Stage 6 Syllabus

Information and Digital Technology
Curriculum Framework

based on the ICT Information and Communications Technology Training Package (version 3)

for implementation from 2016
Contents

1 Introduction to the Information and Digital Technology Curriculum Framework ........................................ 5
  1.1 AQF VET qualifications available in the Information and Digital Technology Curriculum Framework ................................................................. 5
  1.2 Industry context – information and communications technology ......................................................... 5
  1.3 HSC VET course and AQF VET qualification completion requirements .................................................. 6
     1.3.1 HSC VET course requirements ........................................................................................................ 6
     1.3.2 AQF VET qualification requirements ............................................................................................... 6
  1.4 HSC VET course delivery ......................................................................................................................... 7
  1.5 Outcomes and content ............................................................................................................................ 7
  1.6 Assessment requirements and advice ...................................................................................................... 7

2 Course structures and requirements ........................................................................................................... 8
  2.1 Information and Digital Technology HSC VET courses ........................................................................... 8
     2.1.1 Unit credit for the Higher School Certificate .................................................................................. 8
        Table 1 HSC credit units for Information and Digital Technology HSC courses .................................................. 8
     2.1.2 BOSTES course numbers ............................................................................................................... 9
     2.1.3 HSC examination numbers ........................................................................................................ 10
     2.1.4 Allocation of HSC indicative hours of credit .................................................................................... 10
     2.1.5 Work placement requirements ..................................................................................................... 11
        Table 2 Minimum work placement hours for Information and Digital Technology HSC courses ....................... 11
  2.2 Information and Digital Technology (120 indicative hours) .................................................................... 12
  2.3 Information and Digital Technology (240 indicative hours) .................................................................... 13
  2.4 Information and Digital Technology Specialisation Study (60, 120, 180 or 240 indicative hours) .................. 15
  2.5 Information and Digital Technology units of competency ........................................................................ 16
        Table 3 Associated mandatory units of competency for the 240-hour course .................................................. 16
        Table 4 Associated units of competency – Web and software applications stream ...................................... 17
        Table 5 Associated units of competency – Networking and hardware stream ............................................. 17
        Table 6 Associated units of competency – Digital animation stream ....................................................... 17
        Table 7 HSC elective pool ....................................................................................................................... 18

3 HSC Content .................................................................................................................................................. 21
  Table 8 Focus areas and associated units of competency ........................................................................... 22
3.1 Working in the industry – mandatory focus area ........................................ 23
  3.1.1 Outcomes ........................................................................................................ 23
  3.1.2 Associated unit of competency ................................................................. 23
  3.1.3 Scope of learning for the HSC ................................................................. 24
3.2 Operating system software – mandatory focus area .................................... 28
  3.2.1 Outcomes ........................................................................................................ 28
  3.2.2 Associated unit of competency ................................................................. 28
  3.2.3 Scope of learning for the HSC ................................................................. 29
3.3 Diagnostic testing – mandatory focus area .................................................. 32
  3.3.1 Outcomes ........................................................................................................ 32
  3.3.2 Associated unit of competency ................................................................. 32
  3.3.3 Scope of learning for the HSC ................................................................. 33
3.4 Safety – mandatory focus area ...................................................................... 36
  3.4.1 Outcomes ........................................................................................................ 36
  3.4.2 Associated unit of competency ................................................................. 36
  3.4.3 Scope of learning for the HSC ................................................................. 37
3.5 Web and software applications – stream focus area ..................................... 41
  3.5.1 Outcomes ........................................................................................................ 41
  3.5.2 Associated units of competency ............................................................... 41
  3.5.3 Scope of learning for the HSC ................................................................. 43
3.6 Networking and hardware – stream focus area .......................................... 46
  3.6.1 Outcomes ........................................................................................................ 46
  3.6.2 Associated units of competency ............................................................... 46
  3.6.3 Scope of learning for the HSC ................................................................. 48
3.7 Digital animation – stream focus area ......................................................... 54
  3.7.1 Outcomes ........................................................................................................ 54
  3.7.2 Associated units of competency ............................................................... 54
  3.7.3 Scope of learning for the HSC ................................................................. 55
4 HSC examination ............................................................................................. 59
  4.1 Examinable outcomes and content ............................................................ 59
  4.2 Relationship of the Information and Digital Technology (240 indicative hours) course structure to the HSC examination ................................................................. 59
5 Other important information ............................................................................ 60
  5.1 Exclusions ......................................................................................................... 60
  5.2 Recognition of Prior Learning (RPL) and credit transfer within VET courses ................................................................. 60
  5.3 School-based trainees .................................................................................... 60
  5.4 Students with special education needs ........................................................ 60
  5.5 Access by students in Years 9 and 10 (Stage 5) ........................................... 61
6 Glossary ............................................................................................................. 62
1  Introduction to the Information and Digital Technology Curriculum Framework

Industry Curriculum Frameworks provide students with the opportunity to gain industry-recognised national vocational qualifications under the Australian Qualifications Framework (AQF) as part of their NSW Higher School Certificate (HSC).

HSC courses within Industry Curriculum Frameworks count as Board Developed unit credit for the HSC. Frameworks include an HSC examination which provides the opportunity for students to have this HSC examination mark contribute to the calculation of their Australian Tertiary Admission Rank (ATAR).

1.1  AQF VET qualifications available in the Information and Digital Technology Curriculum Framework

The Information and Digital Technology Curriculum Framework is based on a qualification and units of competency contained in the nationally endorsed ICT Information and Communications Technology Training Package.

The AQF VET qualifications available in the Information and Digital Technology Curriculum Framework are:

- Statement of Attainment towards ICT30115 Certificate III in Information, Digital Media and Technology
- ICT30115 Certificate III in Information, Digital Media and Technology.

1.2  Industry context – information and communications technology

The information and communications technology (ICT) industry is a complex and comprehensive industry. It is an important contributor to business activities in all industries. Australian Bureau of Statistics (ABS) studies estimate that 50 per cent of all Australian business productivity can be attributed to the application of information and communication technologies.

The ICT industry incorporates a range of different businesses and industry sectors including ICT service providers, purchasers and users of ICT goods and services, technical support providers, multimedia and web development specialists, desktop publishers, graphic designers, programmers and help desk operators.

Workforce development needs in the ICT industry are driven by factors including the business cycle, new technologies and applications, and the Australian Government’s digital economy strategy. A skilled future workforce is needed to address challenges including maximising National Broadband Network (NBN) capability, managing risks associated with network and information security, addressing the wide divergence of skills needed to meet workplace requirements and adopting sustainable ICT practices.¹

¹  www.ibsa.org.au (Innovation and Business Skills Australia)
1.3 HSC VET course and AQF VET qualification completion requirements

The requirements for the completion of an HSC VET course are different to the requirements for AQF VET qualification completion. Registered Training Organisations (RTOs) need to ensure that delivery of courses meets HSC course requirements and complies with Training Package rules.

1.3.1 HSC VET course requirements

HSC VET courses in the Information and Digital Technology Curriculum Framework are made up of:

- units of competency:
  - associated HSC mandatory units of competency
  - associated HSC stream units of competency
  - HSC elective units of competency
- HSC outcomes and content
- mandatory HSC work placement requirements.

For a student to be considered to have satisfactorily completed a course within the Information and Digital Technology Curriculum Framework they must meet the:

- HSC VET course requirements (refer to Sections 2.2–2.5 of this Syllabus)
- requirements for satisfactory course completion (refer to the Board of Studies, Teaching and Educational Standards NSW (BOSTES) Assessment Certification Examination (ACE) website). There must be sufficient evidence that the student has:
  - followed the course developed by BOSTES
  - applied themselves with diligence and sustained effort to the set tasks and experiences provided in the course
  - achieved some or all of the course outcomes
  - undertaken the mandatory work placement.

1.3.2 AQF VET qualification requirements

To receive AQF VET qualifications, students must meet the assessment requirements of the ICT Information and Communications Technology Training Package (http://training.gov.au).

AQF VET qualifications are determined by the qualification rules for each Training Package, referred to as qualification packaging rules. The qualification packaging rules describe the number and range of core and elective units of competency required for eligibility for an AQF VET qualification.

Units of competency should be selected to meet qualification packaging rules for the intended qualification pathway. Selection of units of competency should also be guided by the job outcome sought and local industry requirements.

Qualification packaging rules for each AQF VET qualification available through the Information and Digital Technology Curriculum Framework are contained in the ICT Information and Communications Technology Training Package.
1.4 HSC VET course delivery

HSC VET courses can only be delivered by an RTO with the relevant qualification and units of competency on their scope of registration. Scope of registration can be checked at http://training.gov.au.

RTOs offering training programs for the delivery and assessment of the Information and Digital Technology HSC VET courses must meet the requirements of the VET Quality Framework, the ICT Information and Communications Technology Training Package and the HSC course.

Information about the delivery of HSC VET courses by RTOs other than school system RTOs or TAFE NSW institutes is contained on the BOSTES Assessment Certification Examination (ACE) website.

Non-government schools outsourcing delivery of HSC VET courses to external providers also need to refer to the Registered and Accredited Individual Non-government Schools (NSW) Manual or Registration Systems and Member Non-government Schools (NSW) Manual which are available on the BOSTES website at http://rego.boardofstudies.nsw.edu.au.

1.5 Outcomes and content

The HSC outcomes and content for this industry curriculum framework are defined in:
- the units of competency (refer to Section 2.5 of this Syllabus)
- HSC Content focus areas (refer to Section 3 of this Syllabus).

1.6 Assessment requirements and advice

HSC VET courses are competency-based. BOSTES and the VET Quality Framework require that a competency-based approach to assessment is used. Advice on appropriate assessment practice in relation to the Information and Digital Technology Curriculum Framework is contained in the Assessment and Reporting in Information and Digital Technology Stage 6 document.

An integrated or holistic approach to course delivery and assessment should be adopted.
2 Course structures and requirements

2.1 Information and Digital Technology HSC VET courses

This Framework specifies the range of industry-developed units of competency from the ICT Information and Communications Technology Training Package for inclusion in the HSC. It describes how these units of competency are arranged in HSC VET courses to gain unit credit for the HSC.

The Information and Digital Technology Curriculum Framework contains the following courses:
- Information and Digital Technology (120 indicative hours) – see Section 2.2 of this Syllabus
- Information and Digital Technology (240 indicative hours) – see Section 2.3 of this Syllabus
- Information and Digital Technology Specialisation Study (60 or 120 or 180 or 240 indicative hours) – see Section 2.4 of this Syllabus.

2.1.1 Unit credit for the Higher School Certificate

To facilitate flexibility of VET in the HSC, courses within the Information and Digital Technology Curriculum Framework may be delivered as Preliminary, as HSC or as a combination of Preliminary and HSC units.

