Information Technology
Curriculum Framework
Stage 6

Support Document

2002
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1 Information Technology Curriculum Framework

1.1 Introduction

The Information Technology Curriculum Framework has been developed to provide students with the opportunity to gain credit towards the NSW Higher School Certificate and credit towards national vocational qualifications in Information Technology under the Australian Qualifications Framework. This framework is based on the national Information Technology Training Package (ICA99, Version 3, April 2002).

This industry curriculum framework incorporates all Higher School Certificate (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 Stage 6 Support Document, contains material and advice which are 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 Information Technology Training Package that have been included in the framework. Part B must be used in the delivery of the 120, 180 and 240 indicative hour HSC courses in Information Technology.

The framework documentation for the Information Technology Curriculum Framework also includes a Information Technology Competency Record for recording assessment activities and student achievement of competency. The use of the Competency Record is recommended but 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

- Syllabus Part A Course Structures and Requirements
- Syllabus Part B Units of Competency and HSC Requirements
- Competency Record Book
- Support Document
- Specimen HSC Examination Paper
- Sample Marking Guidelines
- Draft Performance Bands
Support materials for this curriculum framework include this support document and a resource list. The Board has also developed the *Stage 6 Industry Curriculum Framework Support Document for Students with Special Education Needs.*

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 (http://www.boardofstudies.nsw.edu.au). The competency record, the support documents and the resource list may be accessed through the website.

**Please note:**

The support document for Stage 6 Information Technology Curriculum Framework Approved June 1999 contains information which may be of use in supporting teachers with the initial implementation of the updated Information Technology Framework. This document is available on the Board’s website (http://www.boardofstudies.nsw.edu.au).
2 Teaching Programs

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 which is common to several units of competency and programming teaching and learning activities which address this theme
- devising a project, experience or event which 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 work places, 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 workplace setting.
- Assessment of competence involves the assessment of skills and knowledge combined. An integrated or holistic approach to assessment is encouraged 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, it is recommended that teachers and trainers 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 hospitality industry knowledge and to consolidate skills and knowledge with respect to safety, hygiene 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 Information Technology Training Package prescribes a particular delivery sequence 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, student interest, 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.

Relevant linkages are highlighted in Part B of the syllabus for each unit under the heading Related Competency Standards. This provides guidance for trainers and assessors but is not prescriptive or exhaustive.

While holistic assessment is recommended, most units of competency in the training package can be assessed independently. There are no units that must be assessed with or after other units (pre-requisites/co-requisites).

2.2.2 Selecting elective units of competency for qualifications

Certificate II in Information Technology

To be eligible for Certificate II in Information Technology ICA20199 the Training Package requires the achievement of eleven core units of competency plus any four elective units of competency, two of which can be drawn from any other nationally endorsed Training Package.

Students studying the Information Technology 120-hour course OR 180-hour course who achieve at least one or more units of competency will be eligible for a Statement of Attainment towards Certificate II in Information Technology.

Students studying the Information Technology 240-hour course who satisfy the course requirements – achieve the eleven core units of competency and a minimum of any four of the elective units of competency – meet the requirements for this qualification.

Students who do not meet these requirements but achieve at least one unit of competency will be eligible for a Statement of Attainment towards Certificate II in Information Technology.

Certificate II in Information Technology (Software Applications)

To be eligible for Certificate III in Information Technology (Software Applications) ICA30199 the Training Package requires the achievement of eight core units of competency plus any four elective units of competency, two of which can be drawn from any other nationally endorsed Training Package including competencies from equivalent qualification levels within the Training Package.
Students studying the **Information Technology Specialisation Studies (60 or 120 indicative hours)** who achieve at least one or more units of competency will be eligible for a Statement of Attainment towards Certificate III in Information Technology (Software Applications).

**Certificate III in Information Technology (General)**

To be eligible for Certificate III in Information Technology (General) ICA30299 the Training Package requires the achievement of eleven core units of competency plus any four elective units of competency, two of which can be drawn from any other nationally endorsed Training Package including competencies from equivalent qualification levels within the Training Package.

Students studying the **Information Technology Specialisation Studies (60 or 120 indicative hours)** who achieve at least one or more units of competency will be eligible for a Statement of Attainment towards Certificate III in Information Technology (General).

**Certificate III in Information Technology (Network Administration)**

To be eligible for Certificate III in Information Technology (Network Administration) ICA30399 the Training Package requires the achievement of eight core units of competency plus any four elective units of competency, two of which can be drawn from any other nationally endorsed Training Package including competencies from equivalent qualification levels within the Training Package.

Students studying the **Information Technology Specialisation Studies (60 or 120 indicative hours)** who achieve at least one or more units of competency will be eligible for a Statement of Attainment towards Certificate III in Information Technology (Network Administration).

### 2.2.3 Selecting elective units of competency for job outcomes

The selection of elective units from Information Technology course can be developed in the context of an occupational focus.

Examples of elective units available in the Information Technology (240-hour course)* relevant to specific job outcomes and industry contexts include the following:

**Help Desk**
- ICAITD003B Receive and process oral and written communication
- ICAITSS09B Interact with clients
- ICAITS016C Record client support requirements
- ICAITSS010C Apply problem-solving techniques to achieve organisation goals
- ICAITTW011B Participate in a team and individually to achieve an organisation goal

**Applications**
- ICPMM11bA Identify components of multimedia
- ICPMM63bA Access the Internet

**Technical Support**
- ICAITSS008B Maintain equipment/software inventory
- ICAITSS009B Interact with clients
- ICAITSS016C Record client support requirements
- ICAITSS010C Apply problem-solving techniques to achieve organisation goals
ICAITS022B Determine client computing problems and action
ICAITS121A Administer network peripherals

*Four (4) elective units must be completed to meet the requirements for the 240 indicative hours course.

