Written under the Technologies Framework 2018 Edition

Accredited from 2020 - 20xx

Supporting Qualifications from **Information and Communications Technology Training Package**

ICA20111 Certificate II in Information, Digital Media and Technology

ICA30111 Certificate III in Information, Digital Media and 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 course scores across subjects 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 representatives from colleges, universities, industry, parent 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.

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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.

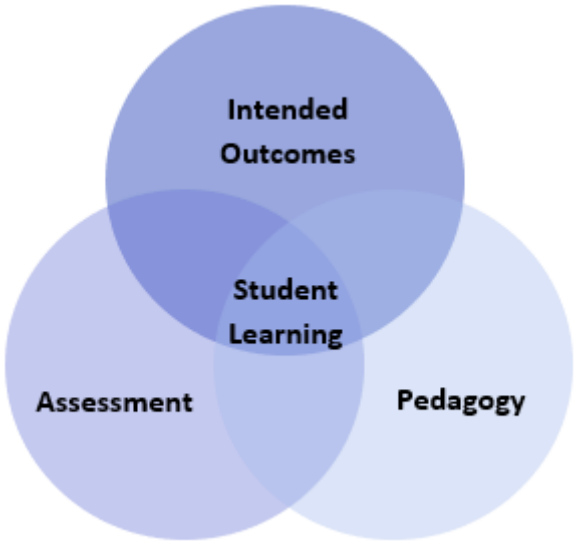
Each course of study:

- 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 Schools

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 behaviour
- 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

In Technologies, students develop literacy as they learn how to communicate ideas, concepts and detailed proposals to a variety of audiences. They read and interpret detailed written instructions for specific technologies, often including diagrams and procedural writings such as software user manuals and design briefs. Students read and interpret online documentation and tutorial materials that support coding, prepare software instructions and write reports, project outlines, proposals and evaluations. They use computer-generated images to communicate product or systems design ideas to suit particular contexts and audiences. Students understand and use language and terminology specific to design and technology in both written and oral forms to communicate ideas about product or systems design.

Numeracy

Technologies gives students opportunities to interpret and use mathematical knowledge and skills in a range of real-life situations. Students use number to calculate and create algorithms; interpret and draw conclusions from data; measure and record throughout the process of generating ideas; develop, refine and test concepts use computational thinking in decision-making processes in identifying, deconstructing, and solving problems of interest when designing and creating best-fit solutions. Students examine the usefulness of results and prepare validation plans for calculating outputs of digital solutions. They use code that enables manipulation of numerical data in digital solutions and apply appropriate mathematical and logical concepts and thinking in programming.

Students may interpret numerical data for relevance, understand and use graphs, spreadsheets, diagrams, codes, and statistics to communicate technical data, properties of materials or systems information.

Information and Communication Technology (ICT) Capability

In digital technologies courses, students develop an understanding of the characteristics of data, digital systems, audiences, procedures and computational thinking. They apply this when they investigate, communicate and create digital solutions. Students learn to formulate problems, logically organise and analyse data and represent them in abstract forms. They automate solutions through algorithmic logic. Students decide the best combinations of data, procedures and human and physical resources to generate efficient and effective digital solutions. They create digital solutions that consider economic, environmental and social factors.

In learning about and applying the design process, students gain skills using a range of software applications and digital hardware that enable them to realise their design ideas. Students use ICT when they investigate and analyse information and evaluate design ideas and communicate and collaborate online. They develop design ideas; generate plans and system diagrams to communicate their designs and produce solutions using digital technologies They explore multi-modal ways of representing ideas including infographics. They use digital technologies to work collaboratively on creating innovative solutions.

Critical and Creative Thinking

Students develop capability in critical and creative thinking as they imagine, generate, develop and critically evaluate ideas. They develop reasoning and the capacity for abstraction through challenging problems that do not have straightforward solutions. Students identify and deconstruct problems of interest, refine concepts and reflect on the decision-making process by engaging in systems, design and computational thinking. They identify, explore and clarify technologies information and use that knowledge in a range of situations. Students think critically and creatively about possible, probable and preferred futures. They consider how data, information, systems and tools (past and present) impact on our lives, and how these elements might be better designed and managed. They evaluate current systems and design of products. Experimenting, visualising possibilities, modelling and scoping solutions, designing and working with digital tools, equipment and software helps students to build their visual and spatial thinking, test hypotheses and to create solutions, products and services.