The HSC credit units will be allocated to students’ Preliminary and/or HSC patterns of study as required.

The pattern of study (BOSTES course number) entered on Schools Online (Administration) should reflect the delivery of the HSC VET course over successive years. For example, delivery of the 240 HSC indicative hour course over two years should be entered as 2 units x 2 years. Students will be credentialled for the HSC credit units entered each calendar year, provided they have satisfactorily completed the course requirements for that calendar year as determined by the school, college or RTO.

Table 1 HSC credit units for Information and Digital Technology HSC courses

<table>
<thead>
<tr>
<th>HSC VET course</th>
<th>HSC credit units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and Digital Technology (120 indicative hours)</td>
<td>2</td>
</tr>
<tr>
<td>Information and Digital Technology (240 indicative hours)</td>
<td>4</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (60 indicative hours)</td>
<td>1</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (120 indicative hours)</td>
<td>2</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (180 indicative hours)</td>
<td>3</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (240 indicative hours)</td>
<td>4</td>
</tr>
</tbody>
</table>
## 2.1.2 BOSTES course numbers

<table>
<thead>
<tr>
<th>BOSTES course name</th>
<th>Pattern of study</th>
<th>BOSTES course number</th>
<th>Schools Online (Administration) entry advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and Digital Technology (120 hours)</td>
<td>2 units x 1 year</td>
<td>27300</td>
<td>Enter this course number for either Preliminary (Year 11) or HSC (Year 12)</td>
</tr>
<tr>
<td>Information and Digital Technology (240 hours)</td>
<td>2 units x 2 years</td>
<td>27301</td>
<td>Enter this course number for both Preliminary (Year 11) and HSC (Year 12)</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 units x 1 year</td>
<td>27302</td>
<td>Enter this course number for either Preliminary (Year 11) or HSC (Year 12)</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (60 hours)</td>
<td>1 unit x 1 year</td>
<td>27303</td>
<td>Enter this course number for either Preliminary (Year 11) or HSC (Year 12)</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (120 hours)</td>
<td>2 units x 1 year</td>
<td>27304</td>
<td>Enter this course number for either Preliminary (Year 11) or HSC (Year 12)</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (180 hours)</td>
<td>3 units x 1 year</td>
<td>27305</td>
<td>Enter this course number for either Preliminary (Year 11) or HSC (Year 12)</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (240 hours)</td>
<td>4 units x 1 year</td>
<td>27306</td>
<td>Enter this course number for either Preliminary (Year 11) or HSC (Year 12)</td>
</tr>
</tbody>
</table>
2.1.3 HSC examination numbers

<table>
<thead>
<tr>
<th>HSC examination</th>
<th>HSC stream</th>
<th>HSC examination number</th>
<th>Schools Online (Administration) entry advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and Digital Technology</td>
<td>Web and software applications</td>
<td>27389</td>
<td>Enter this course number as an HSC (Year 12) entry in the year the examination is undertaken</td>
</tr>
<tr>
<td>or</td>
<td>Networking and hardware</td>
<td>27387</td>
<td>Enter this course number as an HSC (Year 12) entry in the year the examination is undertaken</td>
</tr>
<tr>
<td>or</td>
<td>Digital animation</td>
<td>27385</td>
<td>Enter this course number as an HSC (Year 12) entry in the year the examination is undertaken</td>
</tr>
</tbody>
</table>

2.1.4 Allocation of HSC indicative hours of credit

Units of competency drawn from Training Packages are not defined in terms of duration. The amount of time required by individual students to achieve competency will vary according to their aptitude and experience. Where a training program is designed for delivery by an RTO, the RTO will specify the length of the training program according to the delivery strategies and/or curriculum resources chosen.

However, for the purposes of the HSC, VET courses must be described in terms of their indicative hours. For this reason, indicative hours for unit credit towards the HSC have been assigned to each unit of competency within the Framework. It is emphasised that the assignment of indicative hours does not imply that all students will fulfil all requirements of a unit of competency within these hours. RTOs may determine that additional or fewer hours are required for the achievement of particular competencies. However, this does not alter the HSC indicative hours allocated, only the delivery hours.

Students may need to spend additional time practising skills in a work environment and in completing projects and assignments, in order to fulfil Training Package assessment requirements.

The HSC indicative hours assigned to each unit of competency are listed in Section 2.5 of this Syllabus.
2.1.5 Work placement requirements

Work placement is a mandatory HSC requirement within this Framework and appropriate hours have been assigned to HSC VET courses.

Students must complete the following work placement for Information and Digital Technology Curriculum Framework courses.

Table 2 Minimum work placement hours for Information and Digital Technology HSC courses

<table>
<thead>
<tr>
<th>Information and Digital Technology Framework course</th>
<th>Minimum work placement requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and Digital Technology (120 indicative hours)</td>
<td>35 hours</td>
</tr>
<tr>
<td>Information and Digital Technology (240 indicative hours)</td>
<td>70 hours</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (60 indicative hours)</td>
<td>no additional hours required</td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (120 indicative hours)</td>
<td></td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (180 indicative hours)</td>
<td></td>
</tr>
<tr>
<td>Information and Digital Technology Specialisation Study (240 indicative hours)</td>
<td></td>
</tr>
</tbody>
</table>

Work placement is to be undertaken in an information and communications technology work environment. It is permissible for up to 50 per cent to be undertaken in a simulated work environment.

Students undertaking these courses as part of a school-based traineeship will meet the mandatory work placement hour requirements through the on-the-job training component of the traineeship.

Recognition of Prior Learning (RPL) may be granted for mandatory work placement requirements. Students’ outside employment (ie not under the auspices of the school) may be recognised towards the requirement for work placement in a VET course (ACE 8051 – Assessment Certification Examination (ACE) website).

Non-completion of work placement is grounds for withholding the HSC course. Schools and colleges are advised to follow the procedure for issuing ‘N’ determinations as outlined on the BOSTES Assessment Certification Examination (ACE) website.

Refer to the Work Placement in Information and Digital Technology document for further information.
2.2 Information and Digital Technology (120 indicative hours)

AQF VET qualification

The Information and Digital Technology (120 indicative hours) course provides a pathway to the following qualification:

Statement of Attainment towards:
- ICT30115 Certificate III in Information, Digital Media and Technology

Skill Sets:
- Basic Web Development Specialist Skill Set
- Rich Interactive Content Specialist Skill Set

Course structure

This course consists of a selection of units of competency from the HSC mandatory, streams and/or elective pool to a minimum of 120 HSC indicative hours.

(See Section 2.5, Tables 3–7 of this Syllabus.)

Course requirements – Information and Digital Technology (120 indicative hours)

Students must attempt:
2.3 Information and Digital Technology (240 indicative hours)

AQF VET qualification

The Information and Digital Technology (240 indicative hours) course provides a pathway to the following qualification:

Statement of Attainment towards:
- ICT30115 Certificate III in Information, Digital Media and Technology

Skill Sets:
- Basic Web Development Specialist Skill Set
- Hardware Technician Skill Set
- Rich Interactive Content Specialist Skill Set
- Visual Communications Specialist Skill Set

Course structure

This course consists of:
- four mandatory focus areas (containing four associated mandatory units of competency)
- three stream focus areas:
  - Web and software applications (containing three associated units of competency)
  - Networking and hardware (containing three associated units of competency)
  - Digital animation (containing two associated units of competency)
- a range of elective units of competency which can be selected from the streams not already undertaken and/or the HSC elective pool
- HSC Content – for the mandatory and stream focus areas.

(See Section 2.5, Tables 3–7 of this Syllabus and Section 3.)

Information and Digital Technology HSC examination

An external written Higher School Certificate examination will be conducted for the 240 indicative hour course (refer to Section 4 of this Syllabus).

The HSC Content (focus areas) for the HSC examination is detailed in Section 3 of this Syllabus.
Course requirements – Information and Digital Technology (240 indicative hours) – students attempt **ONE** of the following:

<table>
<thead>
<tr>
<th>Web and software applications stream</th>
<th>Networking and hardware stream</th>
<th>Digital animation stream</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOUR mandatory</strong> units of competency (Section 2.5, Table 3) with the following focus areas</td>
<td><strong>FOUR mandatory</strong> units of competency (Section 2.5, Table 3) with the following focus areas</td>
<td><strong>FOUR mandatory</strong> units of competency (Section 2.5, Table 3) with the following focus areas</td>
</tr>
<tr>
<td>Working in the industry</td>
<td>Working in the industry</td>
<td>Working in the industry</td>
</tr>
<tr>
<td>Operating system software</td>
<td>Operating system software</td>
<td>Operating system software</td>
</tr>
<tr>
<td>Diagnostic testing</td>
<td>Diagnostic testing</td>
<td>Diagnostic testing</td>
</tr>
<tr>
<td>Safety</td>
<td>Safety</td>
<td>Safety</td>
</tr>
<tr>
<td>(Section 3)</td>
<td>(Section 3)</td>
<td>(Section 3)</td>
</tr>
<tr>
<td><strong>THREE Web and software applications stream units of competency</strong> (Section 2.5, Table 4) with the Web and software applications focus area (Section 3)</td>
<td><strong>THREE Networking and hardware stream units of competency</strong> (Section 2.5, Table 5) with the Networking and hardware focus area (Section 3)</td>
<td><strong>TWO Digital animation stream units of competency</strong> (Section 2.5, Table 6) with the Digital animation focus area (Section 3)</td>
</tr>
<tr>
<td>HSC elective units of competency to a minimum of <strong>85 HSC indicative hours</strong> from the streams not already undertaken and/or the elective pool (Section 2.5, Tables 5–7)</td>
<td>HSC elective units of competency to a minimum of <strong>80 HSC indicative hours</strong> from the streams not already undertaken and/or the elective pool (Section 2.5, Tables 4, 6–7)</td>
<td>HSC elective units of competency to a minimum of <strong>85 HSC indicative hours</strong> from the streams not already undertaken and/or the elective pool (Section 2.5, Tables 4–5, 7)</td>
</tr>
<tr>
<td>a minimum of <strong>70 hours of work placement</strong> (Section 2.1.5)</td>
<td>a minimum of <strong>70 hours of work placement</strong> (Section 2.1.5)</td>
<td>a minimum of <strong>70 hours work placement</strong> (Section 2.1.5)</td>
</tr>
</tbody>
</table>
2.4 Information and Digital Technology Specialisation Study
(60, 120, 180 or 240 indicative hours)

Course eligibility

The Information and Digital Technology Specialisation Study is available only to students who are currently entered in, or have completed, the Information and Digital Technology (240 indicative hours) course.