2.2.4 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 following units of competency (or relevant parts of) be addressed prior to students undertaking a work placement:

ICAITTW001B Work effectively in an Information Technology environment
ICAITU004C Apply Occupational Health and Safety procedures
ICAITU006C Operate computing packages
ICAITU005C Operate computer hardware
ICAITTW002B Communicate in the workplace

2.2.5 Traineeships and Vocational Training Orders

Part-time school-based traineeships provide students with the opportunity to include a recognised VET qualification within their HSC and to combine this with paid work. Students generally undertake a Certificate II traineeship during Years 11 and 12 over a period of between 24 and 36 months. The formal or off-the-job training component contributes directly to their HSC and can be delivered by the school, TAFE NSW or other approved registered training organisation.

In NSW, the requirements for each recognised traineeship are set out in a Vocational Training Order (VTO). This includes:

- paid work under an appropriate industrial arrangement
- a training contract that is signed by the employer and the trainee and approved by the NSW Department of Education and Training
- a training program, delivered by an approved registered training organisation, which leads to the nationally recognised qualification specified in the VTO.

Training plans developed to support school-based traineeships must meet the requirements of the VTO and the relevant HSC course from the Information Technology Curriculum Framework.

2.3 Possible sequence of delivery

It is recommended that some units be delivered at the beginning of a course, for example:

ICAITTW001B Work effectively in an Information Technology environment
ICAITU004C Apply Occupational Health and Safety procedures

Some units may best be delivered together, for example:

ICAITU006C Operate computing packages
ICAITU012C Design organisational documents using commercial computing packages
ICAITU013C Integrate commercial computing packages
### 2.3.1 Information Technology (240 indicative hours)

#### Sample course sequence

**Year 11**

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<thead>
<tr>
<th>Term</th>
<th>WEEK</th>
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<tr>
<td></td>
<td>Work effectively in an IT environment</td>
<td>Apply Occupational Health and Safety procedures</td>
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<td>Operate computing packages</td>
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<td></td>
<td>Integrate commercial computing packages</td>
<td>Operate computing hardware</td>
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<td></td>
<td>Design organisational documents using computing packages</td>
<td>Install software applications</td>
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<td>Install software applications</td>
<td>Maintain equipment and consumables</td>
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<tr>
<td><strong>Term 1</strong></td>
<td>Receive and process oral and written communication</td>
<td>Communicate in the workplace</td>
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<tr>
<td><strong>Term 2</strong></td>
<td>Connect hardware peripherals</td>
<td>Access the Internet</td>
<td>Maintain system integrity</td>
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<tr>
<td><strong>Term 3</strong></td>
<td>Identify components of multimedia</td>
<td>Trial exams</td>
<td>Participate in a team and individually to achieve organisational goals</td>
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<td><strong>Term 4</strong></td>
<td>HSC exams</td>
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Students must complete a minimum of 70 hours of mandatory work placement.

### 2.4 Approaches to programming

The following examples provide some approaches to programming teaching and learning activities for Information Technology courses or groups of units of competency within these courses.

#### 2.4.1 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 of competency which relate to a particular area of information technology may be grouped, for example:

- **Working in IT**
  - ICAITTW001B Work effectively in an Information Technology environment
  - ICAITU004C Apply Occupational Health and Safety procedures
  - ICAITTW002B Communicate in the workplace
  - ICAITD003B Receive and process oral and written communication
  - ICAITTW011B Participate in a team and individually to achieve organisational goals
• Client Support
ICAITS009B Interact with clients
ICAITS016C Record client support requirements
ICAITS022B Determine client computing problems and action
ICAITS010C Apply problem-solving techniques to achieve organisation goals
ICAITU006C Operate computing packages

• Computer equipment and consumables
ICAITU005C Operate computer hardware
ICAITS121A Administer network peripherals
ICAITS008B Maintain equipment/software inventory
ICAITS017C Maintain system integrity
ICAITU007B Maintain equipment and consumables

• Produce organisational documents
ICAITU006C Operate computing packages
ICAITU013C Integrate commercial computing packages
ICAITU012C Design organisational documents using computing packages

2.4.2 An integrated approach to programming – using projects or events

Project Planning
An integrated programming approach:
• provides practical training
• produces end products
• encourages students to work to schedule
• encourages students to work with others.

The following suggestions may provide some ideas for projects and events:
• simulations, such as facing workplace emergencies, handling complaints and using communication skills
• assist computer co-ordinator when appropriate eg when rollout machines are delivered
• role plays to simulate meetings and contacts with clients and interaction with co-workers
• research projects such as the relationship between the IT industry and business, workplace illness and injury, and cultural awareness issues
• contribute to the school website or school magazine
• design posters and signs for display to encourage a safe workplace
• portfolio of work placement documents and student experience
• generate an electronic orientation handbook for staff or information manual used by front office staff.

Use of the projects, experiences and events allows for the concurrent development and assessment of a number of units and elements of competency. They may be used for the full delivery of a particular unit of competency or to supplement other learning and assessment activities.

