



Networking and Security

A/T/V

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Supporting Qualifications from **Information and Communications Technology Training Package**
(refer to training.gov.au)

ICT20120 Certificate II in Applied Digital Technologies (Release 1)

ICT30120 Certificate III in Information Technology

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The ACT Senior Secondary System

The ACT senior secondary system recognises a range of university, vocational or life skills pathways.

The system is based on the premise that teachers are experts in their area: they know their students and community and are thus best placed to develop curriculum and assess students according to their needs and interests. Students have ownership of their learning and are respected as young adults who have a voice.

A defining feature of the system is school-based curriculum and continuous assessment. School-based curriculum provides flexibility for teachers to address students' needs and interests. College teachers have an opportunity to develop courses for implementation across ACT schools. Based on the courses that have been accredited by the BSSS, college teachers are responsible for developing programs of learning. A program of learning is developed by individual colleges to implement the courses and units they are delivering.

Teachers must deliver all content descriptions; however, they do have flexibility to emphasise some content descriptions over others. It is at the discretion of the teacher to select the texts or materials to demonstrate the content descriptions. Teachers can choose to deliver course units in any order and teach additional (not listed) content provided it meets the specific unit goals.

School-based continuous assessment means that students are continually assessed throughout years 11 and 12, with both years contributing equally to senior secondary certification. Teachers and students are positioned to have ownership of senior secondary assessment. The system allows teachers to learn from each other and to refine their judgement and develop expertise.

Senior secondary teachers have the flexibility to assess students in a variety of ways. For example: multimedia presentation, inquiry-based project, test, essay, performance and/or practical demonstration may all have their place. College teachers are responsible for developing assessment instruments with task specific rubrics and providing feedback to students.

The integrity of the ACT Senior Secondary Certificate is upheld by a robust, collaborative and rigorous structured consensus-based peer reviewed moderation process. System moderation involves all year 11 and 12 teachers from public, non-government and international colleges delivering the ACT Senior Secondary Certificate.

Only students who desire a pathway to university are required to sit a general aptitude test, referred to as the ACT Scaling Test (AST), which moderates student scores across courses and colleges. Students are required to use critical and creative thinking skills across a range of disciplines to solve problems. They are also required to interpret a stimulus and write an extended response.

Senior secondary curriculum makes provision for student-centred teaching approaches, integrated and project-based learning inquiry, formative assessment and teacher autonomy. ACT Senior Secondary Curriculum makes provision for diverse learners and students with mild to moderate intellectual disabilities, so that all students can achieve an ACT Senior Secondary Certificate.

The ACT Board of Senior Secondary Studies (BSSS) leads senior secondary education. It is responsible for quality assurance in senior secondary curriculum, assessment and certification. The Board consists of nominees from colleges, professional bodies, universities, industry, parent/carer organisations and unions. The Office of the Board of Senior Secondary Studies (OBSSS) consists of professional and administrative staff who support the Board in achieving its objectives and functions.

ACT Senior Secondary Certificate

Courses of study for the ACT Senior Secondary Certificate:

- provide a variety of pathways, to meet different learning needs and encourage students to complete their secondary education
- enable students to develop the essential capabilities for twenty-first century learners
- empower students as active participants in their own learning
- engage students in contemporary issues relevant to their lives
- foster students' intellectual, social and ethical development
- nurture students' wellbeing, and physical and spiritual development
- enable effective and respectful participation in a diverse society.

Each course of study:

- comprises an integrated and interconnected set of knowledge, skills, behaviours and dispositions that students develop and use in their learning across the curriculum
- is based on a model of learning that integrates intended student outcomes, pedagogy and assessment
- outlines teaching strategies which are grounded in learning principles and encompass quality teaching
- promotes intellectual quality, establish a rich learning environment and generate relevant connections between learning and life experiences
- provides formal assessment and certification of students' achievements.

Vocational Education and Training in ACT Senior Secondary Schools

The Board of Senior Secondary Studies is responsible for the certification of senior secondary school studies in government and non-government schools in the ACT. Students can undertake Vocational Education and Training (VET) as part of a senior secondary certificate and completion by a student can provide credit towards both a recognised VET qualification and a Senior Secondary School Certificate.

The BSSS certifies VET qualifications and Statements of Attainment on behalf of ACT colleges and high schools that offer Australian VET Qualifications and are Registered Training Organisations (RTOs) or have a Third-Party Service Agreement (TPSA) with an RTO. The Board also recognises VET qualifications delivered by external RTOs and facilitates the allocation of credit towards the ACT Senior Secondary Certificate based on assessment and hours of training.

The BSSS is not an RTO and is not responsible for those aspects that relate to VET delivery in schools or externally that fall within the role of the RTO.

Vocational programs must be assessed in accordance with the *Standards for Registered Training Organisations 2015* and the guidelines outlined in the relevant training package. Students undertaking A, T and M accredited vocational programs will be assessed against the criteria and achievement standards referenced in the framework to produce A-E grades and scores. They will also be assessed against competency standards as described in the relevant training package.

The BSSS certifies VET that:

- is listed on the national training.gov.au website; and
- is delivered and assessed by an ACT college or high school, which is an RTO or has a Third-Party Service Agreement (TPSA) with an RTO that has scope from the Australian Skills Quality Authority (ASQA) to deliver specified qualifications
- is delivered and assessed in accordance with relevant Training Package requirements.

Vocational learning contributes to the ACT Senior Secondary Certificate in a variety of ways:

- BSSS accredited A, T, and M vocational courses with embedded competencies delivered by colleges are reported with A–E grades
- BSSS accredited C courses (competency-based assessment only) delivered and assessed by colleges are reported with the grade 'P' (Pass) where at least one competency is achieved by the student; or 'Q?' 'Participated' where no competencies are achieved but attendance requirements are met
- BSSS E courses recognising study at external RTOs are reported with the grade 'P' (Pass)
- Australian School Based Apprenticeships (ASBAs) are reported as E courses with the grade 'P' (Pass).

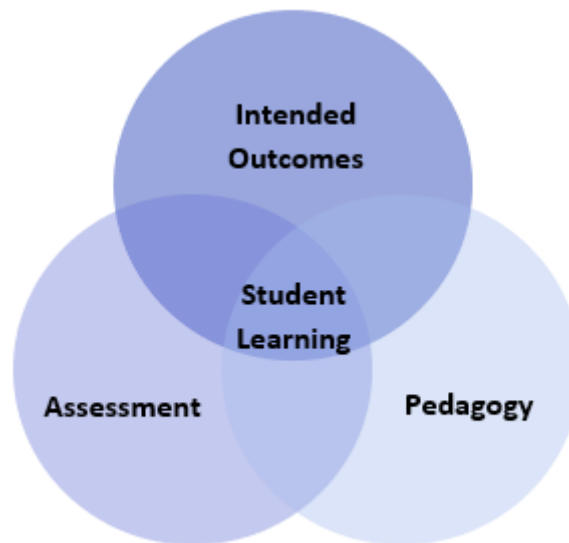
The BSSS credit arrangements recognise VET studies externally:

- through direct credit when the qualification or Units of Competence relate to a VET course that is being studied by the student
- towards the Senior Secondary Certificate, providing the VET does not duplicate content.

Implementing Vocational Education and Training Courses (Appendix F) provides further course information, including training package requirements, and should be read in conjunction with course documents.

Underpinning beliefs

- All students are able to learn.
- Learning is a partnership between students and teachers.
- Teachers are responsible for advancing student learning.



Learning Principles

1. Learning builds on existing knowledge, understandings and skills.
(*Prior knowledge*)
2. When learning is organised around major concepts, principles and significant real world issues, within and across disciplines, it helps students make connections and build knowledge structures.
(*Deep knowledge and connectedness*)
3. Learning is facilitated when students actively monitor their own learning and consciously develop ways of organising and applying knowledge within and across contexts.
(*Metacognition*)
4. Learners' sense of self and motivation to learn affects learning.
(*Self-concept*)
5. Learning needs to take place in a context of high expectations.
(*High expectations*)
6. Learners learn in different ways and at different rates.
(*Individual differences*)
7. Different cultural environments, including the use of language, shape learners' understandings and the way they learn.
(*Socio-cultural effects*)
8. Learning is a social and collaborative function as well as an individual one.
(*Collaborative learning*)
9. Learning is strengthened when learning outcomes and criteria for judging learning are made explicit and when students receive frequent feedback on their progress.
(*Explicit expectations and feedback*)

General Capabilities

All courses of study for the ACT Senior Secondary Certificate should enable students to develop essential capabilities for twenty-first century learners. These ‘capabilities’ comprise an integrated and interconnected set of knowledge, skills, behaviours and dispositions that students develop and use in their learning across the curriculum.

The capabilities include:

- literacy
- numeracy
- information and communication technology (ICT)
- critical and creative thinking
- personal and social
- ethical understanding
- intercultural understanding.

Courses of study for the ACT Senior Secondary Certificate should be both relevant to the lives of students and incorporate the contemporary issues they face. Hence, courses address the following three priorities. These priorities are:

- Aboriginal and Torres Strait Islander histories and cultures
- Asia and Australia’s engagement with Asia
- Sustainability.

Elaboration of these General Capabilities and priorities is available on the ACARA website at www.australiancurriculum.edu.au.

Literacy

Students become literate as they develop the knowledge, skills and dispositions to interpret and use language confidently for learning and communicating in and out of school and in order to participate effectively in society. Literacy involves students in listening to, reading, viewing, speaking, writing and creating oral, print, visual and digital texts, and using and modifying language for different purposes in a range of contexts

Networking and Security assists in the development of literacy by introducing specific terminology used in Networking and Security, statistics and other digital technologies contexts. Students will understand the specific language used to describe data, processes, products, information and services. They will develop skills that empower them to be critical consumers of data and be able to access, interpret, analyse, challenge and critically evaluate the ever-expanding and changing knowledge base and influences in the field of Networking and Security.

Students will learn to comprehend and compose texts related to Networking and Security. This includes learning to communicate effectively for a variety of purposes to different audiences, express their own ideas and opinions and evaluate the viewpoints of others.

Numeracy

Networking and Security provides students with opportunities to develop deeper understanding of the mathematics that is implicit in the domain of Networking and Security. As students engage with Networking and Security, students will realise the critical importance of numeracy, be able to select relevant numeracy knowledge and skills, and apply these skills in a range of contexts. Teachers will introduce new concepts as required for the target student group, depending upon their prior studies in Mathematics. Students will use calculation, statistical and linear analytical techniques to collect and interpret information related to a range of quantitative and qualitative data sources. Students will interpret and analyse information using statistical reasoning, to identify patterns and relationships in data, and consider trends, draw conclusions, make predictions and inform future developments in a range of fields.

