)
- degree to which project work forms an integral part of the placement
- whether placement tasks involve businesses/individuals as direct clients in a limited way.

The 12 models have been grouped into the following clusters:

1. Direct Placement
2. Non-Direct Placement (Project based)

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<sup>5</sup> Local Community Partnerships (LCPs) organise structured workplace learning for school students in NSW. Further information about LCPs can be found at the Australian Government Department of Education, Science and Training website ([www.dest.gov.au/sectors](http://www.dest.gov.au/sectors)).

<sup>6</sup> In some circumstances students' part-time work may be used to fulfil work placement requirements. Refer to the Board of Studies' *Assessment, Certification and Examination Manual* and Section 10 in Part A of the Syllabus ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au))

### 3. Non-Direct Placement (Special)

Outlined below is a description of the clusters and the models that fall within each:

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#### **CLUSTER 1: DIRECT PLACEMENT**

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The Direct Placement cluster is characterised by work placement arrangements which require students to undertake their placements in employer premises alongside the existing workforce. The following models have been grouped into this cluster:

- Regional Coordination
  - Industry Coordination
  - Community Development
  - Business Incubator
- 

##### *Regional Coordination Model*

This model involves work placements for a number of schools being coordinated across a region by a broker/coordinator using case loaders to manage placements by industry sector.

This model usually involves the case loader working with businesses within a defined region to secure placements. The coordinator acts as a single point of contact for schools and employers, and liaising with employers, schools and students to administer the placement. The employer supervises the direct placement of the student. Students attend direct work placement during business hours and dress in business attire as required.

##### *Industry Coordination Model*

This model involves work placements for a number of schools being coordinated across a region by a broker/coordinator who is located with industry and focused solely on managing placements in that industry.

This model usually involves the case loader working with businesses within a defined region to secure placements. The coordinator works from a supporting business, and is seen to be part of industry. They report to an industry based management committee and act as a single point of contact for schools and employers. The coordinator specialises on one sector and is able to more effectively manage networks and relationships within that industry. The employer supervises the direct placement of the student. Students attend direct work placement during business hours and dress in business attire as required.

##### *Community Development Model*

The community development model sees education, public sector and business partners give priority to work placement as part of a broader regional development strategy involving technology based initiatives.

The community development model involves students working on real tasks as junior consultants with partner businesses. Schools work through a cluster or program coordinator to place students with businesses who are partners in a local ICT centre/regional technology hub. The employer acts as partner business with the local ICT centre/regional technology hub and integrates students with consultant teams undertaking work in the community. Students attend jobs during business hours and dress in business attire as required.

##### *Business Incubator Model*

This model involves work placements for a number of schools being coordinated in conjunction with a business incubator/R&D precinct and their client networks.

This model usually involves the cluster coordinator working with businesses in a specified precinct to facilitate project based placements. The students work in teams at the business incubator/R&D precinct and complete specific tasks and projects for the participating businesses. The employer briefs students on project details, accepts presentation of finished project and provides feedback to

students. Students attend work placement during business hours and dress in business attire as required.

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## **CLUSTER 2: NON-DIRECT PLACEMENT (PROJECT BASED)**

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This Non-Direct Placement cluster (Project Based) is characterised by students undertaking work placement tasks which have a relatively defined project base and which are generally undertaken in locations other than an employer's premises. The following models have been grouped into this cluster:

- Community Enterprise
  - Regional RTO Partnership
  - Commercial Provider partnership
  - Virtual Work Placement
- 

### *Community Enterprise Model*

The community enterprise model involves schools working with a local community organisation and its networks to run an enterprise as means of providing a realistic work placement experience for IT students.

This work placement model involves students working on real world tasks for a range of organisations under supervision within a community organisation that operates as a workplace. Students work in teams to deliver project outcomes.

The community organisation liaises with networks to identify relevant events, projects and tasks and then creates the workplace environment. The employer briefs students on project details, accepts presentation of finished project and provides feedback to students. Students attend work placement during business hours, dress in business attire as required and manage project work in teams.

### *Regional RTO Partnership Model*

The model involves schools across a region working through their cluster/broker to collectively provide work placement experiences for IT students at TAFE campuses by doing project work relevant to a wide range of community organisations.

This work placement model involves students working on real world tasks for a range of community organisations. Students are placed in teams at a number of different TAFE campuses under supervision from TAFE staff. Community representatives act as employers and provide project briefs, contact and feedback to students during the placement. Students attend work placement during business hours, dress in business attire as required and manage project work in teams.

### *Commercial Provider Partnership Model*

The commercial provider partnership model involves schools working with a commercial training or recruitment provider and its business partners to provide a realistic work placement experience for IT students.

This work placement model involves students working on real or simulated tasks under supervision in a commercial environment. Students work with provider staff to deliver task outcomes during the placement period. Supervisors from outside the school are ideally involved so that students undertake the work in an environment that functions as closely as possible to a real workplace.