The following steps may provide a guide to planning and organising such a strategy.
Step 1
Based on knowledge of the course intended for delivery, the interests and experience of students and available resources, devise a project or event that relates to a number of competencies.

Step 2
Using Part B of the syllabus, map components/activities/products of the project to particular units/elements ensuring that there is opportunity for students to develop competency and demonstrate the performance criteria for each element included. Where necessary, modify the project specifications to address elements/performance criteria.

Step 3
Using the information from step 2, list the elements of competency and identify appropriate assessment strategies. Plan to use a range of assessment instruments over time to validate the evidence collected. Also try to use each assessment opportunity to assess and record evidence of competence for a number of elements. In this way ‘overassessment’ can be minimised.

Step 4
Draw up a programming sheet to summarise the information. Learning outcomes for components of the project may be defined or included in a schedule.

2.4.3 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  Maintain equipment and consumables

Rationale: This unit is intended to provide students with the opportunity to develop the knowledge and skills required to maintain the operation of basic hardware and the replacement of consumables.

Units of competency: ICAITU007B Maintain equipment and consumables

Suggested time frame: 4 weeks

Key terms and concepts:

- hardware maintenance (routine and non-routine)
- maintenance scheduling
- maintenance logs
- hardware specifications
- backup
- restore
- precautions associated with cleaning fluids
- purchasing, storage and disposal requirements for cleaning agents and consumables

Possible linkages: The interdependence of units of competency for assessment will vary. This unit may be delivered and assessed with the following units of competency:

- ICAITU005C Operate computer hardware
- ICAITS121A Administer network peripherals
- ICAITS008B Maintain equipment/software inventory
- ICAITS017C Maintain system integrity
### Assessment:

<table>
<thead>
<tr>
<th>Unit / Element of competency</th>
<th>Possible assessment strategy</th>
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</table>
| ICAITU007B Maintain equipment and consumables | **Task one**  
Each student is responsible for the ongoing, weekly maintenance of a workstation in the IT classroom for a minimum continuous period of a month.  
This includes:  
– development of a maintenance schedule  
– maintenance and cleaning of hardware, disk drives* and peripherals using appropriate equipment and cleaning agents  
– completion of a maintenance log.  
* use disassembled components or multimedia simulation to illustrate cleaning and maintenance of disk drive |
| ICAITU007B Maintain equipment and consumables | **Task two**  
Utilising the research students have done in class on maintenance schedules and logs and the manuals for the equipment in the IT classroom:  
– produce a cleaning and maintenance schedule and log for the IT classroom  
– complete entries for the log for a simulated month of maintenance and use of the IT classroom. |
| ICAITU007B Maintain equipment and consumables | **Task three**  
Using the information supplied by the school’s senior clerical assistant, design and produce an order form the school could use to purchase goods. |
<p>| ICAITU012C Design organisational documents using computing packages |  |</p>
<table>
<thead>
<tr>
<th>Unit / Element of competency / Performance criteria</th>
<th>Content</th>
<th>Learning experiences / activities</th>
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</thead>
<tbody>
<tr>
<td>ICAITU007B Maintain equipment and consumables</td>
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<tr>
<td>1 Clean disk drives and peripherals</td>
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</tbody>
</table>
| 1.1 Disk cleaning materials are accessed from stores | • Cost/benefits of IT equipment maintenance | Brainstorm:  
| 1.3 Disks/peripherals are cleaned as recommended by manual in accordance with vendor requirements and required by organisation | • Preventative maintenance and diagnostic policy |  
|                                                   | 2 Replace and maintain consumables and supplies | Report and class discussion:  
| 2.2 Relevant manual is accessed                    | • Maintenance manuals |  
| 2.4 Hardware is tested to ensure it is in working order | – in-house |  
|                                                   | – vendor |  
|                                                   | • Maintenance of backup and restore procedures |  
| 3 Maintain peripherals                             | • An understanding of OHS guidelines and regulations in relation to cleaning agents, chemicals and equipment |  
| 3.1 Equipment requiring maintenance is determined |             | Class discussion:  
| 3.2 Equipment is maintained as required by organisation guidelines | – OHS guidelines and regulations |  
| 3.3 Maintenance is documented as required by organisation guidelines | – the importance of safe work practices, reasonable care of health and safety of others, provision of information, instruction and training and standard procedures and work practices. |  
| 3.4 Unused peripherals are stored in line with vendor/manual’s guidelines |             |  
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<th>Unit / Element of competency / Performance criteria</th>
<th>Content</th>
<th>Learning experiences / activities</th>
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</thead>
<tbody>
<tr>
<td>• Cleaning chemicals and equipment required</td>
<td></td>
<td>Brainstorm:</td>
</tr>
<tr>
<td>• Safe use, storage and disposal of chemicals</td>
<td></td>
<td>– list all the cleaning chemicals and equipment required to clean and maintain the equipment of the IT classroom.</td>
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<tr>
<td>– Material Safety Data Sheets (MSDS)</td>
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<td>Students to have access to cleaning chemicals to be used. Read labels and MSDS noting the following (as appropriate):</td>
</tr>
<tr>
<td>– Product labels</td>
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<td>– directions for use</td>
</tr>
<tr>
<td>• Routine and non routine maintenance and cleaning</td>
<td></td>
<td>– dosage and dilution of chemicals</td>
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<tr>
<td>– Hardware, which may include (but not limited to):</td>
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<td>– storage requirements</td>
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<td>– personal computers</td>
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<td>– safety requirements (including precautions associated with cleaning fluids) and basic first aid</td>
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<tr>
<td>– networked computers</td>
<td></td>
<td>Students refer to hardware manuals regarding maintenance requirements.</td>
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<tr>
<td>– personal organisers</td>
<td></td>
<td>Analyse range of hardware specifications for similarity/differences in peripherals.</td>
</tr>
<tr>
<td>– communication equipment</td>
<td></td>
<td>Class activity: produce a maintenance procedure manual for the IT classroom</td>
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<tr>
<td>– Disk drives</td>
<td></td>
<td>– as a class, discuss and develop a template for entries into the document</td>
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<tr>
<td>– Peripherals, which may include (but not limited to):</td>
<td></td>
<td>– in pairs, students are allocated an item of hardware, disk drive or peripheral</td>
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<tr>
<td>– printers</td>
<td></td>
<td>– outline maintenance and cleaning procedures for the item</td>
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<tr>
<td>– scanners</td>
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<td>– collate entries to form one document</td>
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<tr>
<td>– tape cartridges</td>
<td></td>
<td>Demonstration – maintenance and cleaning hardware, disk drives and peripherals</td>
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<td>– speakers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– multimedia kits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– keyboard equipment (eg mouse, touch pad,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>keyboard, pens)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– monitors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit / Element of competency / Performance criteria</td>
<td>Content</td>
<td>Learning experiences / activities</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Students to demonstrate an ability to maintain and replace (at least) the following:</td>
<td></td>
<td>Students to demonstrate an ability to maintain and replace (at least) the following:</td>
</tr>
<tr>
<td>– mouses</td>
<td></td>
<td>– mouses</td>
</tr>
<tr>
<td>– monitors</td>
<td></td>
<td>– monitors</td>
</tr>
<tr>
<td>– disk drives</td>
<td></td>
<td>– disk drives</td>
</tr>
<tr>
<td>– keyboards</td>
<td></td>
<td>– keyboards</td>
</tr>
<tr>
<td>• Maintenance schedules and logs</td>
<td></td>
<td><strong>Assessment task one</strong></td>
</tr>
<tr>
<td>• Storage of peripherals</td>
<td></td>
<td>Class to examine various formats for maintenance schedules and maintenance logs.</td>
</tr>
<tr>
<td><strong>ICAITU007B Maintain equipment and consumables</strong></td>
<td></td>
<td><strong>Assessment task two</strong></td>
</tr>
<tr>
<td><strong>1. Clean disk drives and peripherals</strong></td>
<td></td>
<td>Storage audit:</td>
</tr>
<tr>
<td>1.1 Disk cleaning materials are accessed from stores</td>
<td></td>
<td>In teams of three, visit and audit computer storeroom in school.</td>
</tr>
<tr>
<td>1.2 Inventory systems are accessed and events are documented according to organisational procedures</td>
<td></td>
<td>Produce guidelines for the correct storage of peripherals.</td>
</tr>
<tr>
<td><strong>Consumables and supplies</strong></td>
<td></td>
<td>Buzz session – list of consumables required for the IT classroom.</td>
</tr>
<tr>
<td>• Consumable items</td>
<td></td>
<td>Analyse range of hardware specifications for similarity/differences in consumables.</td>
</tr>
<tr>
<td>– diskettes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– printer ribbons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– cartridges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– printer toner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– cleaners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– tape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit / Element of competency / Performance criteria</td>
<td>Content</td>
<td>Learning experiences / activities</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>2. Replace and maintain consumables and supplies</td>
<td>• Inventory</td>
<td>Examine sample inventory procedures, documents and systems.</td>
</tr>
<tr>
<td>2.1 Stock is accessed from store and information</td>
<td>- organisational procedures</td>
<td>Team task: design and complete an inventory to be used for the IT classroom</td>
</tr>
<tr>
<td>is recorded according to organisational procedures</td>
<td>- completing an inventory</td>
<td>Case study and discussion: organisational procedures and order forms for purchasing supplies (the school and an IT organisation).</td>
</tr>
<tr>
<td>2.3 Consumables are replaced</td>
<td>• Purchasing supplies</td>
<td>Activity:</td>
</tr>
<tr>
<td>2.4 Hardware is tested to ensure it is in working</td>
<td>- organisational procedures</td>
<td>- make a list of local suppliers for IT consumables and cleaning products</td>
</tr>
<tr>
<td>order</td>
<td>- locating suppliers</td>
<td>- obtain or access catalogues – hard copy and/or online</td>
</tr>
<tr>
<td></td>
<td>- contracting arrangements for IT purchases</td>
<td>- obtain quotes for a variety of consumable items</td>
</tr>
<tr>
<td></td>
<td>- obtaining quotes for a variety of consumable items</td>
<td>- design an order form for the school</td>
</tr>
<tr>
<td></td>
<td>- completing a stock order form</td>
<td>Using the classroom inventory, complete <strong>Assessment task three</strong>.</td>
</tr>
<tr>
<td></td>
<td>• Consumables</td>
<td>Students to demonstrate an ability to replace consumables, including (at least) the following:</td>
</tr>
<tr>
<td></td>
<td>- storage and security of consumables</td>
<td>- printer ribbons</td>
</tr>
<tr>
<td></td>
<td>- replacement of consumables</td>
<td>- laser cartridges</td>
</tr>
<tr>
<td></td>
<td>- maintenance schedule and logs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- maintenance manuals</td>
<td></td>
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<tr>
<td></td>
<td>- disposal of used consumables</td>
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</tr>
</tbody>
</table>