Information and Communication Technology (ICT) Capability

ICT capability is deeply embedded in the Networking and Security course, which builds directly from the 9-10 bands of the Australian Curriculum in Digital Technologies. Students will further develop their ICT capability across all aspects of the Digital Technologies curriculum: Digital Systems, Data Representation, Data Collection, Data Interpretation, Specification, Algorithms, Impact and Interactions. Students of Networking and Security will learn to effectively and safely access online resources for researching, analysing and interpreting data which will help develop understandings of safety, security, and ethical use of data. Students will further develop their understanding of the role ICT plays in the lives and relationships of young people. Students will develop an understanding of ethical online behaviour, including protocols and practices for using ICT for respectful communication. Students will use ICT as key tools for communicating, collaborating, creating content, seeking help, accessing information and analysing performance in a range of disciplines.

Critical and Creative Thinking

Networking and Security develops students' ability to think logically, critically and creatively in response to a wide range of ideas and challenges within the field of Networking and Security. Students will learn how to critically evaluate evidence related to the learning area and the broad range of associated media messages to creatively generate and explore original alternatives and possibilities. Students' critical and creative thinking skills will be developed through learning experiences that encourage them to pose questions and seek solutions to contemporary issues in Networking and Security. They will learn how to design appropriate strategies to promote and advocate ethical and sustainable use of sophisticated data-driven systems, such as Machine Learning.

Personal and Social Capability

Students develop personal and social capability as they engage in project management and development in a collaborative workspace. They direct their own learning, plan and carry out investigations, and become independent learners who can apply design thinking, technologies understanding and skills when making decisions. Students develop social and employability skills through working cooperatively in teams, sharing and discussing ideas about problems, progress, and innovative solutions, and listening to and respecting the perspectives of others. There are collaborative opportunities for sharing resources and processes, making group decisions, resolving conflict and showing leadership.

Ethical Understanding

Students develop the capacity to understand and apply ethical and socially responsible principles when collaborating with others and creating, sharing and using technologies. When engaged in systems thinking, students evaluate their findings against the criteria of legality, environmental sustainability, economic viability, health, social and emotional responsibility, and social awareness. Students learn about safe and ethical procedures for investigating and working with people, data and materials. They consider their own roles and responsibilities as discerning citizens and learn to detect bias and inaccuracies. Understanding the protection of data, intellectual property and individual privacy in the school environment helps students to be ethical digital citizens.

Intercultural Understanding

Networking and Security will provide opportunities for students to recognise and respect different ways of thinking about a wide range of personal, social and global issues across a range of disciplines. Students will learn about individual, government, and group participation when engaging with automated and systematic data collection. They will gain an appreciation that differences in beliefs and perspectives may affect people's engagement with digital technologies and data collection systems.

Students will learn to act in ways that maintain individual and group integrity and respect human rights. They will examine stereotypical representations of various social and cultural groups in relation to a range of issues. In doing so, students will gain an understanding of how culture shapes personal and social perspectives and interactions. They will develop an understanding, within a selected domain of research, the role of values on families, social groups and institutions, and the broader community.

Cross-Curriculum Priorities

Aboriginal and Torres Strait Islander Histories and Cultures

The Aboriginal and Torres Strait Islander histories and cultures priority provides the opportunity for all young Australians to gain a deeper understanding and appreciation of Aboriginal and Torres Strait Islander histories and cultures, deep knowledge traditions and holistic world views. This knowledge and understanding will enrich all learners' ability to participate positively in the ongoing development of Australia through a deepening knowledge and connection with the world's oldest continuous living cultures.

Asia and Australia's Engagement with Asia

The Asia and Australia's engagement with Asia priority ensures that students learn about and recognise the diversity within and between the countries of the Asia region. They develop knowledge and understanding of Asian societies, cultures, beliefs and environments, and the connections between the peoples of Asia, Australia, and the rest of the world. Asia literacy provides students with the skills to communicate and engage with the peoples of Asia so they can effectively live, work and learn in the region. Students investigate a range of contexts that draw on Asia and Australia's engagement with Asia.

Sustainability

The sustainability priority provides the opportunity for students to develop the knowledge, skills, values and world views necessary for them to act in ways that contribute to more sustainable patterns of living. This priority is futures-oriented, focusing on protecting environments and creating a more ecologically and socially just world through informed action. Actions that support more sustainable patterns of living require consideration of environmental, social, cultural and economic systems and their interdependence. Representations of data are critical to decision making in sustainability issues.

Networking and Security

A/T/V

Rationale

Networking and Security focuses on network technologies and architecture, and the devices, media and services and operations in different types of networks.

The rise of mobile computing and ubiquitous internet access has led to modern computing systems and platforms that are designed for access anywhere, anytime. These platforms all rely on networks that are not only stable and reliable but interconnected and increasingly distributed. Understanding networks and the security implications of data transmission through networks is a critical part of developing digital solutions for a wide audience.

Students learn how networks facilitate device to device communication through an exploration of core networking technologies and their configuration. This could include the study of embedded systems (Internet of Things devices) alongside core networking devices such as routers and switches and the software that manages them.

The security of data and the implications of networked systems for data privacy are considered from many perspectives, including the technical implementation of secure protocols and the ethical challenges associated with providing encrypted communications and storage for all users.

Roles in industry where knowledge of networking is valued vary from system and network administrators through to site reliability engineers and cloud infrastructure developers that maintain complicated, distributed software and networks.

Goals

This course should enable students to:

- analyse problems or challenges to determine needs for solutions or products
- apply the process of design (investigate, design, plan, manage, create, evaluate solutions)
- use critical and creative thinking to design innovative solutions
- produce or create solutions or products to address a need, problem or challenge
- evaluate and use technologies in a range of contexts
- demonstrate problem solving skills
- communicate to different audiences using a range of methods
- engage confidently with and responsibly select and manipulate appropriate technologies – materials, data, systems, tools and equipment.

Unit Titles

- Networking and Cyber Security
- Network Administration and Security
- Designing & Securing Enterprise Networks
- Cloud and Distributed Systems
- Negotiated Study

Organisation of Content

Networking and Cyber Security

In this unit, students learn about networking technologies and cyber security. They explore network traffic, flow, access, use, limitations, and vulnerabilities. The unit has a focus on developing skills including problem solving, communication, time management and teamwork. Students create design solutions for network traffic scenarios and application.

Network Administration and Security

In this unit, students learn designing and administering networks. They explore the process of designing a network, administering a network, securing a network and mitigating network vulnerabilities. This unit focuses on combining networking equipment and end devices. Students create design solutions for network set up and administration.

Designing & Securing Enterprise Networks

In this unit, students learn to scale network design. They explore features of complex networks and the technologies used to improve operations and functions. This unit has a focus on developing skills in problem solving and applying efficiencies to monitor and maintain network infrastructure. Students create large scale network infrastructure.

Cloud and Distributed Systems

In this unit, students learn about cloud and distributed systems. They explore distributed technologies, location of corporate data, security and implications for users and service providers. Students create simulated environments to setup and develop cloud and distributed system architectures.

Negotiated Study

In this unit, students will study an area of special interest to be decided upon by a class, group(s), or an individual student in consultation with the teacher and with the Principal's approval. The program of learning for a Negotiated Study unit must meet all the content descriptions as appear in the unit. Students must have studied a minimum of two standard 1.0 units from this course.

Assessment

The identification of criteria within the achievement standards and assessment tasks types and weightings provide a common and agreed basis for the collection of evidence of student achievement.

Assessment Criteria (the dimensions of quality that teachers look for in evaluating student work) provide a common and agreed basis for judgement of performance against unit and course goals, within and across colleges. Over a course, teachers must use all these criteria to assess students' performance but are not required to use all criteria on each task. Assessment criteria are to be used holistically on a given task and in determining the unit grade.

Assessment Tasks elicit responses that demonstrate the degree to which students have achieved the goals of a unit based on the assessment criteria. The Common Curriculum Elements (CCE) is a guide to developing assessment tasks that promote a range of thinking skills (see Appendix B). It is highly desirable that assessment tasks engage students in demonstrating higher order thinking.

Rubrics are constructed for individual tasks, informing the assessment criteria relevant for a particular task and can be used to assess a continuum that indicates levels of student performance against each criterion.

Assessment Criteria

Students will be assessed on the degree to which they demonstrate:

- knowledge and understanding
- skills.

Assessment Task Types

	Design Process	Design Solution(s)
	Suggested tasks: <ul style="list-style-type: none"> • design development • design documentation • essay • extended response • oral presentation • podcast • portfolio (design process) • project management • report • research task • return brief • review • seminar • short response • storyboard • web portfolio • workshop 	Suggested tasks: <ul style="list-style-type: none"> • digital artefact • digital asset • major project • network • portfolio • product • prototyping • software application • storyboard • website
Weightings in A/V 1.0 and 0.5 units	30 - 70%	30 - 70%
Weightings in T/V 1.0 and 0.5 units	40 - 60%	40 - 60%

Additional Assessment Information

- For a standard unit (1.0), students must complete a minimum of three assessment tasks and a maximum of five.
- For a half standard unit (0.5), students must complete a minimum of two and a maximum of three assessment tasks.
- Assessment tasks for a standard (1.0) or half-standard (0.5) unit must be informed by the Achievement Standards.
- Students should experience a variety of task types and different modes of communication to demonstrate the Achievement Standards.

Achievement Standards

Years 11 and 12 achievement standards are written for A/T courses.

A Year 12 student in any unit is assessed using the Year 12 achievement standards. A Year 11 student in any unit is assessed using the Year 11 achievement standards. Year 12 achievement standards reflect higher expectations of student achievement compared to the Year 11 achievement standards. Years 11 and 12 achievement standards are differentiated by cognitive demand, the number of dimensions and the depth of inquiry.

An achievement standard cannot be used as a rubric for an individual assessment task. Assessment is the responsibility of the college. Student tasks may be assessed using rubrics or marking schemes devised by the college. A teacher may use the achievement standards to inform development of rubrics. The verbs used in achievement standards may be reflected in the rubric. In the context of combined Years 11 and 12 classes, it is best practice to have a distinct rubric for Years 11 and 12. These rubrics should be available for students prior to completion of an assessment task so that success criteria are clear.