AQF VET qualification

The Information and Digital Technology Specialisation Study (60 or 120 or 180 or 240 indicative hours) course provides a pathway to the following qualifications:

- Statement of Attainment towards ICT30115 Certificate III in Information, Digital Media and Technology
- ICT30115 Certificate III in Information, Digital Media and Technology

Course structure

The Information and Digital Technology Specialisation Study consists of units of competency (not previously undertaken) from the streams and/or the HSC elective pool.

(See Section 2.5, Tables 4–7 of this Syllabus.)

Course requirements – Information and Digital Technology Specialisation Study
(60, 120, 180 or 240 indicative hours)

Students must attempt:

- a minimum of 60, 120, 180 or 240 HSC indicative hours of units of competency not previously undertaken from the streams and/or the HSC elective pool
  (Section 2.5, Tables 4–7)
- No additional work placement required
2.5 Information and Digital Technology units of competency

Details of units of competency listed in Tables 3–7 are available in the ICT Information and Communications Technology Training Package at http://training.gov.au.

Table 3 Associated mandatory units of competency for the 240-hour course

 Attempt the following units of competency:

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>HSC indicative hours of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSBWHS304 Participate effectively in WHS communication and consultation processes</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT202 Work and communicate effectively in an ICT environment</td>
<td>25</td>
</tr>
<tr>
<td>ICTICT302 Install and optimise operating system software</td>
<td>20</td>
</tr>
<tr>
<td>ICTSAS301 Run standard diagnostic tests</td>
<td>10</td>
</tr>
</tbody>
</table>

Total HSC indicative hours for mandatory: 75
For the 240-hour course, attempt all units of competency from **ONE** of the following three streams:

**Table 4  Associated units of competency – Web and software applications stream**

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>HSC indicative hours of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICTICT203  Operate application software packages</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT308  Use advanced features of computer applications</td>
<td>30</td>
</tr>
<tr>
<td>ICTWEB302  Build simple websites using commercial programs</td>
<td>30</td>
</tr>
</tbody>
</table>

Total HSC indicative hours for Web and software applications: **80**

**OR**

**Table 5  Associated units of competency – Networking and hardware stream**

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>HSC indicative hours of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICTICT303  Connect internal hardware components</td>
<td>30</td>
</tr>
<tr>
<td>ICTSAS305  Provide ICT advice to clients</td>
<td>30</td>
</tr>
<tr>
<td>ICTSAS307  Install, configure and secure a small office or home office network</td>
<td>25</td>
</tr>
</tbody>
</table>

Total HSC indicative hours for Networking and hardware: **85**

**OR**

**Table 6  Associated units of competency – Digital animation stream**

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>HSC indicative hours of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUAANM301  Create 2D digital animations</td>
<td>30</td>
</tr>
<tr>
<td>ICTGAM303  Review and apply the principles of animation</td>
<td>50</td>
</tr>
</tbody>
</table>

Total HSC indicative hours for Digital animation: **80**
## Table 7  HSC elective pool

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>HSC indicative hours of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core</strong></td>
<td></td>
</tr>
<tr>
<td>BSBSUS401 Implement and monitor environmentally sustainable work practices</td>
<td>25</td>
</tr>
<tr>
<td>ICTICT301 Create user documentation</td>
<td>20</td>
</tr>
<tr>
<td><strong>Group A  Applications</strong></td>
<td></td>
</tr>
<tr>
<td>ICTICT304 Implement system software changes</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT307 Customise packaged software applications for clients</td>
<td>30</td>
</tr>
<tr>
<td>ICTICT409 Develop macros and templates for clients using standard products</td>
<td>40</td>
</tr>
<tr>
<td><strong>Group B  Network administration</strong></td>
<td></td>
</tr>
<tr>
<td>ICTNWK301 Provide network systems administration</td>
<td>25</td>
</tr>
<tr>
<td>ICTNWK302 Determine and action network problems</td>
<td>25</td>
</tr>
<tr>
<td>ICTNWK304 Administer network peripherals</td>
<td>20</td>
</tr>
<tr>
<td>ICTNWK305 Install and manage network protocols</td>
<td>30</td>
</tr>
<tr>
<td><strong>Group C  Support</strong></td>
<td></td>
</tr>
<tr>
<td>ICTSAS303 Care for computer hardware</td>
<td>20</td>
</tr>
<tr>
<td>ICTSAS304 Provide basic system administration</td>
<td>15</td>
</tr>
<tr>
<td>ICTSAS306 Maintain equipment and software</td>
<td>20</td>
</tr>
<tr>
<td><strong>Group D  Web technologies</strong></td>
<td></td>
</tr>
<tr>
<td>BSBEBU401 Review and maintain a website</td>
<td>35</td>
</tr>
<tr>
<td>ICTWEB201 Use social media tools for collaboration and engagement</td>
<td>15</td>
</tr>
<tr>
<td>ICTWEB301 Create a simple markup language document</td>
<td>25</td>
</tr>
<tr>
<td>ICTWEB303 Produce digital images for the web</td>
<td>20</td>
</tr>
<tr>
<td><strong>Group E  Multimedia</strong></td>
<td></td>
</tr>
<tr>
<td>CUAANM302 Create 3D digital animations</td>
<td>40</td>
</tr>
<tr>
<td>ICTGAM301 Apply simple modelling techniques</td>
<td>40</td>
</tr>
<tr>
<td>ICTGAM302 Design and apply simple textures to digital art</td>
<td>40</td>
</tr>
</tbody>
</table>
### Table 7 cont/d

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>HSC indicative hours of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group F  General electives</strong></td>
<td></td>
</tr>
<tr>
<td>BSBIPR301  Comply with organisational requirements for protection and use of intellectual property</td>
<td>30</td>
</tr>
<tr>
<td>CUADIG301  Prepare video assets</td>
<td>20</td>
</tr>
<tr>
<td>CUADIG302  Author interactive sequences</td>
<td>20</td>
</tr>
<tr>
<td>CUADIG304  Create visual design components</td>
<td>20</td>
</tr>
<tr>
<td>ICPDMT346  Incorporate video into multimedia presentations</td>
<td>20</td>
</tr>
<tr>
<td>ICTBWN301  Perform tests on optical communication system and components</td>
<td>40</td>
</tr>
<tr>
<td>ICTBWN302  Install optical fibre splitters in fibre distribution hubs</td>
<td>50</td>
</tr>
<tr>
<td>ICTBWN303  Install lead-in module and cable for fibre to the premises</td>
<td>40</td>
</tr>
<tr>
<td>ICTBWN304  Work safely with live fibre to test and commission a fibre to the x installation</td>
<td>50</td>
</tr>
<tr>
<td>Prerequisites:  ICTBWN305  ICTWH3204</td>
<td></td>
</tr>
<tr>
<td>ICTBWN305  Use optical and radio frequency measuring instruments</td>
<td>20</td>
</tr>
<tr>
<td>ICTCBL208  Splice and terminate optical fibre cable for carriers and service providers</td>
<td>40</td>
</tr>
<tr>
<td>ICTCBL219  Apply safe technical work practices for cabling registration when configuring ADSL circuits</td>
<td>50</td>
</tr>
<tr>
<td>ICTCBL236  Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule</td>
<td>60</td>
</tr>
<tr>
<td>Prerequisites:  ICTTEN201  ICTWH3204</td>
<td></td>
</tr>
<tr>
<td>ICTCBL237  Install, maintain and modify customer premises communications cabling: ACMA Open Rule</td>
<td>60</td>
</tr>
<tr>
<td>Prerequisite:  ICTCBL236</td>
<td></td>
</tr>
<tr>
<td>ICTICT305  Identify and use current industry specific technologies</td>
<td>30</td>
</tr>
<tr>
<td>ICTICT306  Migrate to new technology</td>
<td>20</td>
</tr>
<tr>
<td>ICTNWK303  Configure and administer a network operating system</td>
<td>30</td>
</tr>
<tr>
<td>ICTPRG301  Apply introductory programming techniques</td>
<td>30</td>
</tr>
<tr>
<td>ICTTEN201  Use electrical skills in telecommunications work</td>
<td>25</td>
</tr>
<tr>
<td>ICTWH3204  Follow work health and safety and environmental policy and procedures</td>
<td>5</td>
</tr>
</tbody>
</table>
### Table 7 cont/d

<table>
<thead>
<tr>
<th>Unit code and title</th>
<th>HSC indicative hours of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other electives</strong></td>
<td></td>
</tr>
<tr>
<td>ICPDMT321 Capture a digital image</td>
<td>30</td>
</tr>
<tr>
<td>ICTDBS402 Complete database backup and restore</td>
<td>20</td>
</tr>
<tr>
<td>ICTGAM401 Produce an interactive game</td>
<td>35</td>
</tr>
<tr>
<td>ICTICT407 Maintain website information standards</td>
<td>30</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT407 Maintain website information standards</td>
<td>30</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
<tr>
<td>ICTICT408 Create technical documentation</td>
<td>20</td>
</tr>
</tbody>
</table>
3 HSC Content

The HSC Content for this industry curriculum framework is organised into focus areas. Each focus area prescribes the scope of learning for the HSC. This is drawn from the associated units of competency.

Students undertaking the 240 indicative hour course from the Information and Digital Technology Curriculum Framework must address all of the mandatory focus areas plus one stream focus area.

The Information and Digital Technology Curriculum Framework mandatory focus areas are:
- Working in the industry
- Operating system software
- Diagnostic testing
- Safety.

The Information and Digital Technology Curriculum Framework stream focus areas are:
- Web and software applications
- Networking and hardware
- Digital animation.

The HSC examination in Information and Digital Technology is based on the HSC Content in this Framework (refer to Section 4 of this Syllabus).

The following table outlines the associated units of competency for each focus area.
Table 8  Focus areas and associated units of competency

**Mandatory**

<table>
<thead>
<tr>
<th>Focus area</th>
<th>Unit code</th>
<th>Unit title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working in the industry</td>
<td>ICTICT202</td>
<td>Work and communicate effectively in an ICT environment</td>
</tr>
<tr>
<td>Operating system software</td>
<td>ICTICT302</td>
<td>Install and optimise operating system software</td>
</tr>
<tr>
<td>Diagnostic testing</td>
<td>ICTSAS301</td>
<td>Run standard diagnostic tests</td>
</tr>
<tr>
<td>Safety</td>
<td>BSBWHS304</td>
<td>Participate effectively in WHS communication and consultation processes</td>
</tr>
</tbody>
</table>

**Stream**

<table>
<thead>
<tr>
<th>Focus area</th>
<th>Unit code</th>
<th>Unit title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web and software applications</td>
<td>ICTICT203</td>
<td>Operate application software packages</td>
</tr>
<tr>
<td></td>
<td>ICTICT308</td>
<td>Use advanced features of computer applications</td>
</tr>
<tr>
<td></td>
<td>ICTWEB302</td>
<td>Build simple websites using commercial programs</td>
</tr>
<tr>
<td>Networking and hardware</td>
<td>ICTICT303</td>
<td>Connect internal hardware components</td>
</tr>
<tr>
<td></td>
<td>ICTSAS305</td>
<td>Provide ICT advice to clients</td>
</tr>
<tr>
<td></td>
<td>ICTSAS307</td>
<td>Install, configure and secure a small office or home office network</td>
</tr>
<tr>
<td>Digital animation</td>
<td>CUAANM301</td>
<td>Create 2D digital animations</td>
</tr>
<tr>
<td></td>
<td>ICTGAM303</td>
<td>Review and apply the principles of animation</td>
</tr>
</tbody>
</table>
3.1 Working in the industry – mandatory focus area

3.1.1 Outcomes

The student:
- examines the nature of the information and communications technology (ICT) industry
- demonstrates an understanding of how to deliver quality support for users of ICT services
- explains how to communicate and work effectively with colleagues and clients.