**ICAITU007B Maintain equipment and consumables**

<table>
<thead>
<tr>
<th>The final step</th>
<th>Learning experiences / activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Replace and maintain consumables and supplies</td>
<td>• Testing of hardware</td>
</tr>
<tr>
<td>2.4 Hardware is tested to ensure it is in working order</td>
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</tr>
</tbody>
</table>

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20
3 Assessment

3.1 Industry Curriculum Frameworks – The Purposes of Assessment

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

1. Assessment for Australian Qualifications Framework (AQF) VET qualifications (competency-based assessment):
   - applies to all courses within frameworks
   - provides industry recognition.

2. Assessment for the Universities Admissions Index (UAI):
   - for 240 hour courses only
   - optional written HSC examination.

3.2 Assessment for AQF Certification

Assessment for AQF Certification:
- 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 as not yet competent.

An integrated or holistic approach to competency-based assessment is encouraged.

3.2.1 Guiding principles for assessment

This section is reproduced from the Assessment Guidelines of the Information Technology Training Package (ICA99, Version 3, April 2002)\(^1\).

The future of the Information Technology industry lies in its capacity to be innovative and competitive. Inexorably linked to that future is an education and training system that capitalises on the application of emerging technology and business opportunities.

This system must be capable of developing a workforce that can clearly demonstrate the competencies required for highly efficient and productive process outcomes. It must also produce a qualifications system that recognises the skills of the workforce, facilitates the portability of competence and supports enterprise specific learning systems. A nationally agreed assessment framework will assist these outcomes to be delivered.

Assessment System Overview
The purpose of assessment is to confirm that a person can perform to the standards expected in the workplace as expressed in the relevant industry competency standards. The role of the assessment system is to provide the principles and guidance required to ensure that any assessment in relation to industry competency standards is fair, valid and consistent. The Information Technology Assessment Guidelines are designed to provide assistance to the assessor, and the candidate in the assessment, for assessment against the Information Technology competency standards.

The assessment must be conducted under the auspices of the Registered Training Organisation that is to issue the qualification. Close liaison is required between the assessor, the Registered Training Organisation and the workplace where a mix of on and off the job assessment is being conducted.

The assessment system detailed below is to be applied up to Level 6 (Advanced Diploma) in the Australian Qualifications Framework.

Benchmarks for Assessment
The benchmarks for assessment in the Information Technology industry are the endorsed national competency standards. These standards detail what constitutes vocational competence in a range of occupations at different levels of complexity. They also outline whether the units of competence can be assessed on or off the job.

The benchmarks for assessment in the Information Technology Systems Training Package are the endorsed competency standards contained within this Training Package. The Information Technology competency standards detail what is required in the role of IT professionals. They also outline whether the units of competence can be assessed on or off the job.

Assessor Qualifications
Assessments against competencies in the IT Training Package will be carried out in accordance with these endorsed guidelines. The guidelines include the necessary qualifications for those conducting assessments and provide for those situations where more than one person may contribute to the assessment and where the required technical and assessment competencies may not all be held by any one person.

Between the persons conducting assessments against the Information Technology Training Package they must hold the following competencies for assessors contained in the Training Package for Assessment and Workplace Training:

- BSZ401A Plan Assessment
- BSZ402A Conduct Assessment, and
- BSZ403A Review Assessment

which are deemed equivalent to the units:

- Conduct Assessment in Accordance with an Established Assessment Procedure
- Extension Unit: Plan and Review Assessment

from the former Assessor and Workplace Trainer competency standards endorsed by the National Training Board, but now superseded by Training Package for Assessment and Workplace Training.”
A person may gain competence as an assessor by successfully completing a workplace assessor training program or an approved Recognition of Prior Learning process, which includes the above units of competence.

An assessor may be competent in the above units and work collaboratively with an individual or panel of people competent in the systems development, integration, installation, client support, maintenance and control competencies, at least to the level being assessed.

**Using Qualified Assessors**

Qualified assessors may be used differently in a range of different workplace and institutional contexts. The requirement to use qualified assessors may be met through the use of:

- a workplace assessor who is competent against the assessor competency standards and has the relevant technical competencies at least to the level being assessed; or
- an external assessor who is competent against the assessor competency standards and has the relevant technical competencies at least to the level being assessed; or
- a workplace assessor who is competent against the assessor competency standards and who has ready access to another person who is competent in, and can advise the assessor on, the relevant vocational competencies at least to the level being assessed; or
- an external assessor who is competent against the assessor standards but with the assessment evidence being collected, utilising industry endorsed assessment procedures, by a workplace supervisor who has the relevant vocational competencies at least to the level being assessed; or
- a workplace supervisor with the relevant vocational competencies at least to the level being assessed who utilises industry endorsed assessment procedures with the outcome being validated by an external assessor who is competent against the assessor standards.

Relevant technical competencies and relevant vocational competencies implies current competencies.