Achievement Standards Technologies A Course Year 11

	<i>A student who achieves an A grade typically</i>	<i>A student who achieves a B grade typically</i>	<i>A student who achieves a C grade typically</i>	<i>A student who achieves a D grade typically</i>	<i>A student who achieves an E grade typically</i>
Knowledge and understanding	<ul style="list-style-type: none"> analyses the design process and explains decision making analyses technology concepts and principles and explains the properties of materials or data or systems to address a need, problem, or challenge analyses technologies, explains ethical and sustainable application thinks critically, drawing on data and information to solve complex problems and analyses opportunities for application of technology 	<ul style="list-style-type: none"> explains the design process and describes decision making explains technology concepts and principles and describes the properties of materials or data or systems to address a need, problem, or challenge explains technologies, describes ethical and sustainable application thinks critically, drawing on data and information to solve problems and explains opportunities for application of technology 	<ul style="list-style-type: none"> describes the design process with reference to decision making describes technology concepts and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge describes technologies with some reference to ethical and sustainable application draws on data and information to solve problems and describes opportunities for application of technology 	<ul style="list-style-type: none"> identifies major features of the design process with minimal reference to decision making identifies major technology concepts and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge identifies major features of technologies with minimal reference to ethical and sustainable application identifies some opportunities for application of technology with minimal use of information and data 	<ul style="list-style-type: none"> identifies some features of the design process identifies few technology concepts and principles with minimal reference to properties of materials or data or systems to address a need, problem, or challenge identifies some features of technologies with minimal reference to ethical and sustainable application identifies some opportunities for application of technology with minimal evidence of use of information and data
Skills	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with control and precision demonstrating understanding of the historical and cultural context and its impact creates innovative and high-quality design solutions/products using techniques and approaches and justifies ideas analyses potential prototypes and solutions analysing their appropriateness and effectiveness via iterative improvement and review communicates complex ideas and insights effectively in a range of mediums and justifies ideas coherently using appropriate evidence, metalanguage, and accurate referencing reflects with insight on their own thinking and evaluates inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with control demonstrating understanding of the historical and cultural context and its impact creates high-quality design solutions/products using techniques and approaches and-explains ideas explains potential prototypes and solutions and explains their appropriateness and effectiveness via iterative improvement and review communicates ideas effectively in a range of mediums and justifies ideas coherently using appropriate evidence, metalanguage and referencing reflects on their own thinking and analyses inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and its impact creates functional design solutions/products using techniques and approaches and explains ideas describes potential prototypes and solutions and explains their appropriateness and effectiveness via iterative improvement and review communicates ideas appropriately in mediums and explains ideas coherently using appropriate evidence, metalanguage and referencing reflects on their own thinking and explains inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of its impact creates simple, functional design solutions/products using some techniques and approaches and describes ideas identifies potential prototypes and solutions and describes their appropriateness and effectiveness via iterative improvement and review communicates ideas in mediums and describes ideas with some use of appropriate evidence with minimal use of metalanguage and referencing reflects on their own thinking with some reference to planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with limited control demonstrating minimal evidence of understanding its impact creates simple design solutions/products using some basic techniques and approaches and description of ideas identifies potential prototypes and solutions with minimal reference to their appropriateness and effectiveness via iterative improvement and review communicates basic ideas in few mediums and describes ideas with or no minimal use of appropriate evidence and referencing reflects on their own thinking with minimal reference to planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively

Achievement Standards Technologies T Course Year 11

	<i>A student who achieves an A grade typically</i>	<i>A student who achieves a B grade typically</i>	<i>A student who achieves a C grade typically</i>	<i>A student who achieves a D grade typically</i>	<i>A student who achieves an E grade typically</i>
Knowledge and understanding	<ul style="list-style-type: none"> critically analyses the design process and evaluates constraints and implications for decision making synthesises technology theories, concepts and principles and evaluates the properties of materials or data or systems to address a need, problem, or challenge critically analyses technologies and evaluates ethical and sustainable application of technology thinks critically and creatively, drawing on data and information to solve complex problems 	<ul style="list-style-type: none"> analyses the design process and explains constraints and implications for decision making analyses technology theories, concepts and principles and explains the properties of materials or data or systems to address a need, problem, or challenge analyses technologies and explains ethical and sustainable application of technology thinks critically, drawing on data and information to solve complex problems 	<ul style="list-style-type: none"> explains the design process and describes constraints and implications for decision making explains technology theories, concepts and principles and describes the properties of materials or data or systems to address a need, problem, or challenge explains technologies and describes ethical and sustainable application of technology thinks critically, drawing on data and information to solve problems 	<ul style="list-style-type: none"> describes the design process with some reference to constraints and implications for decision making describes technology theories, concepts, and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge describes technologies with some reference to ethical and sustainable application of technology draws on data and information to solve problems and describes opportunities 	<ul style="list-style-type: none"> identifies features of the design process with minimal reference to decision making identifies technology theories, concepts, and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge identifies some features of technologies with minimal reference to ethical and sustainable application of technology applying minimal use of information and data
Skills	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with control and precision demonstrating understanding of the historical and cultural context and its impact creates innovative and high quality design solutions/products using techniques and approaches and justifies ideas coherently analyses potential prototypes and solutions analysing their appropriateness and effectiveness via iterative improvement and review communicates complex ideas and insights effectively in a range of mediums to a variety of audiences using appropriate evidence, metalanguage, and accurate referencing reflects with insight on their own thinking and that of others and evaluates inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with control demonstrating understanding of the historical and cultural context and its impact creates high-quality design solutions/products using techniques and approaches and justifies ideas coherently analyses potential prototypes and solutions explaining their appropriateness and effectiveness via iterative improvement and review communicates ideas effectively in a range of mediums to a variety of audiences using appropriate evidence, metalanguage, and accurate referencing reflects on their own thinking and analyses inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and its impact creates functional quality design solutions/products using techniques and approaches and explains ideas coherently explains potential prototypes and solutions describing their appropriateness and effectiveness via iterative improvement and review communicates ideas appropriately in a range of mediums to a variety of audiences using appropriate evidence, metalanguage, and accurate referencing reflects on their own thinking and explains inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of its impact creates simple, functional design solutions/products using some techniques and approaches and explains ideas describes potential prototypes and solutions with some reference to their appropriateness and effectiveness via iterative improvement and review communicates ideas in mediums to a variety of audiences using some evidence, metalanguage, and referencing reflects on their own thinking with some reference to inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with limited control demonstrating minimal evidence of understanding its impact creates design solutions/products using some basic techniques and approaches and describes ideas identifies potential prototypes and solutions with minimal reference to their appropriateness and effectiveness via iterative improvement and review communicates basic ideas in mediums to a variety of audiences using minimal evidence, metalanguage, and some referencing reflects on their own thinking with minimal reference to planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively

Achievement Standards Technologies A Course Year 12

	<i>A student who achieves an A grade typically</i>	<i>A student who achieves a B grade typically</i>	<i>A student who achieves a C grade typically</i>	<i>A student who achieves a D grade typically</i>	<i>A student who achieves an E grade typically</i>
Knowledge and understanding	<ul style="list-style-type: none"> analyses the design process and explains opportunities, constraints and implications for decision making analyses technology theories, concepts and principles and explains the properties of materials or data or systems to address a need, problem, or challenge analyses technologies in a range of contexts and explains ethical and sustainable application thinks critically, drawing on data and information to solve complex problems and analyses opportunities for application of technology 	<ul style="list-style-type: none"> explains the design process and describes opportunities, constraints and implications for decision making explains technology theories, concepts and principles and describes the properties of materials or data or systems to address a need, problem, or challenge explains technologies in a range of contexts and describes ethical and sustainable application thinks critically, drawing on data and information to solve problems and explains opportunities for application of technology 	<ul style="list-style-type: none"> describes the design process with reference to opportunities, constraints and implications for decision making describes technology theories, concepts, and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge describes technologies in a range of contexts with some reference to ethical and sustainable application draws on data and information to solve problems and describes opportunities for application of technology 	<ul style="list-style-type: none"> identifies major features of the design process with minimal reference to opportunities, constraints and implications for decision making identifies major technology theories, concepts, and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge identifies major features of technologies with minimal reference to ethical and sustainable application identifies some opportunities for application of technology with limited use of information and data 	<ul style="list-style-type: none"> identifies some features of the design process with minimal understanding of opportunities, constraints, and implications identifies few technology theories, concepts, and principles with minimal reference to properties of materials or data or systems to address a need, problem, or challenge identifies some features of technologies with no reference to ethical and sustainable application identifies some opportunities for application of technology with minimal evidence of use of information and data
Skills	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with control and precision demonstrating understanding of the historical and cultural context and its impact creates innovative and high-quality design solutions/products using efficient techniques and approaches and justifies ideas analyses potential prototypes and solutions, and analyses their appropriateness and effectiveness via iterative improvement and review communicates complex ideas and insights effectively in a range of mediums and justifies ideas coherently using appropriate evidence, metalanguage, and accurate referencing reflects with insight on their own thinking and evaluates inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with control demonstrating understanding of the historical and cultural context and its impact creates high-quality design solutions/products using techniques and approaches and explains ideas explains potential prototypes and solutions, and explains their appropriateness and effectiveness via iterative improvement and review communicates ideas effectively in a range of mediums and justifies ideas coherently using appropriate evidence, metalanguage and referencing reflects on their own thinking and analyses inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and its impact creates functional design solutions/products using some techniques and approaches and explains ideas describes potential prototypes and solutions, and describes their appropriateness and effectiveness via iterative improvement and review communicates ideas appropriately in mediums and explains ideas coherently using appropriate evidence, metalanguage and referencing reflects on their own thinking explains inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of its impact creates functional design solutions/products using some techniques and approaches and describes ideas identifies potential prototypes and solutions, and identifies their appropriateness and effectiveness via iterative improvement and review communicates ideas in mediums and describes ideas with some use of appropriate evidence with minimal use of metalanguage and referencing reflects on their own thinking with some reference to planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with limited control demonstrating minimal evidence of understanding its impact creates simple design solutions/products using basic techniques and approaches and description of ideas identifies potential prototypes and solutions with minimal reference to their appropriateness and effectiveness via iterative improvement and review communicates basic ideas in few mediums and describes ideas with minimal use of appropriate evidence and referencing reflects on their own thinking with minimal reference to planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively