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, 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 Behaviour

Students develop the capacity to understand and apply ethical and socially responsible principles when collaborating with others and creating, sharing and using technologies – materials, data, processes, tools and equipment. Using an ethical lens, they investigate past, current and future local, national, regional and global technological priorities. 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. They explore complex issues associated with technologies such as the use of data and consider possibilities. They are encouraged to develop informed values and attitudes.

Students learn about safe and ethical procedures for investigating and working with people, data and materials. They consider the rights of others and their responsibilities in using practices that protect human rights and the planet and its life forms. They learn to appreciate and value the part they play in the social and natural systems in which they operate.

Students 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

Students consider how technologies are used in diverse communities at local, national, regional and global levels, including their impact and potential to transform people's lives. They explore ways in which past and present practices enable people to use technologies to interact with one another across cultural boundaries. Students investigate how cultural identities and traditions influence the function and form of solutions, products, services and environments designed to meet the needs of daily life now and in the future.

In their interactions with others in online communities, students consider the dynamic and complex nature of cultures, including values, beliefs, practices and assumptions. They recognise and respond to the challenges of cultural diversity by applying appropriate social protocols. Students learn about the interactions between technologies and society and take responsibility for securing positive outcomes for members of all cultural groups including those faced with prejudice and misunderstanding.

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.

The Aboriginal and Torres Strait Islander histories and cultures priority has been developed around the three key concepts of Country/Place, Peoples and Cultures. Each concept contains a number of organising ideas that provide a scaffold for developing related knowledge, understanding and skills. These are embedded in each learning area according to the relevance of its content to the organising ideas. An organising idea may draw on content from more than one learning area. Taken as a set, the organising ideas provide a coherent framework for the priority.

The first key concept highlights the special connection to Country/Place by Aboriginal and Torres Strait Islander Peoples and celebrates the unique belief systems that connect people physically and spiritually to Country/Place.

The second key concept examines the diversity of Aboriginal and Torres Strait Islander Peoples' culture through language, ways of life and experiences as expressed through historical, social and political lenses. It provides opportunities for students to gain a deeper understanding of Aboriginal and Torres Strait Islander Peoples' ways of being, knowing, thinking and doing.

The third key concept addresses the diversity of Aboriginal and Torres Strait Islander societies. It examines kinship structures and the significant contributions of Aboriginal and Torres Strait Islander people on a local, national and global scale.

Asia and Australia's Engagement with Asia

The Asia and Australia's engagement with Asia priority provides the opportunity for students to celebrate the social, cultural, political and economic links that connect Australia with Asia.

This priority will ensure that students learn about and recognise the diversity within and between the countries of the Asia region. They will 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.

The Asia and Australia's engagement with Asia priority has been developed around three key concepts; Asia and its diversity, achievements and contributions of the peoples of Asia and Asia-Australia engagement. These concepts are regarded as fundamental to learning in the priority. Each concept comprises several organising ideas that provide a scaffold for developing related knowledge, understanding and skills. These are embedded in each learning area according to the relevance of its content to the organising ideas. An organising idea may draw on content from more than one learning area. Taken as a set, the organising ideas provide a coherent framework for the priority.

The first key concept highlights the diversity within and between the countries of the Asia region, from their cultures, societies and traditions through to their diverse environments and the effects of these on the lives of people.

The second key concept examines the past and continuing achievements of the peoples of Asia, identifies their contribution to world history and acknowledges the influences that the Asia region has on the world's aesthetic, and creative pursuits.

The third key concept addresses the nature of past and ongoing links between Australia and Asia, and develops the knowledge, understanding and skills, which make it possible to engage actively and effectively with peoples of the Asia region.

Sustainability

The Sustainability priority provides the opportunity for students to develop an appreciation of the necessity of acting for a more sustainable future and so address the ongoing capacity of Earth to maintain all life and meet the needs of the present without compromising the needs of future generations.

This priority will allow all young Australians to develop the knowledge, skills, values and world views necessary for them to act in ways that contribute to more sustainable patterns of living. It will enable individuals and communities to reflect on ways of interpreting and engaging with the world. The Sustainability 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.