Records of assessments against competency standards and supporting records will be held by Registered Training Organisations that issue credentials based on these assessments. The wide range of variables contained in most units of competence will result in the context of the person’s competence being a particular IT language, application or version of an application. It is therefore important that the individual maintain a Competency Record Book, which will contain the details of competency standards achieved, whereas the Registered Training Organisation will retain only those records related to credentials issued. (Competency Record Books are available for use in the non-endorsed component of this Training Package) In cases where competency has been assessed or confirmed by a number of Registered Training Organisations, it is the responsibility of the Registered Training Organisation to issue an Australian Qualification Framework (AQF) credential where a package of competencies relating to a AQF have been attained.

Statements of Attainment will be issued which identify all achieved competency units. A qualification will be issued once workplace assessment requirements as demonstrated in the standards have also been successfully demonstrated.
External Audit of Assessment Process

External audit is a key to maintaining a quality assessment system. Registered Training Organisations, workplace assessors and employers will be involved in this and other quality assurance mechanisms. Audit processes will be developed and managed by State Registration Authorities in conjunction with industry organisations.

Guidelines for Designing Assessment Materials

The competency standards provide information to guide assessment of each of the units of competence. Additional supporting materials will be contained in the non-endorsed assessment strategies of the Training Package. Using these resources, assessors either in a workplace or an institutional context will be able to plan and conduct assessments. The non-endorsed section of the Training Package will provide guidance to determine the range of available assessment tools appropriate to the assessment contexts. Assessors will be able to design or modify existing assessment tools so that the requirements of the individual and the assessment context are met.

Guidelines for Conducting Assessment

Under no circumstances should the assessment be conducted in a way that does not require the learner to demonstrate the skills covered by the competencies.

The following principles of assessment should be followed when conducting any assessment, and will be the benchmarks for the ongoing review of the assessment system.

Transparency of process - prior to the assessment, both the assessor and the candidate should be aware of what will be assessed and the process of the assessment. The individual being assessed should also be aware of the Registered Training Organisation's appeals process in case they feel they have been unfairly assessed.

Validity - assessments are valid when they assess what they claim to assess. Assessors need to be fully aware of what is to be assessed. Assessors will have access to clearly defined competency standards which detail the evidence required to demonstrate that the performance criteria have been met.

Reliability - assessment is applied consistently from employee to employee and context to context. The methods and procedures employed in an assessment ensure that different individuals in different contexts can demonstrate the requirements of the competency standards. There should be consistency in the interpretation of evidence.

Flexibility - assessment needs to be flexible so that it incorporates the range of environments and organisations involved in assessment. Flexibility in assessment is also required for different forms of knowledge and skills that underpin performance.

Fairness - assessment is fair if it does not disadvantage anyone. Individuals undertaking assessment should clearly understand what is to be assessed and the process for that assessment. The assessment should place all individuals on equal terms and rely on evidence of performance not relative to individual ability.

Practicality - the assessment must not be onerous financially or in terms of time to those involved in the process. It must be practical for both individuals and organisations wishing to be involved in an assessment.
### Assessment against Competencies

**UNIT TITLE**: To be recorded in the candidate’s record of competence

**PERFORMANCE CRITERIA**: Provide assessors with information on what is to be assessed and to the level of performance. The Performance Criteria list activities that provide evidence of competent performance. Assessors need to consider this information along with the Evidence Guides.

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**EVIDENCE GUIDE**: Provides information on what needs to be considered during the assessment. Evidence Guides relate directly to the Range of Variables and the Performance Criteria and provide a guide of critical evidence to be considered through the activities in the Performance Criteria.

**RANGE OF VARIABLES**: Provide a context for assessment to occur and outline possible organisational factors which may need to be considered.

**ELEMENTS**: Describe the function of the work to be performed.

**The ASSESSMENT Section**: Provides general information on assessment and should be read in conjunction with the Training Package’s Assessment Guidelines. The Assessment Section identifies interdependent units of competency for holistic or integrated assessment.
Role of Registered Training Organisations

Registered Training Organisations can be individual employers, training providers, industry bodies and providers of assessment services. Whilst some State Recognition Authorities (SRAs) may establish different degrees of autonomy for registered training providers, under national agreements once registered they will be able to:

• develop training programs based on endorsed competency standards. Where no endorsed standards exist, providers will be required to deliver programs accredited by the relevant SRA as being based on industry standards;
• deliver training off the job, on the job, or in a simulated environment to enable assessment directly against the performance criteria in the standards;
• assess competence in the workplace against the standards (the skill requirements for assessors are outlined in Section 2.1);
• assess off the job or in a simulated environment;
• issue credentials. AQF qualifications (AQF Certificates, Diplomas etc) can be issued if performance has been assessed in the workplace or simulated environment against the competency standards; and
• record and maintain records of all off and on the job assessed competency standards where a qualification or Statement of Attainment is issued.

Partnerships

The IT industry assessment system relies on a network of relationships between Registered Training Organisations, employers and Industry Training Advisory Bodies (ITABs) and IT vendors. The combination of rapid technological development and a highly mobile workforce result in an ever evolving training requirement in the IT industry in Australia and globally. In developing this Training Package it was acknowledged by most parties that there was an inherent interdependence of employers, individuals and RTOs. Close working relationships will assist greatly in better defining the needs of all parties and the mechanisms that may satisfy those needs.

Partnerships will also be required between Registered Training Organisation and employers. Those relationships need to facilitate workplace assessments which utilise the services of an assessor employed by the Registered Training Organisation. An enterprise or another organisation may also be a Registered Training Organisation.