3.1.2 Associated unit of competency

The scope of learning for the HSC must be read and delivered in conjunction with the following associated unit of competency:

- ICTICT202 Work and communicate effectively in an ICT environment

The application and elements for this unit of competency are provided below.

**ICTICT202 Work and communicate effectively in an ICT environment**

*Application* This unit describes the skills and knowledge required to work and communicate effectively within organisational policies and governance arrangements, using information and communications technology (ICT) systems, equipment and software.

*Elements*
1. Prepare to communicate and work effectively within an ICT organisation
2. Use positive and varied communication strategies with ICT clients.

*Assessment requirements* for **ICTICT202 Work and communicate effectively in an ICT environment** are detailed in the Training Package.
3.1.3 Scope of learning for the HSC

<table>
<thead>
<tr>
<th>nature of the industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>• general features of the information and communications technology (ICT) industry:</td>
</tr>
<tr>
<td>‒ in ICT-specific workplaces</td>
</tr>
<tr>
<td>‒ across diverse industries that use ICT</td>
</tr>
<tr>
<td>• service areas within the ICT industry:</td>
</tr>
<tr>
<td>‒ primary role/function(s)</td>
</tr>
<tr>
<td>‒ product(s) and/or service(s) provided</td>
</tr>
<tr>
<td>‒ examples of organisations and/or businesses</td>
</tr>
<tr>
<td>• interrelationships between service areas and the effect on an individual’s work and client outcomes</td>
</tr>
<tr>
<td>• working knowledge of current industry standard hardware and software common to workplaces utilising ICT:</td>
</tr>
<tr>
<td>‒ general features and capabilities</td>
</tr>
<tr>
<td>‒ product directions</td>
</tr>
<tr>
<td>‒ related technical terminology, icons and symbols</td>
</tr>
<tr>
<td>• impact of emerging technology and the convergence of technologies on the ICT industry</td>
</tr>
<tr>
<td>• career pathways across the ICT industry and the knowledge, skills and training (qualifications, vendor certifications and vendor-neutral certifications) required for different job roles</td>
</tr>
<tr>
<td>• industry currency:</td>
</tr>
<tr>
<td>‒ importance of maintaining currency</td>
</tr>
<tr>
<td>‒ individual and workplace strategies to maintain currency, including training and professional development</td>
</tr>
<tr>
<td>• concept of how ICT services contribute to the success of an organisation/business</td>
</tr>
<tr>
<td>• difference between individual and workplace goals and plans</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• types of employment in the ICT industry:</td>
</tr>
<tr>
<td>‒ full-time</td>
</tr>
<tr>
<td>‒ part-time</td>
</tr>
<tr>
<td>‒ casual</td>
</tr>
<tr>
<td>‒ contract</td>
</tr>
<tr>
<td>• the difference between an award, agreement and contract and how they apply to workers in the ICT industry</td>
</tr>
<tr>
<td>• investigate the employment terms and conditions for a specific ICT job role</td>
</tr>
<tr>
<td>• employer and employee rights and responsibilities in relation to employment</td>
</tr>
</tbody>
</table>
employment cont/d

- purpose and value of a code of conduct for the client, the worker and the industry
- equal employment opportunity (EEO):
  - principles
  - intent of EEO legislation
  - reciprocal rights and responsibilities of employers and employees
  - workplace policy and procedures relating to EEO

anti-discrimination

- bullying and harassment in the workplace:
  - indirect
  - direct
  - types:
    - verbal
    - physical
    - psychological
    - sexual
- principles of anti-discrimination
- intent of anti-discrimination legislation
- rights and responsibilities of employers and employees in relation to anti-discrimination
- strategies to eliminate bias and harassment in the workplace
- consequences, including legal ramifications, of inappropriate workplace behaviour
- recourse available to individuals in the event of inappropriate workplace behaviour

ICT worker

- scope of ICT work tasks and services provided within a workplace, including knowledge of the operational environment:
  - customer base
  - company products and services
- personal attributes, work ethic and employability skills valued by the ICT industry
- interpersonal skills beneficial to an individual working in an ICT workplace
- personal presentation standards for a specific ICT workplace and job role
- duties and responsibilities for a specific ICT job role within a workplace
- access and use a range of information sources relating to ICT work tasks and services, including:
  - job description
  - role/duty statement
<table>
<thead>
<tr>
<th>ICT worker cont/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>– organisational chart</td>
</tr>
<tr>
<td>– instruction and/or product manual</td>
</tr>
<tr>
<td>– internet and/or intranet</td>
</tr>
<tr>
<td>– manager/supervisor/team leader</td>
</tr>
<tr>
<td>– colleagues</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>work practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>• how work practices are implemented and maintained in accordance with:</td>
</tr>
<tr>
<td>– industry standards</td>
</tr>
<tr>
<td>– workplace policy and procedures</td>
</tr>
<tr>
<td>– workplace documentation</td>
</tr>
<tr>
<td>– legal and ethical requirements</td>
</tr>
<tr>
<td>• effect of poor work practices on colleagues, clients and the workplace</td>
</tr>
<tr>
<td>• time and task management:</td>
</tr>
<tr>
<td>– principles</td>
</tr>
<tr>
<td>– techniques</td>
</tr>
<tr>
<td>– prioritising</td>
</tr>
<tr>
<td>• environmentally sustainable work practices:</td>
</tr>
<tr>
<td>– energy and resource conservation</td>
</tr>
<tr>
<td>– e-waste disposal</td>
</tr>
<tr>
<td>– recycling</td>
</tr>
<tr>
<td>• feedback:</td>
</tr>
<tr>
<td>– value of feedback to an individual worker and the workplace</td>
</tr>
<tr>
<td>– types of feedback:</td>
</tr>
<tr>
<td>▪ formal and informal</td>
</tr>
<tr>
<td>▪ direct and indirect</td>
</tr>
<tr>
<td>– strategies for obtaining and interpreting feedback from supervisor(s), colleagues and clients</td>
</tr>
<tr>
<td>– dealing with positive and negative feedback</td>
</tr>
<tr>
<td>– responsibility of a worker to use personal reflection, seek and provide feedback and improve</td>
</tr>
<tr>
<td>• customer service:</td>
</tr>
<tr>
<td>– characteristics</td>
</tr>
<tr>
<td>– strategies for establishing quality service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>working with others</th>
</tr>
</thead>
<tbody>
<tr>
<td>• importance of developing collegial work relationships</td>
</tr>
<tr>
<td>• importance of teamwork in an ICT work environment:</td>
</tr>
<tr>
<td>– definition of ‘team’ and ‘teamwork’</td>
</tr>
<tr>
<td>– characteristics of effective teamwork</td>
</tr>
</tbody>
</table>
working with others cont/d

- benefits of teamwork
- examples of ICT teams or work groups in a workplace and their area(s) of responsibility

- concepts of cultural diversity, cultural awareness and inclusiveness
- proactive strategies for promoting workplace diversity and accommodating individual differences
- determine key players in ICT in a workplace, their role and importance
- relationship between individual roles and the role of the team or work group

communication

- communication in the workplace with colleagues and clients:
  - communication process/cycle
  - workplace examples of types of communication:
    - verbal
    - non-verbal
    - written
  - effective verbal, non-verbal and written communication
  - effective questioning and listening techniques
  - barriers to effective communication and strategies to overcome them
  - a range of communication methods/equipment used in an ICT workplace:
    - general features
    - benefits
    - selection
    - use
  - workplace protocols and procedures in relation to lines of communication and referral of client requests
3.2 Operating system software – mandatory focus area

3.2.1 Outcomes

The student:
• explains the purpose and functions of an operating system
• demonstrates an understanding of the processes and procedures for installing, configuring, optimising and testing an operating system.

3.2.2 Associated unit of competency

The scope of learning for the HSC must be read and delivered in conjunction with the following associated unit of competency:
• ICTICT302 Install and optimise operating system software

The application and elements for this unit of competency are provided below.

ICTICT302 Install and optimise operating system software

Application This unit defines the skills and knowledge required to install, configure and optimise operating system (OS) software to meet business and client needs.

Elements
1. Determine function of operating system
2. Obtain operating system
3. Install, configure and optimise operating system
4. Provide instruction to meet new software requirements.