The Sustainability priority is futures-oriented and calls on students to act sustainably as individuals and to participate in collective endeavours that are shared across local, regional and global communities. It emphasises the interdependence of environmental, social, cultural and economic systems.

The Sustainability priority has been developed around three key concepts: systems, world views and, futures. These concepts are fundamental to learning about sustainability. Each key concept contains

a set of organising ideas that provide a scaffold for developing related knowledge, understanding and skills. These are embedded in each learning area according to the relevance of its content to the organising idea. An organising idea may draw on content from more than one learning area. Taken as a set, the organising ideas provide a coherent framework of the priority.

The first key concept explores the interdependent and dynamic nature of systems that support all life on Earth as well as the promotion of healthy social, economic and ecological patterns of living for our collective wellbeing and survival.

The second key concept presents the issues surrounding sustainability in a global context. This concept allows for a diversity of world views on ecosystems, values and social justice to be discussed and linked to individual and community actions for sustainability.

The third key concept is aimed at building the capacities for thinking and acting in ways that are necessary to create a more sustainable future. The concept seeks to develop reflective thinking processes and empower young people to design action that will lead to a more equitable, respectful and sustainable future.

Rationale

This course explores automation and physical computing through the engineering disciplines of robotics and mechatronics. The course introduces fundamental principles of both electronics and mechatronics before investigating microcontrollers that can be programmed to drive electrical circuits and mechanical systems.

Students apply their knowledge to the design and construction of real systems, examining how these solutions address problems, needs and challenges faced by individuals and societies. They design and program control software for autonomous and manual interfaces, correcting for noise and unexpected variations in data inputs and processing.

Robotics and Mechatronics aims to build theoretical and practical knowledge to prepare students for technical pathways such as engineering, IT, electronics and science.

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.

Course Title – Robotics and Mechatronics

Unit titles

Unit 1: Building & Programming Circuits

Unit 2: Digital & Analog Interactions

Unit 3: Robotics & Mechatronic Systems

Unit 4: Applications of Robotics

Unit 5: Negotiated Study

Organisation of Content

Building & Programming Circuits

This unit of study provides opportunities for students to learn about the components of electronics and the design and construction of electronic systems. Students will use design methodologies to investigate, strategise, prototype, evaluate and critically analyse the construction of electronic systems being mindful of and practising Workplace Health and Safety compliance. Students will gain the skills and knowledge necessary to apply the design process using electronics to create innovative and sustainable systems.

Digital & Analog Interactions

This unit of study provides opportunities for students to learn to identify and respond to a real-world need and justify creation of a complex control system.

Students will investigate and program microcontrollers and control systems.

Students will apply the design process to design interface circuits, prototype and construct systems to receive input and collect data from sensors and provide meaningful output.

Robotics & Mechatronic Systems

This unit of study provides opportunities for students to investigate the development of robotics and mechatronic systems. Students critically analyse the effect that robotics and mechanised systems have on human society, built and natural environments and general well-being. Student will use the design process to create and control a product/ solution incorporating mechanical, electrical and control systems.

Applications of Robotics

This unit of study provides opportunities for student to investigate the role of robots and other intelligent machines, including artificial intelligence, machine learning, etc, and the design, construction and application of robotic systems. Students will use system architecture methodologies and the design process to complete a project; prototyping, constructing and evaluating an innovative system. Students will analyse their results and present their findings with justification.

Negotiated Study

This 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.

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: • 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:** • 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%
Weighting in M/V 1.0 and 0.5 Units	30 - 70%	30 - 70%

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 single achievement standard is written for M 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