Achievement Standards Technologies T Course Year 12

	<i>A student who achieves an A grade typically</i>	<i>A student who achieves a B grade typically</i>	<i>A student who achieves a C grade typically</i>	<i>A student who achieves a D grade typically</i>	<i>A student who achieves an E grade typically</i>
Knowledge and understanding	<ul style="list-style-type: none"> critically analyses the design process and evaluates opportunities, constraints and implications for decision making critically analyses strategies, methodologies and procedures and evaluates their validity and reliability synthesises technology theories, concepts and principles and evaluates the properties of material or data or systems to address a need, problem, or challenge critically analyses technologies in a range of contexts and evaluates ethical and sustainable application of technology thinks critically and creatively, drawing on data and information to solve complex problems and evaluates opportunities for application of technology 	<ul style="list-style-type: none"> analyses the design process and explains opportunities, constraints and implications for decision making analyses strategies, methodologies and procedures and explains their validity and reliability analyses technology theories, concepts and principles and explains the properties of materials or data or systems to address a need, problem, or challenge analyses technologies in a range of contexts and explains ethical and sustainable application of technology thinks critically, drawing on data and information to solve complex problems and analyses opportunities for application of technology 	<ul style="list-style-type: none"> explains the design process and describes opportunities, constraints and implications for decision making explains strategies, methodologies and procedures and describes their validity and reliability explains technology theories, concepts and principles and describes the properties of materials or data or systems to address a need, problem, or challenge explains technologies in a range of contexts and describes ethical and sustainable application of technology thinks critically, drawing on data and information at times to solve problems and explains opportunities for application of technology 	<ul style="list-style-type: none"> describes the design process with some reference to opportunities, constraints and implications for decision making describes strategies, methodologies, and procedures with some reference to validity and reliability describes technology theories, concepts, and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge describes technologies in a range of contexts with some reference to ethical and sustainable application of technology draws on data and information at times to solve problems and describes opportunities for application of technology 	<ul style="list-style-type: none"> identifies features of the design process with minimal reference to decision making identifies some strategies, methodologies, and procedures with minimal reference to validity and reliability identifies technology theories, concepts, and principles with some reference to properties of materials or data or systems to address a need, problem, or challenge identifies some features of technologies in a range of contexts with minimal reference to ethical and sustainable application of technology identifies some opportunities for application of technology with limited use of information and data
Skills	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies demonstrating an understanding of the historical and cultural context and impact on individuals, groups, communities, and society creates innovative and high-quality design solutions/products using techniques and approaches and justifies ideas logically and coherently critically analyses potential prototypes and solutions evaluating their appropriateness and effectiveness via iterative improvement and review communicates complex ideas and insights effectively in a range of mediums to a variety of audiences using appropriate evidence, metalanguage, and accurate referencing reflects with insight on their own thinking and that of others and evaluates inter and intrapersonal skills including planning, time management, use of appropriate techniques & strategies and capacity to work independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with control demonstrating understanding of the historical and cultural context and impact on individuals, groups, communities, and society creates high quality design solutions/products using techniques and approaches and justifies ideas coherently analyses potential prototypes and solutions analysing their appropriateness and effectiveness via iterative improvement and review communicates ideas effectively in a range of mediums to a variety of audiences using appropriate evidence, metalanguage, and accurate referencing reflects on their own thinking and that of others and analyses inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and the impact on individuals, groups, communities, and society creates functional design solutions/products using techniques and approaches and justifies ideas explains potential prototypes and solutions explaining their appropriateness and effectiveness via iterative improvement and review communicates ideas appropriately in a range of mediums to a variety of audiences using appropriate evidence, metalanguage, and accurate referencing reflects on their own thinking and that of others and explains inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of the impact on individuals, groups, communities, and society creates functional design solutions/products using some techniques and approaches and explains ideas describes potential prototypes and solutions describing their appropriateness and effectiveness via iterative improvement and review communicates ideas in mediums to a variety of audiences using some evidence, metalanguage and referencing reflects on their own thinking with some reference to inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively 	<ul style="list-style-type: none"> applies technology concepts, strategies and methodologies with limited control demonstrating little evidence of understanding of the impact on individuals, groups, communities, and society creates simple, functional design solutions/products using basic techniques and approaches and describes ideas identifies potential prototypes and solutions identifying their appropriateness and effectiveness via iterative improvement and review communicates basic ideas in mediums to a variety of audiences using minimal evidence, metalanguage, and some referencing reflects on their own thinking with minimal reference to planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively

Networking and Cyber Security

Value: 1.0

Networking and Cyber Security a

Value 0.5

Networking and Cyber Security b

Value 0.5

Unit Description

In this unit, students learn about networking application and host based technologies and cyber security. They explore network traffic, flow, access, use, limitations, and vulnerabilities. The unit has a focus on developing skills including problem solving, communication, time management and teamwork. Students create design solutions for network traffic scenarios and application.

Specific Unit Goals

This unit should enable students to:

A Course	T Course
<ul style="list-style-type: none"> examine networking technologies and cyber security design, test and implement secure networks 	<ul style="list-style-type: none"> examine networking technologies and cyber security design, test and implement secure networks

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course
Design process	
<ul style="list-style-type: none"> analyse and apply a design process to create simple networks, applications and hosts understand networking applications and host based technologies and how they influence design analyse network traffic opportunities, constraints and implications for decision making 	<ul style="list-style-type: none"> critically analyse and apply a design process to create networks, applications and hosts understand networking applications and host based technologies and how they influence design evaluate network traffic opportunities, constraints and implications for decision making
Strategies, methodologies and procedures	
<ul style="list-style-type: none"> use strategies to monitor network traffic, for example, validity of data, application and host activity apply procedures to limit network application and host based vulnerabilities, for example, encryption implement methodologies to configure equipment including subnetting and security, for example, passwords applications and hosts 	<ul style="list-style-type: none"> investigate strategies to monitor network traffic, for example, validity of data, application and host activity evaluate procedures to limit network application and host based vulnerabilities, for example, encryption implement methodologies to configure equipment including subnetting and security, for example, passwords

A Course	T Course
<ul style="list-style-type: none"> • apply strategies to work both independently and collaboratively to monitor network traffic application and host activity 	<ul style="list-style-type: none"> • evaluate methodologies and procedures to set up, problem solve and secure network equipment, applications and hosts • apply strategies to work both independently and collaboratively to monitor network traffic, application and host activity
Theories, concepts and materials	
<ul style="list-style-type: none"> • analyse theories on cyber security and networking application and hosts, for example, network application and host based exploits, mitigations • apply theories and concepts on networking models, for example, OSI, TCP-IP • analyse cyber security, ethical and legal implications, for example, hacking 	<ul style="list-style-type: none"> • critically analyse theories on cyber security and networking application and hosts, including network application and host based exploits, mitigations • apply theories and concepts on networking models, including OSI, TCP-IP • critically analyse cyber security, ethical and legal implications, including hacking • evaluate theories and concepts to set up secure network traffic, applications and hosts
Contexts	
<ul style="list-style-type: none"> • apply ethical practices when working in the field of analysing networks and data traffic, applications and hosts for example, authenticity of data • demonstrate cultural understanding through the use an application in networking, for example, protocols for communication of data 	<ul style="list-style-type: none"> • critically analyse the development of networking application and host based technologies has led to the need for cyber security • apply ethical practices when working in the field of analysing networks and data traffic, applications and hosts, including authenticity of data • demonstrate cultural understanding through the use an application in networking, including protocols for communication of data
Communication	
<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • apply teamwork strategies for data collection and interpretation of data in a network 	<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • evaluate and apply teamwork strategies for data collection and interpretation of data in a network

A Course	T Course
<ul style="list-style-type: none"> justify ideas coherently using appropriate evidence and accurate referencing 	<ul style="list-style-type: none"> justify ideas coherently using appropriate evidence and accurate referencing
Reflection	
<ul style="list-style-type: none"> reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning 	<ul style="list-style-type: none"> reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning

A guide to reading and implementing content descriptions

Content descriptions specify the knowledge, understanding and skills that students are expected to learn and that teachers are expected to teach. Teachers are required to develop a program of learning that allows students to demonstrate all the content descriptions.

A program of learning is what a college provides to implement the course for a subject meeting students' needs and interests. It is at the discretion of the teacher to emphasis some content descriptions over others. The teacher may teach additional (not listed) content if it meets the specific unit goals.

For colleges wishing to deliver the VET qualification, there is flexibility for a teacher (provided the RTO has scope) to develop a program of learning aligned with the elements of the VET competencies and A/T content descriptions. The knowledge, skills and understandings within the competencies reflect the knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T course without the VET qualification. In delivering the course teachers will write a program of learning aligned with students' needs and interests, meeting the A/T content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of ICT Information and Communications Technology contexts. Teachers must use this unit document in conjunction with the Units of Competence from the ICT Information and Communications Technology Training Package, which provides performance criteria, range statements and assessment contexts.

Teachers must address **all content** related to the competencies embedded in this unit. Reasonable adjustment may be made only to the mode of delivery, context and support provided according to individual student needs.

Competencies are attached to units and must be delivered in those units. However, ongoing assessment of competencies can occur while the student is enrolled as an ACT Senior Secondary student.

In order to be deemed competent to industry standard, assessment must provide authentic, valid, sufficient and current evidence as indicated in the relevant Training Package.

Certificate II in Applied Digital Technologies (Release 1)

The following **core** units must be delivered and assessed over the semester (if applicable):

Code	Competency Title
BSBSUS211	Participate in sustainable work practices
BSBWHS211	Contribute to the health and safety of self and others
ICTICT213	Use computer operating systems and hardware
ICTICT215	Operate digital media technology packages

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
ICTSAS218	Obtain and Connect hardware peripherals
ICTSAS214	Protect devices from spam and destructive software

Certificate III in Information Technology

The following **core** units must be delivered and assessed over the semester (if applicable):

Code	Competency Title
BSBXCS303	Securely manage personally identifiable information and workplace information

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
ICTSAS215	Protect and secure information assets
ICTNWK308	Determine and action network problems
ICTNWK310	Administer network peripherals
ICTNWK311	Install and test network protocols
ICTICT438	Select, configure and deploy software and hardware testing tools
ICTICT214	Operate application software packages

It is essential to access training.gov.au for detailed up to date information relating to the above competencies.

Assessment

Refer to pages 10-12.

Network Administration and Security

Value: 1.0**Network Administration and Security a****Value 0.5****Network Administration and Security b****Value 0.5**

Unit Description

In this unit, students learn designing and administering networks, applications and hosts. They explore the process of designing a network, administering a network, securing a network and mitigating network vulnerabilities. This unit focuses on combining networking equipment and end devices. Students create design solutions for network set up and administration.

Specific Unit Goals

This unit should enable students to:

A Course	T Course
<ul style="list-style-type: none"> examine network administration and security design, test and administer a network 	<ul style="list-style-type: none"> examine network administration and security design, test and administer a network

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course
Design process	
<ul style="list-style-type: none"> analyse and apply a design process to create and administer networks, applications and hosts understand networking and end devices and how they influence design analyse network administration opportunities, constraints and implications for decision making 	<ul style="list-style-type: none"> critically analyse and apply a design process to create and administer networks, applications and hosts understand networking and end devices and how they influence design evaluate network administration opportunities, constraints and implications for decision making
Strategies, methodologies and procedures	
<ul style="list-style-type: none"> use strategies to set up and administer a network, for example, user requirements apply procedures to integrate networking equipment and devices, for example, client server model implement methodologies to securely configure networking equipment, for example, routers 	<ul style="list-style-type: none"> investigate strategies to set up and administer a network, including user requirements evaluate procedures to integrate networking equipment and devices, including client server model implement methodologies to securely configure networking equipment, including routers, switches, servers and clients evaluate, methodologies and procedures to configure, problem solve monitor, maintain, and administer a secure network

A Course	T Course
<ul style="list-style-type: none"> • apply strategies to work both independently and collaboratively to administer a network, application and host 	<ul style="list-style-type: none"> • apply strategies to work both independently and collaboratively to administer a network, application and host
Theories, concepts and materials	
<ul style="list-style-type: none"> • analyse theories on network administration, for example, secure user accounts, network and application. • apply theories and concepts on network administration, for example, setting up equipment • critically analyse network, application and host security, ethical and legal implications, for example, penetration testing 	<ul style="list-style-type: none"> • critically analyse theories on network administration, including secure user accounts, network and application. • analyse theories and concepts on network administration, including setting up equipment, client server devices • critically analyse network, application and host security, ethical and legal implications, including penetration testing • evaluate theories and concepts to set up secure networks, applications and hosts
Contexts	
<ul style="list-style-type: none"> • apply ethical practices when working in the field of networking administration and secure application development, for example, access to information • demonstrate cultural understanding through the use an application, for example, interacting and empathising with others 	<ul style="list-style-type: none"> • critically analyse the development of how networking administration and application development has led to the need for network and application security • apply ethical practices when working in the field of networking administration and secure application development, including access to information • demonstrate cultural understanding through the use an application, including interacting and empathising with others
Communication	
<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • apply teamwork strategies to administer a network • justify ideas coherently using appropriate evidence and accurate referencing 	<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • evaluate and apply teamwork strategies to administer a network • justify ideas coherently using appropriate evidence and accurate referencing

A Course	T Course
Reflection	
<ul style="list-style-type: none"> reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning 	<ul style="list-style-type: none"> reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning

A guide to reading and implementing content descriptions

Content descriptions specify the knowledge, understanding and skills that students are expected to learn and that teachers are expected to teach. Teachers are required to develop a program of learning that allows students to demonstrate all the content descriptions.