### *Virtual Work Placement Model*

The virtual work placement model involves students and employers interacting through a web portal to provide a realistic work placement experience for IT students.

This work placement model involves students working on real world tasks for a range of organisations. Students identify project tasks from the website and make contact with employers via email, bulletin boards, chat rooms and file sharing etc. Students work in teams to deliver project outcomes, and present their outcomes to employers where feasible.

A program manager/supervisor has key roles including promoting and marketing to involve business, facilitating the posting of tasks and projects and supervising students as required. Employers provide project briefs, feedback on work in progress and accept presentation of finished project. Students analyse the projects, scope out a proposal to solve the problem and manage project work in teams.

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### **CLUSTER 3: NON-DIRECT PLACEMENT – SPECIAL**

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This Non-Direct Placement cluster (Special) covers models which are not generally project based or located in an employer's premises. A number of these models have a 'client' and advisory/service orientation to the placement activities. The following models have been grouped into this cluster:

- Computer Reuse
  - State Coordination
  - Practice Firm
  - Help Desk
- 

#### *Computer Reuse Model*

The model involves schools working with an organisation or program to provide a work placement program based on supporting the redeployment of redundant computer hardware.

This model of work placement involves students rebuilding computer hardware and reformatting them with software relevant to the needs of a third party. Students work in teams to task criteria supplied by third-party clients. They scope hardware requirements, research relevant software and present their recommendations to the client. If their proposal is accepted, the students prepare and install the PCs and provide basic instruction on computer use.

#### *State Coordination Model*

This model involves placements, simulations and other related initiatives being coordinated across a region by a government agency that manages activity for a specific industry sector(s).

This model involves agency staff working with businesses and other stakeholders to satisfy work placement demand for a specific industry sector(s). The agency acts as a catalyst, brokering and driving initiatives involving schools and other community stakeholders including other government agencies and industry. The agency role includes working with stakeholders to identify placements and develop placement activities, developing program guidelines and managing the submission process to allocate resources and providing administrative support. Employers supervise students/activities and provide feedback to students on work in progress as required. Students attend work placement or participate in activities to suit the placement.

#### *Practice Firms Model*

The Australian Network of Practice Firms (ANPF) is a network of training businesses that provide for students to manage and operate simulated businesses as part of their learning programs. Each of these simulated businesses (or 'practice firms' or 'training companies') follows real-world business practices and trades within a virtual economy.

Practice firms are formed from a partnership between a school, a real business that agrees to mentor the students, and the ANPF Central Office. Students work as business people, operating their own business and making decisions that lead the business into profitable (or not-so-profitable) outcomes. ANPF provides a safe and secure learning environment for students to work on a national basis with the 150 Australian firms and the 4,000 or more international firms.

#### *Help desk model*

This model provides a realistic work placement experience by using students to provide technical support to schools and other community organisations by running a help desk in a manner consistent with commercial practice.

Students use commercial help desk software to track jobs and provide support to callers as required. While a program coordinator provides technical assistance as required and is in contact with students on a daily basis, students deal with real clients and manage their own work and that of the team. The software used also enables the program coordinator to supervise the progress of jobs remotely. Students attend the help desk as required by work schedule and manage tasks and work in teams.

### 5.2.2 Work placement in a simulated information technology environment

Work placement is a mandatory HSC requirement for the Information Technology Industry Curriculum Framework and appropriate hours have been assigned to each course. Work placement is to be undertaken in an information and communications technology environment. It is permissible for up to 50% to be undertaken in a simulated work placement.<sup>7</sup>

Course	Minimum work placement requirements	Maximum amount that may be undertaken in a simulated environment
Information Technology (120 indicative hours)	35 hours in a workplace	17 hours
Information Technology (240 indicative hours)	70 hours in a workplace	35 hours
Information Technology Specialisation Study (60 indicative hours)	14 <i>additional</i> hours in a workplace	7 hours
Information Technology Specialisation Study (120 indicative hours)	35 <i>additional</i> hours in a workplace	17 hours
Information Technology Specialisation Study (180 indicative hours)	49 <i>additional</i> hours in a workplace	24 hours
Information Technology Specialisation Study (240 indicative hours)	70 <i>additional</i> hours in a workplace	35 hours

It is preferable that students undertake work placement in a real workplace environment but if it is difficult to source and place students then work placement may be undertaken in a simulated information and communications technology environment. If teachers take this option they should consider how they will ensure the equivalent valuable industry exposure for students and how they will differentiate between this type of work placement and project-based class teaching.

A simulated information and communications technology environment should provide activities that aim to reflect the complexity of the workplace. Simulation possibilities include:

- simulation activities that provide actual products or services but do not trade
- simulated businesses, trading in a simulated environment
- model workplaces
- technology-assisted simulations.