Workers who gain competence on the job without completing a training program or being enrolled with a Registered Training Organisation will need to access an assessor affiliated with a Registered Training Organisation if a qualification is to be issued.
Assessment Pathways
The flow chart below details the range of assessment pathways available to an individual. They apply equally to a candidate requesting the Recognition of Prior Learning or the award of a credential.

Assessor Training
Assessor training needs to be suitable for employers and employees and must therefore provide flexible modes of delivery and at a low cost. Training must be against the assessor competency standards and customised for the IT industry.

The endorsed assessor training will cater for flexible delivery and result in the issuing of a national qualification. Costs for assessor training will be borne by the individual wishing to become an assessor, by his or her employer or by publicly funded incentive schemes if available.

Professional Development of Assessors
Valid, reliable and consistent assessment of competency standards by registered assessors is the crucial outcome of a quality assessment system. The National and State ITAB network will promote the IT assessment system, and, in partnership with industry and Registered Training Organisations, ensure that adequate professional development opportunities are made available.
3.2.2 Integration of key competencies in training packages

The following is drawn from ANTA’s *Training Package Development Handbook – Integration of Key Competencies*.

The Key Competencies are a set of generic capabilities prepared by the Mayer Committee in *Putting Education to Work: The Key Competencies Report* (Mayer 1992).

The Key Competencies were described in the Mayer report as being fundamental to the transfer and application of learning to and within workplaces.

Since their development the Key Competencies have been identified in all national industry competency standards to ensure they are part of the learning and assessment process in vocational education and training. They have also been widely taken up in school curriculum.

Consistent with this the National Training Quality Council considers that all Training Packages ‘require the effective integration of key competencies’ (ANTA 1998, p 11).

The seven Key Competencies identified in the Mayer (1992) report are:

**Collecting, analysing and organising information**
The capacity to locate information, 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.

**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.

**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 own performance.

**Working with others and 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.

**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.

**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 an outcome.

**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.
The Key Competencies are defined as the set of competencies which enable people to transfer and apply knowledge and skills developed in classrooms and other learning situations to the workplace.

**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 flexibility and adaptability of staff to respond effectively to current and future direction and challenges within Australian workplaces.

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 therefore, critical that Training Package developers, support materials 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 which 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, represented in Figure 1 (below), through units of competency and Training Package development, delivery, learning, assessment and reflection for those working within the VET environment.

There is a clear 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:

- focus on the development of thinking skills in relation to vocational competency
- assessment integrated with training
- collaborative learning reflecting work-based teams
- competencies learned and assessed in the context of real problems within 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 the making of 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. Instead, it is seen as an individual interacting in a structured way with knowledge, skill and vocational contexts in order to better understand and work with them.

Such an approach is only possible if the specification of the Units of Competency makes explicit the embedding of the Key Competencies within them. This can be done quite simply by framing the performance criteria around the Key Competencies and by reinforcing this with appropriate statements within the Range Statement and Evidence Guide.

3.2.3 Programming assessment

An integrated approach to assessment, in which a number of elements or units of competency are assessed together, is encouraged. This accords with the concept of competence as 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. For this reason, the programmed modules shown in Section 2 include assessment strategies.

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.
3.3 Recording assessment

It is advisable that a competency record be maintained containing information about both 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 employer details
- a summary list of units of competency for each available (or partly available) AQF qualification
- a verification statement.
### 3.3.1 Competency Record – sample unit of competency record sheet

*ICAITTW001B*  
*Work effectively in an Information Technology environment*

<table>
<thead>
<tr>
<th>Element of Competency</th>
<th>Competent (Assessor Signature)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Comply with general IT policies and procedures</td>
<td></td>
</tr>
<tr>
<td>2. Promote the organisation and the IT department in a manner consistent with the organisation mission</td>
<td></td>
</tr>
<tr>
<td>3. Identify Information Technology equipment/software and operating system supported by the organisation</td>
<td></td>
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</tbody>
</table>

**VERIFICATION OF ACHIEVEMENT OF UNIT OF COMPETENCY**

I, ____________________________, of ____________________________  
(name of assessor) (Registered Training Organisation)  

certify that  

_____________________________  
(name of student)  

demonstrated competence in the unit of competency  

*ICAITTW001B*  
*Work effectively in an Information Technology environment*

Signature ___________________________  
Date ___________________________
3.4 Sample assessment items

3.4.1 Maintenance schedules and logs

Units of competency and elements being assessed:

**ICAITU007B Maintain equipment and consumables**

- **Element 1** Clean disk drives and peripherals
  1.2 Inventory systems are accessed and events are documented according to organisational procedures

- **Element 3** Maintain peripherals
  3.1. Equipment requiring maintenance is determined
  3.3. Maintenance is documented as required by organisation guidelines

Task:

- Utilising the research you and other class members have done on maintenance schedules and logs and the set of manuals for the equipment in the IT classroom:
  - produce a schedule and log for the IT classroom.