	*A student who achieves an **A** grade typically*	*A student who achieves a **B** grade typically*	*A student who achieves a **C** grade typically*	*A student who achieves a **D** grade typically*	*A student who achieves an **E** grade typically*
Knowledge and understanding	• 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	• 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	• 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	• identifies major features of the design process with little 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 little reference to ethical and sustainable application • identifies some opportunities for application of technology with limited use of information and data	• 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 no reference to ethical and sustainable application • identifies some opportunities for application of technology with little evidence of use of information and data
Skills	• 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 • 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 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	• applies technology concepts, strategies and methodologies with control 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 evaluating 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	• applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and its impact • creates design solutions/products using techniques and approaches and explains ideas • explains potential prototypes and solutions evaluating 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	• applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of its impact • creates design solutions/products using some techniques and approaches and describes ideas • describes analyses potential prototypes and solutions evaluating 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 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	• applies technology concepts, strategies and methodologies with limited control demonstrating little evidence of understanding its impact • creates design solutions/products using some techniques and approaches and description of ideas • identifies potential prototypes and solutions with little or no reference to their appropriateness and effectiveness via iterative improvement and review • communicates basic ideas in few mediums and describes ideas with little or no use of appropriate evidence and referencing • reflects on their own thinking with little or no 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

	*A student who achieves an **A** grade typically*	*A student who achieves a **B** grade typically*	*A student who achieves a **C** grade typically*	*A student who achieves a **D** grade typically*	*A student who achieves an **E** grade typically*
Knowledge and understanding	• 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	• 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	• 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	• 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	• identifies features of the design process with little or no 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 little or no reference to ethical and sustainable application of technology • applying limited use of information and data
Skills	• 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 • 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 and strategies and capacity to work independently and collaboratively	• applies technology concepts, strategies and methodologies with control demonstrating understanding of the historical and cultural context and its impact • creates innovative and 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	• applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and its impact • creates quality design solutions/ products using techniques and approaches and justifies 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	• applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of its impact • creates design solutions/products using some techniques and approaches and explains ideas • describes analyses 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	• applies technology concepts, strategies and methodologies with limited control demonstrating little evidence of understanding its impact • plans design solutions/products using some techniques and approaches and describes ideas • identifies potential prototypes and solutions with little or no 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 little or no 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

	*A student who achieves an **A** grade typically*	*A student who achieves a **B** grade typically*	*A student who achieves a **C** grade typically*	*A student who achieves a **D** grade typically*	*A student who achieves an **E** grade typically*
Knowledge and understanding	• 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	• 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	• 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	• identifies major features of the design process with little 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 little reference to ethical and sustainable application • identifies some opportunities for application of technology with limited use of information and data	• 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 little evidence of use of information and data
Skills	• 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 • 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 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	• applies technology concepts, strategies and methodologies with control demonstrating understanding of the historical and cultural context and its impact • creates quality design solutions/products using techniques and approaches and explains ideas coherently • analyses potential prototypes and solutions evaluating 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	• applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and its impact • creates design solutions/products using some techniques and approaches and explains ideas • explains potential prototypes and solutions evaluating 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	• applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of its impact • creates design solutions/products using some techniques and approaches and describes ideas • describes analyses potential prototypes and solutions evaluating 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 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	• applies technology concepts, strategies and methodologies with limited control demonstrating little evidence of understanding its impact • creates design solutions/products using some techniques and approaches and description of ideas • identifies potential prototypes and solutions with little or no reference to their appropriateness and effectiveness via iterative improvement and review • communicates basic ideas in few mediums and describes ideas with little or no use of appropriate evidence and referencing • reflects on their own thinking with little or no 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

	*A student who achieves an **A** grade typically*	*A student who achieves a **B** grade typically*	*A student who achieves a **C** grade typically*	*A student who achieves a **D** grade typically*	*A student who achieves an **E** grade typically*
Knowledge and understanding	• 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	• 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	• 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	• 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	• identifies features of the design process with little or no reference to decision making • identifies some strategies, methodologies and procedures with little 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 little or no reference to ethical and sustainable application of technology • identifies some opportunities for application of technology with limited use of information and data
Skills	• 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 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	• 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 innovative and quality design solutions/products using techniques 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 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	• applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and the impact on individuals, groups, communities and society • creates quality design solutions/ products using techniques and justifies 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 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	• applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of the impact on individuals, groups, communities and society • creates design solutions/products using some techniques and explains ideas • describes analyses 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 both independently and collaboratively	• applies technology concepts, strategies and methodologies with limited control demonstrating little evidence of understanding of the impact on individuals, groups, communities and society • plans design solutions/products using some techniques and describes ideas • identifies potential prototypes and solutions with little or no 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 little or no reference to planning, time management, use of appropriate techniques and strategies and capacity to work both independently and collaboratively