<sup>7</sup> Refer to Sections 8 and 10 in Part A of the Syllabus ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au))

The simulated environment should include:

- the use of facilities and equipment that meet current industry standards. This would include workstations with suitable computer hardware and software (as used in the information and communications technology industry) and other resources applicable to the unit of competency chosen
- the presence of a range of diverse types of customers (this may include students from other subject areas, teaching staff at the school or students from another school or TAFE college)
- integrated approaches to work performance (including the performance of multiple tasks, prioritising competing tasks and the application of service standards and OHS requirements). Students need to be provided with multiple tasks reflecting the IT environment being simulated
- realistic allocation of time to tasks and deadlines (to enterprise and industry standards)
- consistent performance over time. Students should be assessed over time performing multiple tasks
- working with others in teams and as a team leader. Students need to demonstrate the ability to work within a team situation.

The following points may be useful in considering approaches to be taken if setting up a simulated information and communications technology work placement environment:

- students should take on a substantial role or responsibility under supervision by professional information and communications technology facilitators
- students undertaking work placement at a school or TAFE institute will still need to make arrangements for release from regular school activities and classes in order to guarantee that everyone understands that the student is on work placement and not ‘at school’
- students’ experience must reflect the discipline required in a professional information and communications technology working environment, even when the work placement is undertaken within the school. For example, students’ schedules might have start and finish times that are different from the normal school hours, students might sign in and out rather than attend roll call, dress standards will vary from school uniform and special provisions might be needed so that students can get into venues or use resources outside the usual access allowed by the school.

This following information (pp 167–170) is reproduced from the *Assessment Guidelines of the Information and Communications Technology Training Package (ICA05)*<sup>8</sup>.

#### **5.2.2.1 Learning and assessment of competencies in a simulated environment**

##### **Introduction**

The following guidance around the use of simulation is most applicable to those school or institution-based programs where there is little or no opportunity presented or taken for real workplace contact (for the purposes of assessment).

The challenge for any institutional educator within a competency based training environment is to provide a variety of opportunities for students to demonstrate competence, and to accurately measure their performance in a real-life situation.

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<sup>8</sup> DEST, 2005, *Information and Communications Technology Training Package (ICA05)* Volume 1 Section 1.5, pp 1-158 – 1-171.

The focus of this section is to define the use of workplace simulation as an assessment strategy to meet ICT Training Package requirements. Within this context, simulation refers to activities that aim to reflect the complexity of the workplace, and are used to assess performance against units of competency.

Advice to Training Package developers and these Assessment Guidelines state that workplace simulations must provide opportunities for integrated assessment of competence that includes:

- performing the task (task skills)
- managing a number of tasks (task management skills)
- dealing with workplace irregularities such as unexpected problems, breakdowns and changes in routine (contingency management skills)
- fulfilling the responsibilities and expectations of the job and workplace, including working with others (job/role environment skills)
- transferring competencies to new contexts.

In many cases however, actual workplaces may remain the most valid and cost effective option for assessing against units of competency from this Training Package. Simulation activities may be integrated into programs using a range of strategies including; identifying and clustering units of competency that are most appropriately delivered and assessed using particular workplace simulation possibilities.

Simulations may also be used in conjunction with other learning and assessment activities including work placements, employment, log books and portfolios.

The eight simulation possibilities that have been identified as being relevant to this Training Package are:

1. Actual trading businesses operated by an RTO
2. Simulation activities that provide actual products or services but do not trade
3. Simulated businesses, trading in a simulated environment
4. Model workplaces
5. Technology assisted simulations
6. Case study scenarios, problem-based learning and project work
7. Structured role play of work situations
8. Practical tasks.

As far as possible, the workplace simulation possibilities have been presented hierarchically with the first three possibly being more likely to meet the requirements of this Training Package where assessment of competence may occur in the workplace or a simulated workplace environment. Some workplace simulation activities may also combine aspects of several simulation possibilities. Further information on each simulation possibility can be found in a range of reference material.

### **Workplace Simulation Checklist**

The following items should be addressed when using workplace simulations in conjunction with the ICT Training Package.

*Ensure the proposed simulation is sufficiently complex to assess ICT competencies*

There are certain conditions that exist in the workplace which need to be present to make the workplace simulation realistic and cost effective. These conditions include requirements such as:

- the use of facilities and equipment that meet current industry standards
- the presence of customers (including difficult customers and diverse types of customers)
- integrated approaches to work performance (including the performance of multiple tasks, prioritisation of competing tasks, and the application of service standards and OH&S requirements)
- realistic allocations of time to tasks and deadlines
- consistent performance over time
- working with others in teams and as a team leader
- realistic considerations of budget constraints
- operational procedures and guidelines.