- Complete entries for the log for a simulated month of maintenance and use of the IT classroom. Include the following events:
  - printer is producing streaky copies
  - a window is broken by vandals
  - toner runs out
  - coffee is spilt on a keyboard.
## Assessment checklist:

<table>
<thead>
<tr>
<th>Unit / Element</th>
<th>Performance criteria</th>
<th>Student a</th>
<th>Student b</th>
<th>Student c</th>
<th>Student d</th>
<th>Student e</th>
<th>Student f</th>
<th>Student g</th>
<th>Student h</th>
<th>Student i</th>
<th>Student j</th>
<th>Student k</th>
<th>Student l</th>
<th>Student m</th>
<th>Student n</th>
<th>Student o</th>
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</thead>
<tbody>
<tr>
<td>ICAITU007B Maintain equipment and consumables</td>
<td>1. Clean disk drives and peripherals</td>
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<td>1.2 Inventory systems are accessed and events are documented according to organisational procedures</td>
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<tr>
<td>ICAITU007B Maintain equipment and consumables</td>
<td>3. Maintain peripherals</td>
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<td>3.1 Equipment requiring maintenance is determined</td>
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3.4.2 Consumables for the IT classroom

Units of competency and elements being assessed:

**ICAITU007B  Maintain equipment and consumables**
Element 2  Replace and maintain consumables and supplies
2.3  Consumables are replaced

**ICAITU012C  Design organisational documents using computing packages**
Element 2  Access, retrieve and manipulate data
2.1  Software application is opened
2.3  Documents are designed to meet organisational requirements
2.4  Applications are exited without loss of data

Task:

- Using the information supplied by the school’s senior clerical assistant, design and produce an order form the school could use to purchase goods
- MS Word templates are not to be used
- Complete an order for consumables and cleaning products for the IT classroom:
  - re-order time would be approximately 3 months
  - locate a supplier/s with an on-line catalogue/s* to enable you to calculate the costs
- Write a procedure for taking delivery and storing goods.

* Provide the URL for the catalogue/s.
## Assessment checklist:

| Unit / Element | Performance criteria | Student a | Student b | Student c | Student d | Student e | Student f | Student g | Student h | Student i | Student j | Student k | Student l | Student m | Student n | Student o |
|----------------|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| ICAITU007B     | Maintain equipment and consumables | 2.3 Consumables are replaced | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         |
|                | Replace and maintain consumables and supplies | 2.1 Software application is opened |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| ICAITU012C     | Design organisational documents using computing packages | 2.3 Documents are designed to meet organisational requirements |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|                | Access, retrieve and manipulate data | 2.4 Applications are exited without loss of data |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
3.5  The HSC Examination

The HSC examination:

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

3.5.1  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 an 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.

4  Work Placement

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

4.1  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 and 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 serves a number of purposes including enabling 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 off the job in a 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 Board of Studies’ Assessment, Certification and Examination (ACE) Manual or relevant Board of Studies’ Official Notices.

The following principles should be read in conjunction with any systems documentation relating to work placement, for example the Industry Curriculum Frameworks Information Package.

**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 and number 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 upon 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 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 student 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.

**4.2 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 entry-level employee in a range of Information 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.

**4.2.1 Work placement in a simulated information technology environment**

The work placement for the Information Technology Industry Curriculum Framework is a mandatory minimum 70 hours for the 240-hour course or 35 hours for the 120-hour course. It
is permissible for up to 50% to be undertaken in a simulated information technology environment (ie 17 hours for the 120-hour course and 35 hours for the 240-hour course).

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 IT 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 IT 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.

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 IT industry) and other resources applicable to the unit of competency chosen
- the presence of a range of diverse types of customers. (This could be students from other subject areas, teaching staff at the college or students from another school or TAFE institute)
- 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. Student 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 IT work placement environment:

- students should take on a substantial role or responsibility under supervision by professional IT 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 IT working environment, even when the work placement is undertaken within the school. For example, scheduling of students’ time may require start and finish times that are different from the normal school hours, students may need to sign in and out rather than attending roll call, dress standards will vary from school uniform and special provision may be required for student access to school or community resources or venues outside usual school hours or policy.
This section is reproduced from the Assessment Guidelines of the Information Technology Training Package (ICA99, Version 3, April 2002)\(^2\).

**The use of workplace simulation for assessment of IT units of competence**

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

The Registered Training Organisation must simulate the budgetary, timeframe and scope constraints and ensure quality processes and OHS procedures are followed when duplicating workplace conditions.

The Resource sections in the Evidence Guides of the relevant units of competence specify the physical resources that are required for the candidate to demonstrate competence. The resources include hardware and software, procedural guidelines, reports and people. These resources combined with the following information will provide you with a comprehensive yet flexible approach for assessing in the context of workplace simulation.

**Workplace Simulation Criteria**

The following items should be addressed when using workplace simulation for the IT Training Package:

- That workplace simulation provides the necessary complexity to replicate a workplace environment.

There are certain conditions that exist in a 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)
  - the use of quality processes
  - realistic allocations of time to tasks and deadlines
  - consistent performance over time
  - working with others in teams (and where necessary as a team leader)
  - realistic considerations of budget constraints
  - operational procedures and guidelines
  - up-to-date information and authentic documentation (eg workplace roles, occupational health and safety regulations, procedural manuals, policies, project plans, documentations standards etc.).

- That workplace simulation reflects authentic work practices.

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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)
- 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)
- transferring competencies to new contexts
- assessment of performance over time.

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 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 of the standards should be as holistic and integrated as possible. This means that the assessment should cover a range of interconnected competency units.

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 a 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.

When assessments are conducted, they must comply with all other information contained within these assessment guidelines.

5 Teaching and Learning Materials

It is the responsibility of the Registered Training Organisation 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.