Achievement Standards Technologies M Course Years 11 & 12

	*A student who achieves an **A** grade typically*	*A student who achieves a **B** grade typically*	*A student who achieves a **C** grade typically*	*A student who achieves a **D** grade typically*	*A student who achieves an **E** grade typically*
Knowledge and understanding	• describes and uses the design process and procedures with independence • describes practical techniques and materials required to address a need or solve a problem with independence	• describes and uses the design process and procedures with some assistance • describes practical techniques and materials required to address a need or solve a problem with some assistance	• recounts design procedures used with assistance • recounts practical techniques and materials used to solve a problem with assistance	• identifies design procedures with continuous guidance • uses practical techniques and materials required with continuous guidance	• identifies design procedures with direct instruction • identifies practical techniques and materials with direct instruction
Skills	• communicates ideas using appropriate terminology • makes discerning choice of strategies and procedures to use technology with independence • demonstrates interpersonal and intrapersonal skills in a range of technology contexts always • plans and undertakes independent inquiries with independence • create design solutions/products with independence	• communicates ideas using appropriate terminology with some assistance • selects strategies and procedures to use technology with some assistance • demonstrates interpersonal and intrapersonal skills in a range of technology contexts frequently • plans and undertakes independent inquiries with some assistance • create design solutions/products with some assistance	• communicates ideas using appropriate, terminology with assistance • selects strategies and procedures to use technology with assistance • demonstrates interpersonal and intrapersonal skills in technology contexts, usually • undertakes guided inquiries with assistance • create design solutions/products with assistance	• communicates ideas using appropriate, terminology with continuous guidance • selects strategies and procedures to use technology with continuous guidance • demonstrates interpersonal and intrapersonal skills in technology contexts sometimes • undertakes guided inquiries with continuous guidance • create design solutions/products with continuous guidance	• communicates ideas using appropriate terminology with direct instruction • selects strategies and procedures to use technology with direct instruction • demonstrates interpersonal and intrapersonal skills in technology contexts seldom • undertakes simple research on a topic with direct instruction • create design solutions/products with direct instruction

Building & Programming Circuits — Value: 1.0

Building & Programming Circuits a — **Value 0.5**

Building & Programming Circuits b — **Value 0.5**

Unit Description

This unit of study provides opportunities for students to learn about the components of electronics and the design and construction of electronic systems. They will use design methodologies to investigate, strategise, prototype, evaluate and critically analyse the construction of electronic systems. Students will gain the skills and knowledge necessary to apply the design process using electronics to create innovative and sustainable systems.

Specific Unit Goals

This unit should enable students to:

A Course	T Course	M Course
• analyse and use technologies in a range of contexts	• evaluate and use technologies in a range of contexts	• use technologies in a range of contexts
• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course	M Course
Design process		
• understand the design process is a method that is used to solve technological challenges to change and improve products for the way we live	• understand the design process is a method that is used to solve technological challenges to change and improve products for the way we live	• understand the design process is a method that is used to solve technological challenges to change and improve products for the way we live
• apply the design processes to solve a problem or address a need	• apply the design processes to solve a problem or address a need	• apply the design processes to solve a problem or address a need
Strategies, methodologies and procedures		
• investigate and apply project management and WH&S concepts in work environments	• analyse and apply project management and WH&S concepts in work environments	• apply project management and WH&S concepts in work environments
• selects the appropriate strategy, design process or testing methodologies, for example; spiral development, iterative, agile etc to assist in development of a project	• analyses and selects the appropriate strategy, design process or testing methodologies for example: spiral development, iterative, agile etc to assist in development of a project	• describes fundamental programming concepts used in microcontroller environments