A program of learning is what a college provides to implement the course for a subject meeting students' needs and interests. It is at the discretion of the teacher to emphasis some content descriptions over others. The teacher may teach additional (not listed) content if it meets the specific unit goals.

For colleges wishing to deliver the VET qualification, there is flexibility for a teacher (provided the RTO has scope) to develop a program of learning aligned with the elements of the VET competencies and A/T content descriptions. The knowledge, skills and understandings within the competencies reflect the knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T course without the VET qualification. In delivering the course teachers will write a program of learning aligned with students' needs and interests, meeting the A/T content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of ICT Information and Communications Technology contexts. Teachers must use this unit document in conjunction with the Units of Competence from the ICT Information and Communications Technology Training Package, which provides performance criteria, range statements and assessment contexts.

Teachers must address **all content** related to the competencies embedded in this unit. Reasonable adjustment may be made only to the mode of delivery, context and support provided according to individual student needs.

Competencies are attached to units and must be delivered in those units. However, ongoing assessment of competencies can occur while the student is enrolled as an ACT Senior Secondary student.

In order to be deemed competent to industry standard, assessment must provide authentic, valid, sufficient and current evidence as indicated in the relevant Training Package.

Certificate II in Information, Digital Media and Technology

The following **core** units must be delivered and assessed over the semester (if applicable):

Code	Competency Title
ICTICT213	Use computer operating systems and hardware

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
ICTWEB306	Develop web presence using social media
ICTICT216	Design and create basic organisational documents
ICTICT223	Install software applications
ICTSAS211	Develop solutions for basic ICT malfunctions and problems

Certificate III in Information Technology

The following **core** units must be delivered and assessed over the semester (if applicable):

Code	Competency Title
ICTPRG302	Apply introductory programming techniques
ICTSAS305	Provide ICT advice to clients

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
BSBXCS302	Identify and report online security threats
BSBXCS401	Maintain security of digital devices
ICTNWK307	Provide network systems administration
ICTNWK309	Configure and administer network operating systems
ICTPRG435	Write scripts for software applications
ICTSAS312	Provide basic system administration
ICTSAS310	Install, configure and secure a small office or home office network

It is essential to access training.gov.au for detailed up to date information relating to the above competencies.

Assessment

Refer to pages 10-12.

Designing & Securing Enterprise Networks

Value: 1.0

Designing & Securing Enterprise Networks a

Value 0.5

Designing & Securing Enterprise Networks b

Value 0.5

Unit Description

In this unit, students learn to scale network and application design. They explore features of complex networks and applications and the technologies used to improve operations and functions. This unit has a focus on developing skills in problem solving and applying efficiencies to monitor and maintain network infrastructure.

Students create large scale network infrastructure.

Specific Unit Goals

This unit should enable students to:

A Course	T Course
<ul style="list-style-type: none"> • examine large-scale network design • design a network for the end user 	<ul style="list-style-type: none"> • examine large-scale network design • design a network for the end user

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course
Design process	
<ul style="list-style-type: none"> • analyse and apply a design process to create large scale networks and applications • understand enterprise networking and application technologies and how they influence design • analyse enterprise networks and applications opportunities, constraints and implications for decision making 	<ul style="list-style-type: none"> • critically analyse and apply a design process to create large scale networks and applications • understand enterprise networking and application technologies and how they influence design • evaluate enterprise networks and applications opportunities, constraints and implications for decision making
Strategies, methodologies and procedures	
<ul style="list-style-type: none"> • apply strategies to scale network and application design, for example, efficiencies, access and monitoring • apply procedures to improve operations and functions of a large scale network or application, for example, bandwidth optimisation • implement methodologies to securely set up multi networking devices and technologies, for example, router protocols 	<ul style="list-style-type: none"> • investigate strategies to scale network and application design, for example, efficiencies, access and monitoring • evaluate procedures to improve operations and functions of a large scale network or application, for example, bandwidth optimisation • implement methodologies to securely set up multi networking devices and technologies, for example, router protocols

A Course	T Course
<ul style="list-style-type: none"> • apply strategies to work both independently and collaboratively in an enterprise environment 	<ul style="list-style-type: none"> • evaluate methodologies and procedures to configure, problem solve monitor and maintain a large scale network or application • apply strategies to work both independently and collaboratively in an enterprise environment
Theories, concepts and materials	
<ul style="list-style-type: none"> • analyse theories on enterprise network and application architectures, for example, scaling technologies • apply theories and concepts on enterprise network architectures, for example, bandwidth optimisation • analyse enterprise level security, ethical and legal implications, for example, logging 	<ul style="list-style-type: none"> • critically analyse theories on enterprise network and application architectures, including scaling technologies • evaluate theories and concepts on enterprise network architectures, including bandwidth optimisation • critically analyse enterprise level security, ethical and legal implications, including logging • evaluate theories and concepts to set up enterprise networks and applications
Contexts	
<ul style="list-style-type: none"> • apply ethical practices when working in the field of large scale networks and application administration, for example, reasoning in ensuring access to information • demonstrate cultural understanding through the use an application, for example, roles and representation of people 	<ul style="list-style-type: none"> • critically analyse the development of enterprise technologies has led to the need for bandwidth optimisation • apply ethical practices when working in the field of large scale networks and application administration, including reasoning in ensuring access to information • demonstrate cultural understanding through the use an application, including roles and representation of people
Communication	
<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • apply teamwork strategies to administer an enterprise network • justify ideas coherently using appropriate evidence and accurate referencing 	<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • evaluate and apply teamwork strategies to administer an enterprise network • justify ideas coherently using appropriate evidence and accurate referencing

A Course	T Course
Reflection	
<ul style="list-style-type: none"> reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning 	<ul style="list-style-type: none"> reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning

A guide to reading and implementing content descriptions

Content descriptions specify the knowledge, understanding and skills that students are expected to learn and that teachers are expected to teach. Teachers are required to develop a program of learning that allows students to demonstrate all the content descriptions.

A program of learning is what a college provides to implement the course for a subject meeting students' needs and interests. It is at the discretion of the teacher to emphasis some content descriptions over others. The teacher may teach additional (not listed) content if it meets the specific unit goals.

For colleges wishing to deliver the VET qualification, there is flexibility for a teacher (provided the RTO has scope) to develop a program of learning aligned with the elements of the VET competencies and A/T content descriptions. The knowledge, skills and understandings within the competencies reflect the knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T course without the VET qualification. In delivering the course teachers will write a program of learning aligned with students' needs and interests, meeting the A/T content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of industry contexts. Teachers must use this unit document in conjunction with the Units of Competence from the Information and Communications Technology Training Package, which provides performance criteria, range statements and assessment contexts.

Teachers must address **all content** related to the competencies embedded in this unit. Reasonable adjustment may be made only to the mode of delivery, context and support provided according to individual student needs.

Competencies are attached to units and must be delivered in those units. However, ongoing assessment of competencies can occur while the student is enrolled as an ACT Senior Secondary student.

In order to be deemed competent to industry standard, assessment must provide authentic, valid, sufficient and current evidence as indicated in the relevant Training Package.

Certificate II in Information, Digital Media and Technology

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
ICTICT211	Identify and use basic current industry specific technologies
ICTSAS207	Protect and secure information assets
ICTSAS209	Connect and use a home based local wireless network

Certificate III in Information Technology

The following **core** units must be delivered and assessed over the semester (if applicable):

Code	Competency Title
BSBCRT301	Develop and extend critical and creative thinking skills
BSBXTW301	Work in a team
ICTICT313	Identify IP, ethics and privacy policies in ICT environments

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
BSBXCS405	Contribute to cyber security incident responses
ICTSAS440	Monitor and administer security of ICT systems
ICTSAS213	Maintain ICT system integrity

It is essential to access training.gov.au for detailed up to date information relating to the above competencies.

Assessment

Refer to pages 10-12.

Cloud and Distributed Systems

Value: 1.0

Cloud and Distributed Systems a

Value 0.5

Cloud and Distributed Systems b

Value 0.5

Unit Description

In this unit, students learn about cloud and distributed systems. They explore distributed technologies, location of corporate data, security and implications for users and service providers. Students create simulated environments to setup and develop cloud and distributed system architectures.