### *Amend assessment and learning documentation*

To facilitate the use of simulation as an assessment method, learning and assessment documentation should:

- reflect the intent of the ICT Training Package Assessment Guidelines and address the performance standards specified in relevant units of competency
- identify realistic workplace simulation possibilities (including the context and purpose of the simulation) for delivery, assessment, and combinations of delivery and assessment, for each module and unit of competency
- incorporate the variables specified in the range of variables from the relevant units of competency
- identify the resources required to demonstrate the competence as detailed in the Evidence Guides in the relevant units of competency
- encourage flexibility, diversity and experimentation in assessment strategies, so that creative approaches to workplace simulation can be used
- provide advice on strategies for creating realistic work environments and collecting sufficient assessment evidence
- include opportunities for candidate briefing and self-assessment prior to simulated assessment events, together with debriefing opportunities.

### *Reflect authentic work environments*

Simulated activities used to assess against industry standards must provide opportunities for integrated assessment of competence, which includes:

- performing the task (task skills)
- managing a number of tasks (task management skills)
- dealing with workplace irregularities such as unexpected problems, breakdowns and changes in routine (contingency management skills)
- fulfilling the responsibilities and expectations of the job and workplace, including working with others (job/role environment skills)
- transferring competencies to new contexts
- assessment of performance over time.

The workplace simulated environment must be as realistic and authentic as possible and reproduce workplace conditions as far as possible. A rethinking of teaching and learning processes may be necessary to replicate workplace processes and characteristics.

### *Collect sufficient assessment evidence*

Holistic assessment events should be used to integrate problem solving skills and reproduce workplace conditions as closely as possible.

- simulations need to provide a context where candidates can undertake a number of roles. They also need to provide an opportunity for assessment of performance over time and in different situations as they arise
- the use of comprehensive assessment checklists assists in identifying critical performance criteria and informing holistic judgments is necessary. Use of self assessment, peer assessment and debriefing activities also contribute to valid and reliable assessment in workplace simulated environments.

### *Work with industry and the community*

The reasons for using simulation should be discussed with local business representatives and agreement reached on the nature and scope of proposed simulations, especially where the simulation may be seen as competing unfairly with local enterprises. Ask local enterprises to sponsor practice firms or act as simulation partners. Enterprises may provide:

- a model, authentic business
- up-to-date information and authentic documentation (e.g. workplace roles, occupational health and safety regulations, salary advice, marketing information, procedural manuals, policies)
- advice or on-the-job training for RTO staff, to ensure industry currency
- feedback on the authenticity of the simulation

- work placements for students and/or a venue for workplace visits.

*Develop resources and initiatives to support the use of workplace simulation*

To support the use of valid and cost effective workplace simulation, learning and assessment resources should:

- provide information that explicitly links assessment advice and resources with the ICT Training Package requirements
- provide parameters and ideas, but also encourage flexibility and local ‘ownership’ of the assessment resources
- provide workplace templates, guidelines and policies that are available across different organisations
- provide practice firm documentation and support.

*Evaluate options and create simulated workplace environments*

Establishing simulated assessment environments will be easier where strong links exist with local industry and a tradition of industry involvement in training exists within the RTO, through work placements, practicums, field trips or other activities. In these environments, more integrated provision of on- and off-the- job training builds on existing practices.

*Address staffing issues*

Organisation, teamwork and goodwill are essential for effective simulated environments.

- It may be necessary for teachers, students and support staff to participate in the workplace simulation.
- Local enterprises to sponsor practice firms and/or act as simulation partners
- The presence of customers (including difficult customers and diverse types of customers)

*Characteristics of workplace simulations*

Consider the key success factors for an effective simulated environment. Workplace simulations generally comprise the following elements:

- complex environments
- current industry resources, customers, operational procedures, multiple task performance, prioritising of tasks, realistic timeframes and budgets, consistent performance, teamwork
- a reflection of authentic work environments
- opportunities to demonstrate task skills, task management skills and contingency management skills, fulfilling job/role expectations, transference of competency
- collection of sufficient evidence
- holistic assessment, self assessment, peer assessment
- involve industry
- business models, up-to-date information/documentation, advice on authenticity of the workplace simulation
- resources to support simulation
- local flexibility, practice firm documentation and support.
- includes additional people
- local business people, teachers, students, support staff, customers.

## **6 Other**

### **6.1 Teaching and Learning Materials**

It is the responsibility of the Registered Training Organisation (RTO) to determine the teaching and learning materials that will be used to support the delivery of Information Technology courses within the Information Technology Curriculum Framework.

Advice on curriculum materials that may be used to support the delivery of courses within the Information Technology Curriculum Framework is contained in the *Information Technology Curriculum Framework Stage 6 Resource List* ([www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au)). This information is provided as a guide to RTOs and teachers delivering HSC courses within the curriculum framework. The use of the listed training materials is not mandatory.