A Course	T Course	M Course
• apply skills in soldering or prototyping electronics in physical or simulated environments • use existing circuit designs, simulation and construction of electronic systems • solve problems using electronic tools and equipment, for example; multimeters, oscilloscopes	• apply skills in soldering or prototyping electronics in physical or simulated environments • create circuit designs, simulation and construction of electronic systems • improve and review systems with troubleshooting skills that use electronic tools and equipment, for example; multimeters, oscilloscopes	• apply skills in soldering or prototyping electronics in physical or simulated environments • use existing circuit designs, simulation and construction of electronic systems
Theories, concepts and materials		
• analyse theories of circuit design and control systems and analyse electronic and electrical components • investigate models of energy systems and to explain choices to support project construction • explain principles of digital and analog systems including application and security of systems • applies programming concepts used in microcontroller environments • implement a circuit incorporating sensors that that are programmed and controlled by a microcontroller	• evaluate theories of circuit design and control systems and analyse electronic and electrical components • investigate models of energy systems and justify choices to support project construction • analyse principles of digital and analog systems including application and security of systems • applies programming concepts used in microcontroller environments • implement a circuit incorporating sensors that that are programmed and controlled by a microcontroller	• examine electronic and electrical components, circuit design and control systems • describe digital and analog systems • applies programming concepts used in microcontroller environments • implement a circuit incorporating sensors that that are programmed and controlled by a microcontroller
Contexts		
• research and analyse historical and current electronic systems for value • investigate ways a system could be improved with innovation incorporating sustainability and ethical standards to reduce e-waste	• research and analyse historical and current electronic systems for value • investigate ways a system could be improved with innovation incorporating sustainability and ethical standards to reduce e-waste	• describe sustainability and ethical standards

A Course	T Course	M Course
Communication		
• communicate complex ideas in a range of modes and mediums • apply strategies for collaboration and solving problems in teams	• communicate complex ideas in a range of modes and mediums • apply strategies for collaboration and solving problems in teams	• communicate complex ideas in a range of modes and mediums • apply strategies for collaboration and solving problems in teams
Reflection		
• reflect on own learning	• reflect on own learning	• reflect on 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 may be either guided through provision of electives within each unit or 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 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/M content descriptions. The knowledge, skills and understandings within the competencies reflect the same knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T/M 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/M content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of **Information Technology** contexts. Teachers must use this unit document in conjunction with the Units of Competence from the **Certificate II in Information, Digital Media and Technology or Certificate III in Information, Digital Media and Technology**, 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.

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

The following core units must be delivered and assessed over the semester:

All additional competencies associated with the relevant elective units may also be delivered to meet packaging rules:

Cert II	
Code	**Competency Title**
BSBWHS201	**Contribute to health and safety of self and others**
ICTICT204	**Operate a digital media technology package**
ICTICT205	Design basic organisational documents using computing packages

OR

Cert III	
Code	**Competency Title**
BSBWHS304	**Participate effectively in WHS communication and consultation processes**
ICTPRG301	Apply introductory programming techniques
ICTWHS204	Follow work health and safety and environmental policy and procedures
UEENEEA101A	Assemble electronic components
UEENEEA102A	Select electronic components for assembly
UEENEEA106A	Use lead-free soldering techniques

All units of competency are optional for students undertaking an M course.

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

Assessment

Refer to page 11.

Digital & Analog Interactions — Value: 1.0

Digital & Analog Interactions a — **Value 0.5**

Digital & Analog Interactions b — **Value 0.5**

Unit Description

This unit of study provides opportunities for students to learn to respond to a real-world need and justify creation of a complex control system. Students will investigate and program microcontrollers and control systems. Students will apply the design process to design interface circuits, prototype and construct systems to receive input and collect data from sensors and provide meaningful output.

Specific Unit Goals

This unit should enable students to:

A Course	T Course	M Course
• analyse and use technologies in a range of contexts	• evaluate and use technologies in a range of contexts	• use technologies in a range of contexts
• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course	M Course
Design process		
• apply the design process to solve a problem or address a need	• apply the design process to solve a problem or address a need	• apply the design process to solve a problem or address a need
Strategies, methodologies and procedures		
• use design methodologies to plan and prototype control systems	• use design methodologies to plan and prototype control systems	• use design methodologies to plan and prototype control systems
• investigate and apply project management and WH&S concepts in work environments	• analyse and apply project management and WH&S concepts in work environments	• apply WH&S concepts in work environments
• analyse control system platforms, for example; Raspberry Pi, Arduino	• critically analyse control system platforms, for example; Raspberry Pi, Arduino	• use a control system platform, for example; Raspberry Pi, Arduino
• use prototyping electronics skills, for example: breadboards, connectivity, soldering	• use prototyping electronics skills, for example: breadboards, connectivity, soldering	• use prototyping electronics skills, for example: breadboards, connectivity, soldering