Specific Unit Goals

This unit should enable students to:

A Course	T Course
<ul style="list-style-type: none"> examine future trends in networking setup and explore cloud and distributed system architectures 	<ul style="list-style-type: none"> examine future trends in networking setup and explore cloud and distributed system architectures

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course
Design process	
<ul style="list-style-type: none"> analyse and apply a design process for cloud and distributed system technologies understand cloud and distributed systems and how they influence design analyse cloud and distributed systems to opportunities, constraints and implications for decision making 	<ul style="list-style-type: none"> critically analyse and apply a design process for cloud and distributed system technologies understand cloud and distributed systems and how they influence design evaluate cloud and distributed systems to opportunities, constraints and implications for decision making
Strategies, methodologies and procedures	
<ul style="list-style-type: none"> apply strategies to access and use cloud distributed systems, for example, location, access apply procedures to improve operations and functions of a cloud and distributed network, for example, security implement methodologies to access and secure cloud and distributed systems, for example, virtual machines (VM) 	<ul style="list-style-type: none"> investigate strategies to access and use cloud distributed systems, including location, access apply procedures to improve operations and functions of a cloud and distributed network, including security implement methodologies to access and secure cloud and distributed systems, including virtual machines (VM) evaluate methodologies and procedures to configure, problem solve monitor and maintain a cloud and distributed systems

A Course	T Course
<ul style="list-style-type: none"> • apply strategies to work both independently and collaboratively using distributed systems 	<ul style="list-style-type: none"> • apply strategies to work both independently and collaboratively using distributed systems
Theories, concepts and materials	
<ul style="list-style-type: none"> • analyse theories on distributed systems, for example, cloud technologies • apply theories and concepts on distributed systems, for example, location and access, virtual machines • analyse distributed system security, ethical and legal implications, for example, remote access 	<ul style="list-style-type: none"> • critically analyse theories on distributed systems, including cloud technologies • analyse theories and concepts on distributed systems, including location and access, virtual machines • critically analyse distributed system security, ethical and legal implications, including remote access • evaluate theories and concepts that are associated cloud and distributed systems
Contexts	
<ul style="list-style-type: none"> • apply ethical practices when working in the field of cloud and distributed systems, for example, values, rights and responsibilities • demonstrate cultural understanding through the use an application, for example, reflecting on experiences and taking responsibility 	<ul style="list-style-type: none"> • critically analyse the development of cloud and distributed systems • apply ethical practices when working in the field of cloud and distributed systems, for example, values, rights and responsibilities • demonstrate cultural understanding through the use an application, for example, reflecting on experiences and taking responsibility
Communication	
<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • apply teamwork strategies for distributed systems • justify ideas coherently using appropriate evidence and accurate referencing 	<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • evaluate and apply teamwork strategies for distributed systems • justify ideas coherently using appropriate evidence and accurate referencing
Reflection	
<ul style="list-style-type: none"> • reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning 	<ul style="list-style-type: none"> • reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning

A guide to reading and implementing content descriptions

Content descriptions specify the knowledge, understanding and skills that students are expected to learn and that teachers are expected to teach. Teachers are required to develop a program of learning that allows students to demonstrate all the content descriptions.

A program of learning is what a college provides to implement the course for a subject meeting students' needs and interests. It is at the discretion of the teacher to emphasis some content descriptions over others. The teacher may teach additional (not listed) content if it meets the specific unit goals.

For colleges wishing to deliver the VET qualification, there is flexibility for a teacher (provided the RTO has scope) to develop a program of learning aligned with the elements of the VET competencies and A/T content descriptions. The knowledge, skills and understandings within the competencies reflect the knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T course without the VET qualification. In delivering the course teachers will write a program of learning aligned with students' needs and interests, meeting the A/T content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of industry contexts. Teachers must use this unit document in conjunction with the Units of Competence from the Information and Communications Technology Training Package, which provides performance criteria, range statements and assessment contexts.

Teachers must address **all content** related to the competencies embedded in this unit. Reasonable adjustment may be made only to the mode of delivery, context and support provided according to individual student needs.

Competencies are attached to units and must be delivered in those units. However, ongoing assessment of competencies can occur while the student is enrolled as an ACT Senior Secondary student.

In order to be deemed competent to industry standard, assessment must provide authentic, valid, sufficient and current evidence as indicated in the relevant Training Package.

Certificate II in Applied Digital Technologies

The following **core** units must be delivered and assessed over the semester (if applicable):

Code	Competency Title
BSBTEC202	Use digital technologies to communicate in a work environment

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
ICTICT219	Interact and resolve queries with ICT clients
ICTICT222	Research and share ICT solutions for Indigenous users

Certificate III in Information Technology

The following **core** units must be delivered and assessed over the semester (if applicable):

Code	Competency Title
Nil required	

Any **elective** competencies selected to meet packaging rules from the list below may also be delivered:

Code	Competency Title
ICTCLD301	Evaluate characteristics of cloud computing solutions and services
ICTCLD401	Configure cloud services

It is essential to access training.gov.au for detailed up to date information relating to the above competencies.

Assessment

Refer to pages 10-12.

Negotiated Study

Value: 1.0**Negotiated Study a****Value 0.5****Negotiated Study b****Value 0.5**

Prerequisites

Students must have studied at least TWO standard 1.0 units from this course.

Duplication of Content

Students must not duplicate topics, case studies or issues studied in this course.

Unit Description

A negotiated study unit has an important place in senior secondary courses. It is a valuable pedagogical approach that empowers students to make decisions about their own learning. A negotiated study unit is decided upon by a class, group(s) or individual student in consultation with the teacher and with the Principal's approval. The program of learning for a negotiated study unit must meet all the content descriptions as appears in the unit.

NOTE: There are no VET competencies attached to this unit. VET competencies may be assessed where relevant to the focus of the Unit.

Specific Unit Goals

This unit should enable students to:

A Course	T Course
<ul style="list-style-type: none"> analyse key concepts underpinning the area of focus within the field of networking and security apply technology to the area of focus within the field of networking and security 	<ul style="list-style-type: none"> analyse key concepts underpinning the area of focus within the field of networking and security apply technology to the area of focus within the field of networking and security

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course
Design process	
<ul style="list-style-type: none"> analyses the design process and analyses opportunities and constraints apply the design processes 	<ul style="list-style-type: none"> evaluates the design process and analyses opportunities and constraints apply the design processes
Strategies, methodologies and procedures	
<ul style="list-style-type: none"> analyse networking applications & security systems strategies, methodologies and procedures to determine appropriateness, reliability and validity 	<ul style="list-style-type: none"> critically analyse networking applications & security systems strategies, methodologies and procedures to determine appropriateness, reliability and validity

A Course	T Course
<ul style="list-style-type: none"> • create a solution drawing on data and information to apply technology • apply strategies to work both independently and collaboratively to meet deadlines 	<ul style="list-style-type: none"> • create a solution drawing on data and information to apply technology • apply strategies to work both independently and collaboratively in time sensitive environments
Theories, concepts and materials	
<ul style="list-style-type: none"> • analyse theories, concepts and materials to address a need or problem 	<ul style="list-style-type: none"> • evaluate theories, concepts and materials to address a need or problem
Contexts	
<ul style="list-style-type: none"> • analyse contexts relevant to the area of focus • evaluate ethical and sustainable application of technology and its impact 	<ul style="list-style-type: none"> • critically analyse contexts relevant to the area of focus • evaluate ethical and sustainable application of technology and its impact
Communication	
<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • justify ideas coherently using appropriate evidence and accurate referencing 	<ul style="list-style-type: none"> • communicate accurately with others using correct terms in an appropriate format, both orally and in writing • communicate ideas and insights in a range of appropriate mediums to a variety of audiences • justify ideas coherently using appropriate evidence and accurate referencing
Reflection	
<ul style="list-style-type: none"> • reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning 	<ul style="list-style-type: none"> • reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning

A guide to reading and implementing content descriptions

Content descriptions specify the knowledge, understanding and skills that students are expected to learn and that teachers are expected to teach. Teachers are required to develop a program of learning that allows students to demonstrate all the content descriptions. The lens which the teacher uses to demonstrate the content descriptions which is determined by the teacher when developing their program of learning.

A program of learning is what a college provides to implement the course for a subject. It is at the discretion of the teacher to emphasis some content descriptions over others. The teacher may teach additional (not listed) content provided that it meets the specific unit goals. This will be informed by the student needs and interests.

For colleges wishing to deliver the VET qualification, there is flexibility for a teacher (provided the RTO has scope) to develop a program of learning aligned with the elements of the VET competencies and A/T content descriptions. The knowledge, skills and understandings within the competencies reflect the knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T course without the VET qualification. In delivering the course teachers will write a program of learning aligned with students' needs and interests, meeting the A/T content descriptions.

Assessment

Refer to pages 10-12.

Appendix A – Implementation Guidelines

Available course patterns

A standard 1.0 value unit is delivered over at least 55 hours. To be awarded a course, students must complete at least the minimum units over the whole minor, major, major/minor or double major course.

Course	Number of standard units to meet course requirements
Minor	Minimum of 2 units
Major	Minimum of 3.5 units

Units in this course can be delivered in any order.

Prerequisites for the course or units within the course

For the Negotiated Study Unit (if applicable), students must have studied a minimum of TWO standard 1.0 units from this course.

Arrangements for students continuing study in this course

Students who studied the previous course may undertake any units in this course provided there is no duplication of content.

Duplication of Content Rules

Students cannot be given credit towards the requirements for a Senior Secondary Certificate for a unit that significantly duplicates content in a unit studied in another course. The responsibility for preventing undesirable overlap of content studied by a student rests with the principal and the teacher delivering the course. While it is acceptable for a student to be given the opportunity to demonstrate competence in VET qualifications over more than one semester, substantial overlap of content is not permitted. Students will only be given credit for covering the content once.

Relationship to other courses

This course shares common competencies with other BSSS accredited courses:

- Data Science
- Digital Technologies
- Digital Products
- Robotics & Mechatronics

New and/or updated Training Package

Training Packages are regularly updated through the mandatory continuous improvement cycle. This may result in updating of qualifications and a change in the composition of competencies within a qualification. Where qualifications from the new Training Package have been deemed to be equivalent, students may continue their study without interruption. Students will be granted direct credit for those competencies already achieved.

Where there are new competencies or updated competencies with significant change and these are deemed not equivalent, students may apply for Recognition of Prior Learning (RPL) for all or part of competencies.

Granting of RPL for competencies does not equate to points towards the Senior Secondary Certificate.

Recognition of Prior Learning (RPL)

RPL is an assessment process that assesses an individual's formal, non-formal and informal learning to determine the extent to which that individual has achieved the required learning outcomes, competence outcomes, or standards for entry to, and/or partial or total completion of, a VET qualification.

Recognition of competence through the RPL process should be granted to students through gathering supplementary evidence against elements, skills and knowledge from the Training Package as well as through established assessment criteria. RPL may be granted for individual Units of Competence where the evidence is sufficient to do so.

A student having been granted RPL for one or more Units of Competence will still be required to fulfill the time based component of units that contributes to points and A to E grading for the Senior Secondary Certificate.

To cater for this requirement, curriculum designers should design the course to be flexible enough to accommodate students who have gained some competencies through RPL.

Students may demonstrate the achievement of learning outcomes through challenge testing, interview or other means that the teacher deems reasonable. Full records of the RPL process and results must be stored by the college for perusal by the National VET Regulator upon request and should confirmation be required for VET certification. The college must be informed of the application of RPL before the start of the unit that includes the competency. For RPL to be awarded, the Units of Competency must be demonstrated in the Industry context

Guidelines for Delivery

Program of Learning

A program of learning is what a school provides to implement the course for a subject. This meets the requirements for context, scope and sequence set out in the Board endorsed course. Students follow programs of learning in a college as part of their senior secondary studies. The detail, design and layout of a program of learning are a college decision.

The program of learning must be documented to show the planned learning activities and experiences that meet the needs of particular groups of students, taking into account their interests, prior knowledge, abilities and backgrounds. The program of learning is a record of the learning experiences that enable students to achieve the knowledge, understanding and skills of the content descriptions. There is no requirement to submit a program of learning to the OBSSS for approval. The Principal will need to sign off at the end of Year 12 that courses have been delivered as accredited.