Assessment requirements for ICTICT302 Install and optimise operating system software are detailed in the Training Package.
### 3.2.3 Scope of learning for the HSC

#### operating systems

- purposes of an operating system:
  - as a computer’s foundation software
  - to manage:
    - all software applications running in a computer
    - allocation and use of a computer’s resources:
      - access and security
      - central processing unit (CPU) time
      - hard disk space
      - memory
      - peripheral devices
  - to provide a user interface

- basic functions of an operating system related to:
  - file system structures
  - memory management, including the role of virtual memory
  - management of process schedules

- features and capabilities of different types of operating systems:
  - batch operating systems
  - real-time operating systems
  - multi-tasking operating systems

- examples of commonly used operating systems for desktop and mobile devices and the differences between them in relation to:
  - licensing:
    - proprietary
    - open source
  - hardware requirements

#### selecting an operating system

- how a range of requirements affects the choice of an operating system:
  - workplace
  - hardware and software:
    - vendor specifications
    - type and/or number of software licences
  - security
  - accessibility for users with special needs

- making recommendations for an upgrade to, or a new, operating system:
  - steps involved
  - methods of documenting
  - provision of documented recommendations to the workplace and/or clients

- importance of communication with the client/system users, supervisor/manager and suppliers when selecting an operating system
installing an operating system

- steps involved in installing an operating system:
  - identify suitable hardware:
    - importance of compatibility
    - difference between minimum requirements and recommended requirements
  - check compliance with vendor specifications
  - implement strategies to minimise disruption to the system users and/or the workplace
  - apply knowledge of the required installation components:
    - configuration of power management:
      - hibernate
      - sleep timers
      - standby
      - suspend
      - wake-on-LAN (local area network)
    - safe removal of peripherals
    - device manager:
      - driver signing
      - installation and updating of device drivers
      - verification
    - disk preparation order:
      - backup existing data
      - formatting the drive
      - partition
      - starting the installation
    - file systems
    - user data migration

- range of options for installing an operating system:
  - file system type
  - network configuration
  - repair and install

- methods for installing an operating system:
  - boot media
  - factory recovery partition
  - install from image
  - network installation
  - recovery disk

configuring an operating system

- how to correctly configure an operating system:
  - choice of a relevant operating system user interface
  - in accordance with workplace requirements
  - to meet the needs of users

- a range of common configuration utilities for one operating system:
  - creation of folders and navigation of the directory
  - file attributes, creation, extensions and permissions
<table>
<thead>
<tr>
<th>configuring an operating system cont/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>– administrative tools, including:</td>
</tr>
<tr>
<td>▪ system settings (control panel or system preferences)</td>
</tr>
<tr>
<td>▪ computer management</td>
</tr>
<tr>
<td>▪ event viewer</td>
</tr>
<tr>
<td>▪ performance monitor</td>
</tr>
<tr>
<td>▪ services</td>
</tr>
<tr>
<td>▪ task manager</td>
</tr>
<tr>
<td>– command line utilities, including ipconfig/ifconfig and Ping</td>
</tr>
<tr>
<td>– graphical user interface utilities</td>
</tr>
<tr>
<td>– location of basic network settings between operating system versions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>optimising an operating system</th>
</tr>
</thead>
<tbody>
<tr>
<td>• importance of optimising an operating system to meet workplace requirements and user needs</td>
</tr>
<tr>
<td>• impact of workplace requirements on how and when system adjustments are made:</td>
</tr>
<tr>
<td>– times when the system can be made available</td>
</tr>
<tr>
<td>– whether the work is performed in-house or by the system vendor</td>
</tr>
<tr>
<td>– contracting arrangements relating to ICT purchasing</td>
</tr>
<tr>
<td>– ICT policy and procedures for service levels and installing software</td>
</tr>
<tr>
<td>• importance of providing instructions for users of a new operating system</td>
</tr>
<tr>
<td>• purpose and importance of documenting action taken in relation to installing, configuring and optimising an operating system:</td>
</tr>
<tr>
<td>– handover documentation</td>
</tr>
<tr>
<td>– user support documentation</td>
</tr>
<tr>
<td>• methods that may be used to obtain client/user feedback on a new system:</td>
</tr>
<tr>
<td>– interview</td>
</tr>
<tr>
<td>– meeting</td>
</tr>
<tr>
<td>– questionnaire</td>
</tr>
<tr>
<td>– survey</td>
</tr>
</tbody>
</table>
3.3 Diagnostic testing – mandatory focus area

3.3.1 Outcomes

The student:
- analyses common symptoms and causes of hardware and operating system problems
- selects and justifies appropriate diagnostic tests for a range of platforms
- explains the purpose of preventative maintenance
- demonstrates an understanding of destructive and malicious software and its removal.

3.3.2 Associated unit of competency

The scope of learning for the HSC must be read and delivered in conjunction with the following associated unit of competency:
- ICTSAS301 Run standard diagnostic tests

The application and elements for this unit of competency are provided below.

ICTSAS301 Run standard diagnostic tests

Application This unit describes the skills and knowledge required to troubleshoot problems and conduct diagnostic tests on a range of platforms.

Elements
1. Identify common symptoms and preventative maintenance techniques
2. Operate system diagnostics
3. Scan system for viruses.

Assessment requirements for ICTSAS301 Run standard diagnostic tests are detailed in the Training Package.
### 3.3.3 Scope of learning for the HSC

#### client business context
- Importance of understanding that a workplace’s business function relies on computers working properly and free of destructive or malicious software
- Workplace policy, procedures and guidelines for the protection of computer systems and networks related to:
  - Diagnostics
  - Preventative maintenance
  - System security
  - Troubleshooting
  - Virus protection

#### troubleshooting
- General features, selection and use of hardware and software diagnostic tools commonly used in the information and communications technology (ICT) industry for a range of platforms
- Common symptoms of problems associated with:
  - Operating systems
  - Desktop applications
  - Laptops
  - Tablets and other mobile devices
  - Printers
  - Other common peripherals
- Awareness of root causes of different types of problems, including those related to:
  - Electrical issues
  - Hardware
  - Operator/user
  - Peripherals
  - Software
  - Connectivity
- Identify and use sources of information for computer-related problems and the diagnostic tools that may be used to troubleshoot them, including vendor online help, manual and reference material
- Strategies for troubleshooting common problems:
  - Identify the possible problem
  - Perform backup procedures before making changes
  - Establish likely cause
  - Run diagnostic tests using appropriate diagnostic programs:
    - Interpret the results of diagnostic tests undertaken
    - Take follow-up action:
      - Re-run diagnostic tests, or escalate them, if the likely cause is not confirmed
      - Resolve the problem if the likely cause is confirmed
**troubleshooting cont/d**

- resolve the identified problem:
  - determine suitable plan of action
  - implement the solution, including backups before making modifications
  - verify full system functionality
  - implement preventative measures to reduce the chance of future problems
- liaise with clients, actions and outcomes

**preventative maintenance**

- strategies and techniques for maintaining computer hardware, software and peripherals in good working order:
  - physical inspection of equipment
  - backup procedures:
    - full backups
    - partial backups including incremental and differential
  - implementing a schedule for tasks associated with routine maintenance:
    - virus scanning
    - installing updates
    - cleaning and repairing of equipment
    - regular optimisation of hard drives
  - proper environment for the use of computer equipment:
    - protection of power sources:
      - surge protectors
      - uninterruptible power supply (UPS)
      - software shutdown
    - providing advice on appropriate environmental conditions
  - acceptable usage policy

**destructive and malicious software protection**

- awareness of current destructive and malicious software:
  - viruses and virus signatures, trojans, worms and other malware (destructive software)
  - malware and phishing (malicious techniques)
  - typical methods of transmission
  - negative impact of destructive and malicious software on the workplace and individuals

- role of destructive and malicious software protection tools in:
  - scheduled scanning
  - detecting and deactivating destructive and malicious software

- procedures for removing destructive and malicious software:
  - deactivating the destructive and malicious software
  - cleaning or removing the destructive and malicious software
### destructive and malicious software protection cont/d

- recovering lost or damaged data, including using backups to restore data, where possible
- taking action to prevent a recurrence

- reporting and recording of destructive and malicious software activity, its symptoms and action taken:
  - to supervisor and ICT support staff
  - through workplace documentation commonly used to maintain information about destructive and malicious software
3.4 Safety – mandatory focus area

3.4.1 Outcomes

The student:

• explains safe work practices and procedures for the information and communications technology (ICT) industry
• demonstrates an understanding of work health and safety (WHS) consultation, participation and compliance in the ICT industry
• applies risk management in an ICT workplace
• describes workplace policy and procedures that ensure the safety of clients, colleagues and the ICT worker.

3.4.2 Associated unit of competency

The scope of learning for the HSC must be read and delivered in conjunction with the following associated unit of competency:

• BSBWH304 Participate effectively in WHS communication and consultation processes

The application and elements for this unit of competency are provided below.

BSBWH304 Participate effectively in WHS communication and consultation processes

Application

This unit describes the skills and knowledge required to participate in work health and safety (WHS) communication and consultation processes.

Elements

1. Contribute to establishing and running WHS consultation and participation processes
2. Raise WHS issues with others
3. Contribute to obtaining and communicating information about WHS issues.

Assessment requirements for BSBWH304 Participate effectively in WHS communication and consultation processes are detailed in the Training Package.
### 3.4.3 Scope of learning for the HSC

<table>
<thead>
<tr>
<th>work health and safety (WHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• meaning of health, safety and duty of care</td>
</tr>
<tr>
<td>• implications of the cost of workplace injury:</td>
</tr>
<tr>
<td>- human</td>
</tr>
<tr>
<td>- social</td>
</tr>
<tr>
<td>- economic</td>
</tr>
<tr>
<td>- organisational</td>
</tr>
<tr>
<td>• acknowledge that WHS is everyone’s responsibility in the workplace and the implications of this responsibility</td>
</tr>
<tr>
<td>• concept of ‘participation’ and ‘consultation’ in relation to WHS</td>
</tr>
<tr>
<td>• primary role/function of key bodies involved in WHS</td>
</tr>
<tr>
<td>- WorkCover NSW</td>
</tr>
<tr>
<td>- Safe Work Australia</td>
</tr>
<tr>
<td>- local councils</td>
</tr>
<tr>
<td>- unions</td>
</tr>
<tr>
<td>- professional associations</td>
</tr>
<tr>
<td>• importance of acting within the level of authority in relation to WHS in the workplace:</td>
</tr>
<tr>
<td>- taking initiative</td>
</tr>
<tr>
<td>- problem-solving</td>
</tr>
<tr>
<td>- decision-making</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHS compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• difference between an act, regulation, code of practice, guidance material and standard (Australian, industry, workplace)</td>
</tr>
<tr>
<td>• consequences of failure to observe (non-compliance) WHS workplace policy and procedures and legislative requirements</td>
</tr>
<tr>
<td>• ICT industry and workplace requirements for monitoring and reporting in relation to WHS</td>
</tr>
<tr>
<td>• describe how, when and to whom to report WHS issues and incidents:</td>
</tr>
<tr>
<td>- types:</td>
</tr>
<tr>
<td>• formal and informal</td>
</tr>
<tr>
<td>• written</td>
</tr>
<tr>
<td>• verbal</td>
</tr>
<tr>
<td>- reporting to appropriate persons</td>
</tr>
<tr>
<td>• purpose and importance of monitoring and reporting</td>
</tr>
<tr>
<td>• apply workplace policy and protocols and regulatory requirements when recording and reporting in relation to WHS</td>
</tr>
</tbody>
</table>
WHS compliance cont/d

- purpose and intent of WHS legislation and codes of practice and their application to the ICT industry and workplace and a specific job role:
  - WHS legislation:
    - Work Health and Safety Act 2011 (NSW) (as amended)
    - Work Health and Safety Regulation 2011 (NSW) (as amended)
  - codes of practice related to:
    - using electricity
    - manual handling
    - risk management
  - WHS consultation