Content Descriptions

Are all content descriptions of equal importance? No. It depends on the focus of study. Teachers can customise their program of learning to meet their own students' needs, adding additional content descriptions if desired or emphasising some over others. A teacher must balance student needs with their responsibility to teach all content descriptions. It is mandatory that teachers address all content descriptions and that students engage with all content descriptions.

Half standard 0.5 units

Half standard units appear on the course adoption form but are not explicitly documented in courses. It is at the discretion of the college principal to split a standard 1.0 unit into two half standard 0.5 units. Colleges are required to adopt the half standard 0.5 units. However, colleges are not required to submit explicit documentation outlining their half standard 0.5 units to the BSSS. Colleges must assess students using the half standard 0.5 assessment task weightings outlined in the framework. It is the responsibility of the college principal to ensure that all content is delivered in units approved by the Board.

Reasonable Adjustment

Units in this course are suitable for students requiring reasonable adjustment for delivery and assessment. However, standards of competency (outcomes) as dictated by National Training Packages **cannot be modified**. Students must demonstrate competence to the level required by industry in order to gain a Statement of Attainment or Vocational Certificate.

Moderation

Moderation is a system designed and implemented to:

- provide comparability in the system of school-based assessment
- form the basis for valid and reliable assessment in senior secondary schools
- involve the ACT Board of Senior Secondary Studies and colleges in cooperation and partnership
- maintain the quality of school-based assessment and the credibility, validity and acceptability of Board certificates.

Moderation commences within individual colleges. Teachers develop assessment programs and instruments, apply assessment criteria, and allocate Unit Grades, according to the relevant Course Framework. Teachers within course teaching groups conduct consensus discussions to moderate marking or grading of individual assessment instruments and unit grade decisions.

The Moderation Model

Moderation within the ACT encompasses structured, consensus-based peer review of Unit Grades for all accredited courses over two Moderation Days. In addition to Moderation Days, there is statistical moderation of course scores, including small group procedures, for T courses.

Moderation by Structured, Consensus-based Peer Review

Consensus-based peer review involves the review of student work against system wide criteria and standards and the validation of Unit Grades. This is done by matching student performance with the criteria and standards outlined in the Achievement Standards, as stated in the Framework. Advice is then given to colleges to assist teachers with, or confirm, their judgments. In addition, feedback is given on the construction of assessment instruments.

Preparation for Structured, Consensus-based Peer Review

Each year, teachers of Year 11 are asked to retain originals or copies of student work completed in Semester 2. Similarly, teachers of a Year 12 class should retain originals or copies of student work completed in Semester 1. Assessment and other documentation required by the Office of the Board of Senior Secondary Studies should also be kept. Year 11 work from Semester 2 of the previous year is presented for review at Moderation Day 1 in March, and Year 12 work from Semester 1 is presented for review at Moderation Day 2 in August.

In the lead up to Moderation Day, a College Course Presentation (comprised of a document folder and a set of student portfolios) is prepared for each A, T and M course/units offered by the school and is sent into the Office of the Board of Senior Secondary Studies.

The College Course Presentation

The package of materials (College Course Presentation) presented by a college for review on Moderation Days in each course area will comprise the following:

- a folder containing supporting documentation as requested by the Office of the Board through memoranda to colleges, including marking schemes and rubrics for each assessment item
- a set of student portfolios containing marked and/or graded written and non-written assessment responses and completed criteria and standards feedback forms. Evidence of all assessment responses on which the Unit Grade decision has been made is to be included in the student review portfolios.

Specific requirements for subject areas and types of evidence to be presented for each Moderation Day will be outlined by the Board Secretariat through the *Requirements for Moderation Memoranda* and Information Papers.

Visual evidence for judgements made about practical performances

It is a requirement that schools' judgements of standards to practical performances (A/T/M) be supported by visual evidence (still photos or video).

The photographic evidence submitted must be drawn from practical skills performed as part of the assessment process.

Teachers should consult the BSSS guidelines at:

http://www.bsss.act.edu.au/grade_moderation/moderation_information_for_teachers

for current information regarding all moderation requirements including subject specific and photographic evidence.

Appendix B – Course Developers

Name	College
Graham Cassells	Lake Tuggeranong College
Anil Chopra	Canberra College
Vandana Harnal	Melba Copland Secondary School

Appendix C – Common Curriculum Elements

Common curriculum elements assist in the development of high-quality assessment tasks by encouraging breadth and depth and discrimination in levels of achievement.

Organisers	Elements	Examples
create, compose and apply	apply	ideas and procedures in unfamiliar situations, content and processes in non-routine settings
	compose	oral, written and multimodal texts, music, visual images, responses to complex topics, new outcomes
	represent	images, symbols or signs
	create	creative thinking to identify areas for change, growth and innovation, recognise opportunities, experiment to achieve innovative solutions, construct objects, imagine alternatives
	manipulate	images, text, data, points of view
analyse, synthesise and evaluate	justify	arguments, points of view, phenomena, choices
	hypothesise	statement/theory that can be tested by data
	extrapolate	trends, cause/effect, impact of a decision
	predict	data, trends, inferences
	evaluate	text, images, points of view, solutions, phenomenon, graphics
	test	validity of assumptions, ideas, procedures, strategies
	argue	trends, cause/effect, strengths and weaknesses
	reflect	on strengths and weaknesses
	synthesise	data and knowledge, points of view from several sources
	analyse	text, images, graphs, data, points of view
	examine	data, visual images, arguments, points of view
	investigate	issues, problems
organise, sequence and explain	sequence	text, data, relationships, arguments, patterns
	visualise	trends, futures, patterns, cause and effect
	compare/contrast	data, visual images, arguments, points of view
	discuss	issues, data, relationships, choices/options
	interpret	symbols, text, images, graphs
	explain	explicit/implicit assumptions, bias, themes/arguments, cause/effect, strengths/weaknesses
	translate	data, visual images, arguments, points of view
	assess	probabilities, choices/options
	select	main points, words, ideas in text
identify, summarise and plan	reproduce	information, data, words, images, graphics
	respond	data, visual images, arguments, points of view
	relate	events, processes, situations
	demonstrate	probabilities, choices/options
	describe	data, visual images, arguments, points of view
	plan	strategies, ideas in text, arguments
	classify	information, data, words, images
	identify	spatial relationships, patterns, interrelationships
	summarise	main points, words, ideas in text, review, draft and edit

Appendix D – Glossary of Verbs

Verbs	Definition
Analyse	Consider in detail for the purpose of finding meaning or relationships, and identifying patterns, similarities and differences
Apply	Use, utilise or employ in a particular situation
Argue	Give reasons for or against something
Assess	Make a Judgement about the value of
Classify	Arrange into named categories in order to sort, group or identify
Compare	Estimate, measure or note how things are similar or dissimilar
Compose	The activity that occurs when students produce written, spoken, or visual texts
Contrast	Compare in such a way as to emphasise differences
Create	Bring into existence, to originate
Demonstrate	Give a practical exhibition an explanation
Describe	Give an account of characteristics or features
Discuss	Talk or write about a topic, taking into account different issues or ideas
Evaluate	Examine and judge the merit or significance of something
Examine	Determine the nature or condition of
Explain	Provide additional information that demonstrates understanding of reasoning and /or application
Extrapolate	Infer from what is known
Hypothesise	Put forward a supposition or conjecture to account for certain facts and used as a basis for further investigation by which it may be proved or disproved
Identify	Recognise and name
Interpret	Draw meaning from
Investigate	Planning, inquiry into and drawing conclusions about
Justify	Show how argument or conclusion is right or reasonable
Manipulate	Adapt or change
Plan	Strategize, develop a series of steps, processes
Predict	Suggest what might happen in the future or as a consequence of something
Reflect	The thought process by which students develop an understanding and appreciation of their own learning. This process draws on both cognitive and affective experience
Relate	Tell or report about happenings, events or circumstances
Represent	Use words, images, symbols or signs to convey meaning
Reproduce	Copy or make close imitation
Respond	React to a person or text
Select	Choose in preference to another or others
Sequence	Arrange in order
Summarise	Give a brief statement of the main points
Synthesise	Combine elements (information/ideas/components) into a coherent whole
Test	Examine qualities or abilities
Translate	Express in another language or form, or in simpler terms
Visualise	The ability to decode, interpret, create, question, challenge and evaluate texts that communicate with visual images as well as, or rather than, words

Appendix E – Glossary for ACT Senior Secondary Curriculum

Courses will detail what teachers are expected to teach and students are expected to learn for year 11 and 12. They will describe the knowledge, understanding and skills that students will be expected to develop for each learning area across the years of schooling.

Learning areas are broad areas of the curriculum, including English, mathematics, science, the arts, languages, health and physical education.

A **subject** is a discrete area of study that is part of a learning area. There may be one or more subjects in a single learning area.

Frameworks are system documents for Years 11 and 12 which provide the basis for the development and accreditation of any course within a designated learning area. In addition, frameworks provide a common basis for assessment, moderation and reporting of student outcomes in courses based on the framework.

The **course** sets out the requirements for the implementation of a subject. Key elements of a course include the rationale, goals, content descriptions, assessment, and achievement standards as designated by the framework.

BSSS courses will be organised into units. A unit is a distinct focus of study within a course. A standard 1.0 unit is delivered for a minimum of 55 hours generally over one semester.

Core units are foundational units that provide students with the breadth of the subject.

Additional units are avenues of learning that cannot be provided for within the four core 1.0 standard units by an adjustment to the program of learning.

A **negotiated study unit** makes provision for students, classes, groups or individuals to negotiate the program of learning based on the specific unit goals, content descriptions, assessment and achievement standards of the course.

An **elective** is a lens for demonstrating the content descriptions within a standard 1.0 or half standard 0.5 unit.

A **lens** is a particular focus or viewpoint within a broader study.

Content descriptions refer to the subject-based knowledge, understanding and skills to be taught and learned.

A **program of learning** is what a college develops to implement the course for a subject and to ensure that the content descriptions are taught and learned.

Achievement standards provide an indication of typical performance at five different levels (corresponding to grades A to E) following completion of study of senior secondary course content for units in a subject.

ACT senior secondary system **curriculum** comprises all BSSS approved courses of study.

Appendix F – Implementation of VET Qualifications

VET Qualifications

For **ICT20120 Certificate II in Applied Digital Technologies (Release 1)** the following packaging rules apply:

Total number of units = 12

6 core units plus

6 elective units

The elective units consist of:

- at least 3 must be from Group A (*Italicised*)

of the remaining electives:

- all may be from the electives listed below
- up to 2 may be from elsewhere in this or any other currently endorsed training package qualification or accredited course at AQF Level 1, 2 or 3.

This course, with listed competencies, meets these requirements at time of development.

Colleges are advised to check current training package requirements before delivery.

If the full requirements of a Certificate are not met, students will be awarded a Statement of Attainment listing Units of Competence achieved according to Standard 3 of the Standards for Registered Training Organisations (RTOs) 2015.