- WHS rights, duties and responsibilities of the person conducting a business or undertaking (PCBU), officer and worker (as defined in the legislation)

risk management

- difference between a hazard and a risk

- risk management and its application in the workplace:
  - hazard identification:
    - potential hazards to self, colleagues, clients and visitors
    - range of hazards:
      - electricity and cabling
      - tools and equipment
      - manual handling
      - materials
      - work processes and practices
      - work environment
      - human factors (self and others)
  - risk assessment
  - risk control (hierarchy):
    - eliminate the risk
    - minimise the risk:
      - substitution
      - modification
      - isolation
      - engineering control
    - other controls:
      - administrative
      - safe work practices
      - personal protective equipment (PPE)
  - monitor and review

safe work practices and procedures

- importance of safe work practices and procedures

- safe work practices and procedures for an ICT workplace and their purposes:
  - electrical safety:
### safe work practices and procedures cont/d

- cabling and leads:
  - proper placement and securing
  - maintenance
  - appropriate storage
- tagging
- general electrical safety
- ergonomics:
  - use of adjustable furniture
  - correct placement of equipment
- posture and exercise:
  - adequate rest breaks
  - task rotation
- lighting
- ventilation
- manual handling techniques:
  - when working individually, in pairs and in a team
  - recommended weight limits
- tools and equipment:
  - selection appropriate to the task/work activity
  - correct use
  - maintenance
  - procurement and disposal
  - clean-up procedures and waste disposal with due consideration of WHS and the environment

- propose safe ICT work practices and procedures for a specific workplace within the ICT industry

### WHS consultation and participation

- barriers to successful consultation and participation in WHS processes:
  - reasons why consultation and participation may be hindered:
    - lack of, or limited access to, WHS-related information
    - unsupportive workplace culture
    - failure to cater for the needs of those with disabilities
    - language and literacy levels of participants
    - unsystematic approaches to work
    - poor communication skills
    - unrealistic timeframes
    - cultural differences
    - geographic dispersal of employees
    - remote location work sites
  - resolutions

- importance of, and procedures for, raising awareness about the need for WHS consultation and participation in an ICT workplace
WHS consultation and participation cont/d

- roles and responsibilities of relevant personnel in WHS consultation and participation:
  - PCBU
  - manager/supervisor/team leader
  - other workers
  - self
  - union
  - health and safety representative (HSR)
  - health and safety committee (including election/formation)
  - WHS specialist/technical adviser
  - workplace assessor

- opportunities for workers to provide input into WHS consultation and participation processes:
  - WHS audit
  - WHS inspection
  - meetings
  - formal and informal discussions

- importance of recording recommendations and following up the outcomes arising from WHS consultation and participation

- methods for communicating WHS information and recommendations

WHS information and data

- internal and external sources of WHS information and data:
  - experts/specialists
  - industry and professional bodies
  - manufacturers' manuals and specifications
  - minutes of meetings
  - safety data sheets (SDS) and registers
  - records
  - regulatory authorities
  - reports
  - unions
  - websites, journals and newsletters

- tools and techniques for gathering WHS information and data:
  - WHS audits
  - checklists
  - formal and informal meetings
  - inspections
  - interviews
  - self-assessment
  - surveys
3.5 Web and software applications – stream focus area

3.5.1 Outcomes

The student:
- demonstrates extensive knowledge of the features and functions of three commercial software applications
- explains the use of problem-solving and troubleshooting strategies for solving software-related problems.

3.5.2 Associated units of competency

The scope of learning for the HSC must be read and delivered in conjunction with the following associated units of competency:

- ICTICT203 Operate application software packages
- ICTICT308 Use advanced features of computer applications
- ICTWEB302 Build simple websites using commercial programs

The application and elements for each of these units of competency are provided below.

ICTICT203 Operate application software packages

Application
This unit describes the skills and knowledge required to identify, select and operate three commercial software packages, including a word-processing and a spreadsheet application package.

Elements
1. Use appropriate workplace health and safety (WHS) office work practices
2. Use appropriate word-processing software
3. Use appropriate spreadsheet software
4. Use a third application software package.

Assessment requirements for ICTICT203 Operate application software packages are detailed in the Training Package.

ICTICT308 Use advanced features of computer applications

Application
This unit describes the skills and knowledge required to use computer applications employing advanced features. It involves manipulating data and accessing support resources to solve routine problems.

Elements
1. Manipulate data
2. Access and use support resources.

Assessment requirements for ICTICT308 Use advanced features of computer applications are detailed in the Training Package.
ICTWEB302  Build simple websites using commercial programs

Application  This unit describes the skills and knowledge required to use web authoring tools to create, modify and test, simple web pages and websites.

Elements  1. Identify the authoring requirements
          2. Create and save the files
          3. Add content to the web pages
          4. Create simple navigation
          5. Test website.

Assessment requirements for ICTWEB302 Build simple websites using commercial programs are detailed in the Training Package.
### 3.5.3 Scope of learning for the HSC

<table>
<thead>
<tr>
<th>commercial software packages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• general features and purpose of commercial software packages:</td>
</tr>
<tr>
<td>– word processing</td>
</tr>
<tr>
<td>– spreadsheet</td>
</tr>
<tr>
<td>– web authoring</td>
</tr>
<tr>
<td>• awareness of the range of commonly used applications for:</td>
</tr>
<tr>
<td>– word processing</td>
</tr>
<tr>
<td>– spreadsheets</td>
</tr>
<tr>
<td>– web authoring and browsers</td>
</tr>
<tr>
<td>• working knowledge of one word processing application, one spreadsheet application and one web authoring application</td>
</tr>
<tr>
<td>• purpose of input and output devices when using commercial software packages</td>
</tr>
<tr>
<td>• safe work practices when using commercial software packages</td>
</tr>
<tr>
<td>• basic understanding of how the Australian Computer Society Code of Ethics relates to the use of commercial software packages</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>document and website production requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• importance of using an application that suits the nature of the document and/or website, its purpose and intended audience</td>
</tr>
<tr>
<td>• how a range of requirements affects the design and structure of documents and simple websites:</td>
</tr>
<tr>
<td>– client requirements</td>
</tr>
<tr>
<td>– workplace requirements related to:</td>
</tr>
<tr>
<td>▪ structure and layout (to ensure consistent style and image)</td>
</tr>
<tr>
<td>▪ content restrictions</td>
</tr>
<tr>
<td>▪ copyright</td>
</tr>
<tr>
<td>▪ editing and amending</td>
</tr>
<tr>
<td>▪ conventions for saving, naming and storing documents/files:</td>
</tr>
<tr>
<td>o file names, locations and pathnames</td>
</tr>
<tr>
<td>o folders</td>
</tr>
<tr>
<td>o directory structures</td>
</tr>
<tr>
<td>o drives</td>
</tr>
<tr>
<td>o backups</td>
</tr>
<tr>
<td>– distribution and storage requirements for:</td>
</tr>
<tr>
<td>▪ text-based documents:</td>
</tr>
<tr>
<td>o archive</td>
</tr>
<tr>
<td>o printing, including page set-up, print area, print quality, select printer, paper source and selection/range of pages</td>
</tr>
<tr>
<td>▪ websites:</td>
</tr>
<tr>
<td>o file transfer protocol (FTP) client for uploads to server</td>
</tr>
<tr>
<td>o server options</td>
</tr>
</tbody>
</table>
features and functions common across word processing, spreadsheet and web authoring software

- working knowledge of features and functions within applications to prepare and present documents and simple websites:
  - for entering and editing content:
    - alpha/numeric text
    - images and graphics
    - interactive components including forms, fields, buttons and drop-down lists
    - links including hyperlinks and embedded links
    - reviewing, including spell and grammar check
  - for structuring content:
    - columns
    - indentations
    - pagination, including page identification, page breaks, worksheets and web pages
    - new lines and paragraphs
    - sections
    - tables and tabulating information
  - for formatting content:
    - alignment
    - fills or shading
    - lines and borders
    - merge and split cells
    - styles
    - text direction
    - typeface and font size
  - for file management:
    - document automation:
      - macros
    - scripts
    - shortcuts
    - permissions
    - security and protection
    - sharing
    - templates
    - version control

additional features and functions specific to word processing, spreadsheet and web authoring software

- features and functions within a word processing application to prepare and present documents:
  - automatic referencing
  - formatted lists
  - mail merge
  - track changes
  - sort
  - table of contents
### Information and Digital Technology Curriculum Framework Stage 6 Syllabus

#### Additional Features and Functions Specific to Word Processing, Spreadsheet and Web Authoring Software Cont’d

- Features and functions within a spreadsheet application to prepare and present documents:
  - Charts
  - Conditional logic
  - Conditional formatting
  - Data validation
  - Formulae and functions
  - Import and export data
  - Mail merge
  - Pivot tables
  - Sort

- Features and functions within a web authoring tool to build simple web pages/websites:
  - Formatted lists
  - HyperText Markup Language (HTML), Cascading Style Sheets (CSS) and eXtensible HyperText Markup Language (XHTML)
  - What-you-see-is-what-you-get (WYSIWYG) versus coding (HTML and CSS)

#### Problem-Solving

- Sources of support commonly used to solve software-related problems:
  - Documentation:
    - Manual
    - Training material
    - Vendor/supplier documentation
  - Online help
  - Technical support:
    - Troubleshooting results
    - Alert message

- Solve routine problems associated with using word processing, spreadsheet and web authoring software

#### Website Authoring

- Use of site maps in planning website navigation

- Process for modifying existing markup

- Website testing:
  - Outline reasons for testing newly built websites:
    - Consistent presentation
    - Consistent performance
    - Meet client needs, including accessibility
  - Procedures for testing elements of simple websites across a variety of browsers and across versions of a browser
3.6 Networking and hardware – stream focus area

3.6.1 Outcomes

The student:
- demonstrates knowledge of the principles and processes involved in setting up a secure small office or home office (SOHO) network
- justifies the selection of appropriate system hardware and software components
- analyses network problems and provides clients with technical advice and support.

3.6.2 Associated units of competency

The scope of learning for the HSC must be read and delivered in conjunction with the following associated units of competency:
- **ICTICT303 Connect internal hardware components**
- **ICTSAS305 Provide ICT advice to clients**
- **ICTSAS307 Install, configure and secure a small office or home office network**

The application and elements for each of these units of competency are provided below.

**ICTICT303 Connect internal hardware components**

*Application*  This unit describes the skills and knowledge required to acquire, install, configure and evaluate system hardware components according to client and user requirements.

*Elements*  
1. Identify, categorise and distinguish between the different types of internal hardware components
2. Determine components required
3. Obtain components
4. Install components
5. Evaluate modified system.

*Assessment requirements* for **ICTICT303 Connect internal hardware components** are detailed in the Training Package.

**ICTSAS305 Provide ICT advice to clients**

*Application*  This unit describes the skills and knowledge required to provide information and communications technology (ICT) advice and support to clients, including the communication of comprehensive technical information.

*Elements*  
1. Review client support issues
2. Provide advice on software, hardware or network
3. Obtain client feedback.