Competencies for Certificate II in Applied Digital Technologies

Code	Competency Title	Core/Elective
BSBSUS211	Participate in sustainable work practices	Core
BSBWHS211	Contribute to the health and safety of self and others	Core
ICTICT213	Use computer operating systems and hardware	Core
BSBTEC202	Use digital technologies to communicate in a work environment	Core
ICTICT214	Operate application software packages	Core
ICTICT215	Operate digital media technology packages	Core
ICTWEB306	Develop web presence using social media	Group A
ICTICT216	Design and create basic organisational documents	Group A
ICTICT223	Install software applications	Group A
ICTICT219	Interact and resolve queries with ICT clients	Group A
ICTICT221	Identify and use specific industry standard technologies	Group A
ICTICT222	Research and share ICT solutions for Indigenous users	Group A
ICTSAS211	Develop solutions for basic ICT malfunctions and problems	Group A
ICTSAS218	Obtain and Connect hardware peripherals	Group A
ICTSAS214	Protect devices from spam and destructive software	Group A
ICTSAS215	Protect and secure information assets	Group A
ICTSAS217	Connect a home based local wireless network	Group A

ICT30120 Certificate III in Information Technology

For **ICT30120 Certificate III in Information Technology**, (Release 2) the following packaging rules apply:

Total number of units = 12

6 core units plus

6 elective units

The elective units consist of:

- at least 4 units must be selected from the elective units listed in elective groups A -J as specified in the packaging rules
- up to 2 units may be selected from the remaining listed elective units or from this or any other currently endorsed training package qualification or accredited course at Australian Qualifications Framework (AQF) Level 2, 3 or 4.

This course, with listed competencies, meets these requirements at time of development.

Colleges are advised to check current training package requirements before delivery.

If the full requirements of a Certificate are not met, students will be awarded a Statement of Attainment listing Units of Competence achieved according to Standard 3 of the Standards for Registered Training Organisations (RTOs) 2015.

Competencies for Certificate III in Information Technology

Note: The following competencies for Certificate III in Information Technology have been aligned to the Networking and Security course from the training package.

Code	Competency Title	Core/Elective
BSBCRT301	Develop and extend critical and creative thinking skills	Core
BSBXCS303	Securely manage personally identifiable information and workplace information	Core
BSBXTW301	Work in a team	Core
ICTICT313	Identify IP, ethics and privacy policies in ICT environments	Core
ICTPRG302	Apply introductory programming techniques	Core
ICTSAS305	Provide ICT advice to clients	Core
Group B – Basic Cloud Computing		
ICTCLD301	Evaluate characteristics of cloud computing solutions and services	Elective
ICTCLD401	Configure cloud services	Elective
Group C – Basic Cyber Security Awareness		
BSBXCS302	Identify and report online security threats	Elective
BSBXCS401	Maintain security of digital devices	Elective
BSBXCS405	Contribute to cyber security incident responses	Elective
ICTSAS215	Protect and secure information assets	Elective
ICTSAS440	Monitor and administer security of ICT systems	Elective

Code	Competency Title	Core/Elective
Group G – Networking		
ICTNWK307	Provide network systems administration	Elective
ICTNWK308	Determine and action network problems	Elective
ICTNWK309	Configure and administer network operating systems	Elective
ICTNWK310	Administer network peripherals	Elective
ICTNWK311	Install and test network protocols	Elective
Group H - Programming		
ICTICT438	Select, configure and deploy software and hardware testing tools	Elective
ICTPRG435	Write scripts for software applications	Elective
Group I - Systems		
ICTICT214	Operate application software packages	Elective
ICTSAS213	Maintain ICT system integrity	Elective
ICTSAS312	Provide basic system administration	Elective
ICTSAS310	Install, configure and secure a small office or home office network	Elective

If the full requirements of a Certificate are not met, students will be awarded a Statement of Attainment listing Units of Competence achieved according to Standard 3 of the Standards for Registered Training Organisations (RTOs) 2015.

VET Competencies Mapped to Course Units

Grouping of competencies within units may not be changed by individual colleges.

Competencies designated at the Certificate III level can only be delivered by schools that have scope to do so. Colleges must apply to have additional competencies at a higher level listed on their scope of registration.

Note: When selecting units, colleges must ensure that they follow packaging rules and meet the requirements for the Certificate level. In the event that full Certificate requirements are not met a Statement of Attainment will be issued.

All core competencies must be delivered in the relevant unit. The elective competencies delivered are dependent on the elective units chosen.

VET Implementation Summary

ICT20120 Certificate II in Applied Digital Technologies (Release 1)

BSSS Unit Title	Competencies	
Networking and Cyber Security	BSBSUS211 Participate in sustainable work practices BSBWHS211 Contribute to the health and safety of self and others ICTICT213 Use computer operating systems and hardware ICTICT215 Operate digital media technology packages ICTSAS218 Obtain and connect hardware peripherals ICTSAS214 Protect devices from spam and destructive software	
Network Administration and Security	ICTICT213 Use computer operating systems and hardware ICTWEB306 Develop web presence using social media ICTICT216 Design and create basic organisational documents ICTICT223 Install software applications ICTSAS211 Develop solutions for basic ICT malfunctions and problems	
Designing & Securing Enterprise Networks	ICTICT221 Identify and use specific industry standard technologies ICTSAS215 Protect and secure information assets ICTSAS217 Connect a home based local wireless network	
Cloud and Distributed Systems	BSBTEC202 Use digital technologies to communicate in a work environment ICTICT219 Interact and resolve queries with ICT clients ICTICT222 Research and share ICT solutions for Indigenous users	

ICT30120 Certificate III in Information Technology

BSSS Unit Title	Competencies
Networking and Cyber Security	<p>BSBXCS303 Securely manage personally identifiable information and workplace information</p> <p>ICTICT313 Identify IP, ethics and privacy policies in ICT environments</p> <p>ICTSAS215 Protect and secure information assets</p> <p>ICTNWK308 Determine and action network problems</p> <p>ICTNWK310 Administer network peripherals</p> <p>ICTNWK311 Install and test network protocols</p> <p>ICTICT438 Select, configure and deploy software and hardware testing tools</p> <p>ICTICT214 Operate application software packages</p>
Network Administration and Security	<p>ICTPRG302 Apply introductory programming techniques</p> <p>ICTSAS305 Provide ICT advice to clients</p> <p>BSBXCS302 Identify and report online security threats</p> <p>BSBXCS401 Maintain security of digital devices</p> <p>ICTNWK307 Provide network systems administration</p> <p>ICTNWK309 Configure and administer network operating systems</p> <p>ICTPRG435 Write scripts for software applications</p> <p>ICTSAS312 Provide basic system administration</p> <p>ICTSAS310 Install, configure and secure a small office or home office network</p>
Designing & Securing Enterprise Networks	<p>BSBCRT301 Develop and extend critical and creative thinking skills</p> <p>BSBXTW301 Work in a team</p> <p>BSBXCS405 Contribute to cyber security incident responses</p> <p>ICTSAS440 Monitor and administer security of ICT systems</p> <p>ICTSAS213 Maintain ICT system integrity</p>
Cloud and Distributed Systems	<p>ICTCLD301 Evaluate characteristics of cloud computing solutions and services</p> <p>ICTCLD401 Configure cloud services</p>

Competency Based Assessment

The assessment of competence must focus on the competency standards and the associated elements as identified in the Training Package. Assessors must develop assessment strategies that enable them to obtain sufficient evidence to deem students competent. Competence to industry standard requires a student to be able to demonstrate the relevant skills and knowledge in a variety of industry contexts on repeated occasions. Assessment must be designed to collect evidence against the four dimensions of competency.

- **Task skills** – undertaking specific work place task(s)
- **Task management skills** – managing a number of different tasks to complete a whole work activity
- **Contingency management skills** – responding to problems and irregularities when undertaking a work activity, such as: breakdowns, changes in routine, unexpected or atypical results, difficult or dissatisfied clients
- **Job/role environment skills** – dealing with the responsibilities and expectations of the work environment when undertaking a work activity, such as: working with others, interacting with clients and suppliers, complying with standard operating procedures or observing enterprise policy and procedures.

The most appropriate method of assessing workplace competence is on-the-job in an industry setting under normal working conditions. This includes using industry standard tools, equipment and job aids and working with trade colleagues. Where this is not available, a simulated workplace environment that mirrors the industry setting will be used. The following general principles and strategies apply:

- assessment is competency based
- assessment is criterion-referenced

Quality outcomes can only be assured through the assessment process. The strategy for assessment is based on an integration of the workplace competencies for the learning modules into a holistic activity. The awarding of vocational qualifications is dependent on successful demonstration of the learning outcomes within the modules through the integrated competency assessment that meets the Training Package rules and requirements.

The integrated assessment activity will require the learner to:

- use the appropriate key competencies,
- apply the skills and knowledge which underpin the process required to demonstrate competency in the workplace,
- integrate the most critical aspects of the competencies for which workplace competency must be demonstrated, and
- provide evidence for grades and or scores for the Board course component of the assessment process.

Standards for Registered Training Organisations 2015

These Standards form part of the VET Quality Framework, a system which ensures the integrity of nationally recognised qualifications.

RTOs are required to comply with these Standards and with the:

- National Vocational Education and Training Regulator Act 2011
- VET Quality Framework

The purpose of these Standards is to:

- set out the requirements that an organisation must meet in order to be an RTO;
- ensure that training products delivered by RTOs meet the requirements of training packages or VET accredited courses, and have integrity for employment and further study; and
- ensure RTOs operate ethically with due consideration of learners' and enterprises' needs.

To access the standards, refer to:

<https://www.legislation.gov.au/Details/F2017C00663>

To access The Users' Guide to the Standards refer to:

<https://www.asqa.gov.au/standards>

Guidelines for Colleges Seeking Scope

Colleges must apply to have their scope of registration extended for each new qualification they seek to issue. There is no system-level process. Each college must demonstrate capacity to fulfil the requirements outlined in the Training Package. Applications for extension of scope are lodged through the Australian Skills Quality Authority (ASQA).

Assessment of Certificate III Units of Competence

Colleges delivering any Units of Competence from Certificate III (apart from those competencies allowed in training package rules) will need to have them listed on their scope **or** negotiate a Third Party Agreement with a scoped training partner. This document must be kept on record by the college as the RTO.

Appendix G – Course Adoption

Condition of Adoption

The course and units of this course are consistent with the philosophy and goals of the college and the adopting college has the human and physical resources to implement the course.

Adoption Process

Course adoption must be initiated electronically by an email to bssscertification@ed.act.edu.au by the principal or their nominated delegate.

The email will include the **Conditions of Adoption** statement above, and the table below adding the **College** name, and **A** and/or **T** and/or **M** and/or **V** to the **Classification/s** section of the table.

College:				
Course Title:	Networking and Security			
Classification/s:	A	T	V	
Framework:	Technologies Framework 2018			
Dates of Course Accreditation:	From	2020	to	2024