*Assessment requirements* for **ICTSAS305 Provide ICT advice to clients** are detailed in the Training Package.
 ICTSAS307  Install, configure and secure a small office or home office network

Application  This unit describes the skills and knowledge required to identify available network components relevant to the client requirements and to install, configure and secure those components as part of a small office or home office (SOHO) network.

Elements  1. Confirm client requirements and identify relevant network equipment
2. Install and configure hardware and software
3. Configure and test network
4. Secure network
5. Document completed work, hand over to client and obtain client approval.

Assessment requirements for ICTSAS307 Install, configure and secure a small office or home office network are detailed in the Training Package.
3.6.3 **Scope of learning for the HSC**

<table>
<thead>
<tr>
<th>components, protocols and standards</th>
</tr>
</thead>
</table>

- purpose and general characteristics of categories of internal hardware components, including:
  - adapter card
  - central processing unit (CPU) component
  - cooling system
  - expansion slots
  - memory components
  - motherboard
  - storage devices
  - video card

- communication fundamentals:
  - bandwidth and latency
  - full-duplex and half-duplex

- commonly used networking technologies and devices for a small office or home office (SOHO) network:
  - network technologies:
    - local area network (LAN)
    - wide area network (WAN)
    - virtual private network (VPN)
    - workgroups and domains
    - Voice over Internet Protocol (VoIP)
  - devices:
    - network interface card (NIC)
    - wireless access point
    - hub
    - bridge
    - router
    - switch
    - gateway
    - modem

- awareness of industry standards and protocols that may apply to the installation, configuration and securing of a SOHO network, including:
  - standards from the Institute of Electrical and Electronics Engineers (IEEE):
    - Ethernet
    - Wireless LAN (WLAN)
  - protocols:
    - transmission control protocol or internet protocol (TCP/IP)
    - user datagram protocol (UDP)
    - dynamic host configuration protocol (DHCP) settings
    - file transfer protocol (FTP)
    - hypertext transfer protocol (HTTP)
    - hypertext transfer protocol secure (HTTPS)
    - post office protocol (POP)
components, protocols and standards cont/d

- simple mail transfer protocol (SMTP)
- Internet Message Access Protocol (IMAP)
  - hardware and software firewall configuration:
    - port assignment
    - port forwarding

- transmission media commonly used in a SOHO network:
  - wired (cabled), including unshielded twist pair (UTP), coaxial cable and fibre
  - wireless, including Bluetooth and Wi-Fi (IEEE 802.11)
  - connectors (bound):
    - RJ11
    - RJ45
    - LC
    - ST

determining requirements

- factors influencing the design of a SOHO network and choice of hardware and network components:
  - needs of clients/users
  - workplace requirements and/or guidelines
  - industry standards
  - context in which the network will be operating:
    - single or small number of rooms
    - linked PCs/laptops/peripherals
    - with or without server
    - shared peripherals
    - wired and/or wireless connections

- design options for a SOHO network:
  - connecting SOHO to the internet:
    - cable
    - asymmetric digital subscriber line (ADSL)
    - fibre
    - satellite
    - cellular
  - current wireless protocols:
    - 802.11 types
    - Media Access Control (MAC) filtering
    - service set identifier (SSID)
    - Wi-Fi protected access (WPA)
    - wired equivalent privacy (WEP)
  - peripherals

- propose a final network design that meets requirements for use of vendor/supplier information about the required hardware, software and equipment, including technical specifications, availability and cost
**determining requirements cont/d**

- provision of recommendations and importance of liaison and communication with the relevant appropriate persons, including:
  - client/user
  - supervisor
  - organisation
  - vendors/suppliers
- approval(s) to proceed

**network and hardware installation**

- planning for the installation of a SOHO network and its associated components:
  - task priorities
  - obtaining and/or modifying required components
  - timeframes
  - contingencies
  - minimal disruption to clients/users
- compliance with workplace requirements and procedures related to:
  - work environment
  - preventative maintenance
  - diagnostic policy
  - problem-solving processes
  - ICT roles and responsibilities
  - support agreements with vendors/contractors
- processes involved in installation of internal hardware components in accordance with client/user requirements and industry standards
- steps involved in installation of network components related to:
  - wireless router placement
  - cable length
  - cables and connectors:
  - configuration of computers and other hardware:
    - tablet
    - laptop
    - notebook
    - desktop workstation
    - server
    - smartphone
    - thin client
    - workstation
  - configuration of network and other software

**network security**

- key concepts related to network security:
  - data security
  - data sensitivity
### network security cont/d

- data wiping
- hard drive destruction and/or recycling

- potential network security intrusion symptoms and issues related to:
  - share permissions
  - shared files and folders
  - system files and folders
  - user authentication
  - local users and groups:
    - administrator
    - power users
    - guest
    - groups

- actions that may be taken to protect a SOHO network against attacks using:
  - antivirus and antimalware tools
  - authentication technologies:
    - biometrics
    - passwords
    - smart cards
    - user names
  - password policies
  - encryption
  - locking workstations
  - scheduled scans and safe removal techniques

- importance of regular backups of data and software settings

### network and hardware testing

- how network settings are used to troubleshoot network connectivity problems:
  - characteristics of TCP/IP
  - firewall settings
  - mail protocol settings
  - internet protocol versions
  - proxy settings
  - TCP/IP settings

- tools used to test the functionality of network settings and network components in a SOHO network, including Ping and ifconfig/ipconfig

- how the results of network and hardware testing are interpreted and used to:
  - verify the integrity of a system/SOHO network
  - enhance the performance of a system/SOHO network

- feedback on, and evaluation of, a SOHO network and its associated components:
  - client/user feedback
  - analysis of feedback against client/user requirements
  - modification or correction of issues
**provision of client/user support services**

- recognise that different clients/users require different kinds of advice and support:
  - types of clients/users:
    - individuals
    - organisations
    - internal departments within an organisation
    - person(s) within a department
  - advice about:
    - hardware supported by the organisation
    - software-related support
    - network and security issues
    - vendor contract and service agreements
  - support in the form of:
    - identification of training needs
    - one-to-one or group user training
    - provision of documentation including manual, user and vendor documentation

- implementing a new or upgraded system, hardware and/or software

- processes for liaison with clients/users to provide advice and support, and clarify their support needs:
  - active listening to clients/users and colleagues
  - liaising with vendor or maintenance organisations
  - on-site examination
  - frequently asked questions (FAQs)
  - reviewing workplace documentation, such as previous logs, for similar problems or requests
  - communication of problems, findings and solutions
  - provision of clear jargon-free technical information
  - implementation of solutions:
    - support proposed
    - timeframes
    - approval to proceed

- methods for obtaining feedback on the effectiveness of service provision and identifying areas for improvement

- documentation of problems/issues and solutions

**documentation**

- purpose and importance of documenting action taken in relation to setting up a SOHO network and its use, including updating documentation when changes are made

- range of documentation required:
  - recommendations for the network design
  - recommendations and costing for obtaining the associated components
  - final handover documentation
  - logs of client/user problems and issues:
<table>
<thead>
<tr>
<th>documentation cont/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>- new problems/requests</td>
</tr>
<tr>
<td>- history of problems/requests</td>
</tr>
<tr>
<td>- client/user support requirements and solutions</td>
</tr>
<tr>
<td>- manuals and user documentation for clients/users</td>
</tr>
<tr>
<td>- workplace requirements and/or guidelines for record-keeping</td>
</tr>
</tbody>
</table>
3.7 Digital animation – stream focus area

3.7.1 Outcomes

The student:
- demonstrates an understanding of the principles and techniques involved in planning and producing digital animation
- demonstrates knowledge of industry-based software for creating simple 2D and 3D digital animation sequences
- interprets technical specifications and client requirements.

3.7.2 Associated units of competency

The scope of learning for the HSC must be read and delivered in conjunction with the following associated units of competency:
- CUAANM301 Create 2D digital animations
- ICTGAM303 Review and apply the principles of animation

The application and elements for each of these units of competency are provided below.

CUAANM301 Create 2D digital animations

Application
This unit describes the skills and knowledge required to plan and implement design concepts and use industry animation software to create 2D animations for inclusion in interactive media products, short stand-alone animated sequences and basic games.

Elements
1. Identify animation requirements
2. Generate and assess ideas
3. Plan approach
4. Produce animations
5. Finalise animations.

Assessment requirements for CUAANM301 Create 2D digital animations are detailed in the Training Package.

ICTGAM303 Review and apply the principles of animation

Application
This unit describes the skills and knowledge required to review the traditional animation process and design and produce 3-D animated sequences using modelling and animation software.

Elements
1. Prepare the traditional animation process, and the sequence of its component parts
2. Prepare scene layout and storyboarding techniques
3. Nominate appropriate animation keys in a proposed animation sequence
4. Create a short animation
5. Apply traditional animation principles to a 3-D animation.

Assessment requirements for ICTGAM303 Review and apply the principles of animation are detailed in the Training Package.
### 3.7.3 Scope of learning for the HSC

<table>
<thead>
<tr>
<th>digital animation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• general features of, and differences between, a 2D digital animation and a 3D digital animation</td>
</tr>
<tr>
<td>• examples of typical 2D and/or 3D digital animation products:</td>
</tr>
<tr>
<td>– basic games</td>
</tr>
<tr>
<td>– buttons</td>
</tr>
<tr>
<td>– characters</td>
</tr>
<tr>
<td>– illustrations</td>
</tr>
<tr>
<td>– logos</td>
</tr>
<tr>
<td>– objects</td>
</tr>
<tr>
<td>– puzzles</td>
</tr>
<tr>
<td>– simulated sequences</td>
</tr>
<tr>
<td>– stand-alone sequences</td>
</tr>
<tr>
<td>– text</td>
</tr>
<tr>
<td>– titles and credits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>• industry-current tools used to create 2D and 3D digital animated sequences:</td>
</tr>
<tr>
<td>– animation and modelling software</td>
</tr>
<tr>
<td>– hardware, with consideration for:</td>
</tr>
<tr>
<td>▪ processing capabilities</td>
</tr>
<tr>
<td>▪ storage devices</td>
</tr>
<tr>
<td>▪ graphics capabilities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>animation techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>• animation techniques commonly used in the digital animations industry, including:</td>
</tr>
<tr>
<td>– acceleration/deceleration</td>
</tr>
<tr>
<td>– integration of audio elements, music, narration, sound effects</td>
</tr>
<tr>
<td>– hinges and pivots</td>
</tr>
<tr>
<td>– key frames and tweens</td>
</tr>
<tr>
<td>– looping backgrounds</td>
</tr>
<tr>
<td>– morphing and/or object exaggeration</td>
</tr>
<tr>
<td>– motion paths</td>
</tr>
<tr>
<td>– registration points</td>
</tr>
<tr>
<td>– rotation</td>
</tr>
<tr>
<td>– speed/motion blur</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>creative principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 12 principles of animation used in the creation of digital animated sequences:</td>
</tr>
<tr>
<td>– anticipation</td>
</tr>
<tr>
<td>– appeal</td>
</tr>
<tr>
<td>– arcs</td>
</tr>
<tr>
<td>– exaggeration</td>
</tr>
<tr>
<td>– follow-through and overlapping action</td>
</tr>
<tr>
<td>creative principles cont/d</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>– secondary action</td>
</tr>
<tr>
<td>– slow in slow out</td>
</tr>
<tr>
<td>– solid drawing</td>
</tr>
<tr>
<td>– squash and stretch</td>
</tr>
<tr>
<td>– staging</td>
</tr>
<tr>
<td>– straight ahead action and pose to pose</td>
</tr>
<tr>
<td>– timing</td>
</tr>
<tr>
<td>• basic screen principles that apply to the production of digital animated sequences:</td>
</tr>
<tr>
<td>– editing (including basic transitions)</td>
</tr>
<tr>
<td>– framing</td>
</tr>
<tr>
<td>– lighting</td>
</tr>
<tr>
<td>– montage</td>
</tr>
<tr>
<td>– narrative</td>
</tr>
<tr>
<td>– story-telling</td>
</tr>
<tr>
<td>– style and/or genre</td>
</tr>
<tr>
<td>• principles of visual design that apply to the production of digital animated sequences:</td>
</tr>
<tr>
<td>– balance</td>
</tr>
<tr>
<td>– composition</td>
</tr>
<tr>
<td>– emphasis</td>
</tr>
<tr>
<td>– focal point</td>
</tr>
<tr>
<td>– movement</td>
</tr>
<tr>
<td>– perspective</td>
</tr>
<tr>
<td>– point of view</td>
</tr>
<tr>
<td>– proportion</td>
</tr>
<tr>
<td>– scale</td>
</tr>
<tr>
<td>– unity</td>
</tr>
<tr>
<td>• basic communication principles that apply to the production of digital animated sequences:</td>
</tr>
<tr>
<td>– communicating the message</td>
</tr>
<tr>
<td>– conveying meaning</td>
</tr>
<tr>
<td>– suitting audience requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>planning a digital animated sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>• roles and responsibilities of various production team members (both creative and technical):</td>
</tr>
<tr>
<td>– animator</td>
</tr>
<tr>
<td>– art director</td>
</tr>
<tr>
<td>– audio asset director</td>
</tr>
<tr>
<td>– director</td>
</tr>
<tr>
<td>– graphic artist</td>
</tr>
<tr>
<td>– instructional designer</td>
</tr>
<tr>
<td>– navigation designer</td>
</tr>
<tr>
<td>– producer</td>
</tr>
<tr>
<td>– project manager</td>
</tr>
<tr>
<td>– system support personnel</td>
</tr>
<tr>
<td>– other technical and specialist personnel</td>
</tr>
</tbody>
</table>
### planning a digital animated sequence cont/d

- importance of collaboration, consultation and teamwork as part of the production process
- importance of scheduling tasks in order to meet project timeframes
- interpreting the requirements of a production brief related to:
  - design specifications for:
    - characters and objects
    - samples
    - script
    - storyboard
  - technical specifications for different output formats and at least two delivery platforms
  - selecting software suitable for the task
  - meeting the needs of target audience/users
  - compliance with copyright
- how to research ideas for digital animation sequences
- develop a final design concept:
  - identify components that contribute to a quality digital animation
  - scene layout
  - script development
  - animation keys
  - production of concept drawings:
    - storyboarding
    - story trees
    - digital illustrations
    - freehand sketches
    - inbetweening and tweening drawings
  - finalise the design concept:
    - presenting design ideas to appropriate persons
    - evaluating and selecting final ideas
- management of files and directories associated with the creation of animated sequences for digital and paper-based files

### producing a digital animation sequence

- requirements and techniques used to create a short digital animated sequence for, at least, two delivery platforms:
  - choice of an appropriate output format
  - identification of key frames
  - production of software-generated or hand-drawn line image drawings for 2D and 3D animated sequences:
    - combining animated objects
    - producing single sequences
    - filling media
producing a digital animation sequence cont/d

- integrating audio, if appropriate
- saving and storing
- rendering for 3D animations

- apply safe work practices and procedures relevant to the production of digital animated sequences

- workplace procedures to ensure quality outcomes when finalising an animated sequence:
  - review, evaluation and feedback:
    - design specifications are met
    - sequence is appropriate for audience/users and technically feasible
  - make changes, as required
4  HSC examination

The Information and Digital Technology Curriculum Framework includes an HSC examination which provides the opportunity for students to have this HSC examination mark contribute to the calculation of their Australian Tertiary Admission Rank (ATAR).

The Information and Digital Technology HSC examination can contribute up to two units towards the calculation of a student’s ATAR.

Students who have completed the Information and Digital Technology (240 indicative hours) course are eligible to sit for the Information and Digital Technology HSC examination.

Students who want to sit for the Information and Digital Technology HSC examination must be entered for both the Information and Digital Technology (240 indicative hours) course and the Information and Digital Technology examination on Schools Online (Administration).

The HSC examination specifications, which describe the format of the external HSC examination, are contained in the Assessment and Reporting in Information and Digital Technology Stage 6 document.

The HSC examination is independent of the competency-based assessment undertaken during the course and has no impact on student eligibility for AQF VET qualifications.

4.1  Examinable outcomes and content

The HSC examination in Information and Digital Technology is based on the HSC Content (focus areas) in this Framework.

The HSC Content is detailed in Section 3 of this Syllabus.

4.2  Relationship of the Information and Digital Technology (240 indicative hours) course structure to the HSC examination

The relationship between the Information and Digital Technology (240 indicative hours) course structure, the HSC Content and the HSC examination is described in the Assessment and Reporting in Information and Digital Technology Stage 6 document.
5 Other important information

5.1 Exclusions

Where there is significant overlap between an HSC VET course and other HSC VET or general education courses, BOSTES has an exclusion between the courses. Exclusions are applied at a course level rather than at the unit of competency level.

In this Framework, students can only undertake the Information and Digital Technology (120 indicative hours) course or the Information and Digital Technology (240 indicative hours) course.

Schools should check all course exclusions when determining an appropriate pattern of study for their students.

VET course exclusions can be checked on the BOSTES website at www.boardofstudies.nsw.edu.au/voc_ed/exclusions.html.

5.2 Recognition of Prior Learning (RPL) and credit transfer within VET courses

Students who have current knowledge, skills or experience relevant to a VET course may be granted credit towards the course requirements.

Arrangements for RPL and credit transfer within VET courses, including processes, application form and examples of possible scenarios, are detailed on the BOSTES website at www.boardofstudies.nsw.edu.au/voc_ed/rpl.html.

5.3 School-based trainees


5.4 Students with special education needs

Students with special education needs may access a VET course in one of two ways:

- by undertaking the course under regular course arrangements, or
- by undertaking selected units of competency within the course that have been identified through the collaborative curriculum planning process.

For more information, see the VET Courses and Students with Special Education Needs fact sheet, as well as Collaborative Curriculum Planning advice, on the BOSTES website.
5.5 Access by students in Years 9 and 10 (Stage 5)

In certain circumstances students in Years 9 and 10 (Stage 5) may access Stage 6 VET courses. Further information is available on the BOSTES website at www.boardofstudies.nsw.edu.au/voc_ed/stage-5.html.
6 Glossary

**Australian Qualifications Framework**
The AQF is the policy framework that defines all qualifications recognised nationally in post-compulsory education and training in Australia. The AQF comprises titles and guidelines that define each qualification, as well as the principles and protocols covering cross-sectoral qualification links and the issuing of qualifications and statements of attainment.

**Australian Apprenticeships**
Australian Apprenticeships encompass all apprenticeships and traineeships. They combine time at work with training and can be full-time, part-time or school-based ([www.australianapprenticeships.gov.au](http://www.australianapprenticeships.gov.au)).

**Competency**
The broad concept of industry competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency requires the application of specified skills, knowledge and attitudes relevant to effective participation in an industry, industry sector or enterprise.

**Core Units of Competency**
Units of competency required by the Training Package to be eligible for an AQF VET qualification.

**Elements of Competency**
The basic building blocks of a unit of competency which describe the key activities or elements of the work covered by the unit.

**Focus Areas**
HSC Content is organised into focus areas. HSC Content prescribes the scope of learning for the HSC.

**Mandatory Units of Competency**
Units of competency that must be studied for an HSC VET course.

**Recognition of Prior Learning (RPL)**
The result of an assessment of an individual’s non-formal and informal learning to determine the extent to which that individual has achieved the required learning outcomes, competency outcomes, or standards for entry to, and/or partial or total completion of, a qualification.

**Registered Training Organisation (RTO)**
A training organisation registered by a registering body in accordance with the VET Quality Framework, within a defined scope of registration (include TAFE NSW institutes, private providers and school system RTOs).

**Scope of Registration**
The particular services and products an RTO is registered to provide. The RTO’s scope defines the specific AQF VET qualifications, units of competency and accredited courses it is registered to provide, and whether it is registered to provide:
- both training delivery and assessment services, and to issue the relevant AQF VET qualifications and statements of attainment, or
- only assessment services, and to issue the relevant AQF VET qualifications and statements of attainment.
| Stage 5 | In NSW, Stage 5 relates to Years 9 and 10 of schooling. |
| Stage 6 | In NSW, Stage 6 relates to Years 11 and 12 of schooling. |
| Statement of Attainment | May be issued in the vocational education and training sector by an RTO when an individual has completed one or more units of competency from nationally recognised qualification(s)/course(s). |
| Training Package | A nationally endorsed, integrated set of competency standards, assessment guidelines and AQF VET qualifications for a specific industry, industry sector or enterprise. |
| training plan | A documented program of training and assessment required for an apprenticeship/traineeship training contract. It is developed by an RTO in consultation with the parties to the contract as the basis for training and assessing a person undertaking an apprenticeship or traineeship. |
| unit of competency | Specification of industry knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace. |

**VET**

**Vocational Education and Training**

**VET qualification**

Formal certification in the VET sector by an RTO that a person has satisfied all requirements of the units of competency or modules that comprise an AQF VET qualification, as specified by:

- a nationally endorsed Training Package, or
- an accredited course that provides training for the qualification.

**VET Quality Framework**

The VET Quality Framework comprises:

- the Standards for Registered Training Organisations
- the Fit and Proper Person Requirements
- the Financial Viability Risk Assessment Requirements
- the Data Provision Requirements, and
- the Australian Qualifications Framework.