A Course	T Course	M Course
• use an iterative process that offers evaluation and critique of the effectiveness of each prototype	• use an iterative process that offers evaluation and critique of the effectiveness of each prototype	• use an iterative process that offers evaluation and critique of the effectiveness of each prototype
Theories, concepts and materials		
• explain and use the concepts behind the operation of and justify the implementation of algorithms, programs and subsystems that make up machine control systems	• evaluate and use the concepts behind the operation of and justify the implementation of algorithms, programs and subsystems that make up machine control systems	• investigate microcontrollers in everyday applications
• program algorithms to control systems using relevant programming languages, for example; GUI, Python, C, C#, JS etc that collects data to provide meaningful information	• create and program algorithms to control systems using relevant programming languages, for example; GUI, Python, C, C#, JS etc that collects data to provide meaningful information	• program given algorithms to control systems using relevant programming languages, for example; GUI, Python, C, C#, JS etc that collects data to provide meaningful information
Contexts		
• investigate scenarios can be ethically and sustainably controlled and monitored using effectors, actuators and sensors, for example; greenhouse, climate control systems, household appliances	• investigate scenarios can be ethically and sustainably controlled and monitored using effectors, actuators and sensors, for example; greenhouse, climate control systems, household appliances	• investigate scenarios can be ethically and sustainably controlled and monitored using effectors, actuators and sensors, for example; greenhouse, climate control systems, household appliances
Communication		
• communicate complex ideas in a range of modes and mediums, for example; displaying data	• communicate complex ideas in a range of modes and mediums	• communicate complex ideas in a range of modes and mediums
• apply strategies for collaboration and solving problems in teams	• apply strategies for collaboration and solving problems in teams	• apply strategies for collaboration and solving problems in teams
Reflection		
• reflect on own learning • reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • reflect on processes to design electronic systems to collect data and present them in a meaningful way

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 may be either guided through provision of electives within each unit or 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 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/M content descriptions. The knowledge, skills and understandings within the competencies reflect the same knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T/M 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/M content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of **Information Technology** contexts. Teachers must use this unit document in conjunction with the Units of Competence from the **Certificate II in Information, Digital Media and Technology or Certificate III in Information, Digital Media and Technology**, 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.

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

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

All additional competencies associated with the relevant elective units may also be delivered to meet packaging rules:

Cert II	
Code	**Competency Title**
ICTICT201	**Use computer operating systems and hardware**
ICTICT203	**Operate application software packages**
ICTICT206	Install software applications
ICTICT207	Integrate commercial computing packages
ICTSAS208	Maintain ICT equipment and consumables

OR

Cert III	
Code	**Competency Title**
ICTICT301	Create user documentation
ICTICT302	Install and optimise operating system software
ICTSAS301	Run standard diagnostic tests
ICTICT203	Operate application software packages
ICTICT307	Customise packaged software applications for clients
ICTICT408	Create technical documentation
ICTPRG413	Use a library or pre-existing components
ICTSAS404	Acquire ICT system components

All units of competency are optional for students undertaking an M course.

It is essential to access training.gov.au for detailed up to date information relating to the above competencies. A direct link to the specific qualifications can be found at:

Assessment

Refer to page 11.

Robotics & Mechatronic Systems — Value: 1.0

Robotics & Mechatronic Systems a — **Value 0.5**

Robotics & Mechatronic Systems b — **Value 0.5**

Unit Description

This unit of study provides opportunities for students to investigate the development of robotics and mechatronic systems. Students critically analyse the effect that robotics and mechanised systems have on human society, built and natural environments and general well-being. Student will use the design process to create and control a product/ solution incorporating mechanical, electrical and control systems.

Specific Unit Goals

This unit should enable students to:

A Course	T Course	M Course
• analyse and use technologies in a range of contexts	• evaluate and use technologies in a range of contexts	• use technologies in a range of contexts
• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course	M Course
Design process		
• apply the design process to solve a problem or address a need • create electronic, mechanical interfaces with input and output systems	• apply the design process to solve a problem or address a need • create electronic, mechanical interfaces with input and output systems	• apply the design process to solve a problem or address a need • create electronic, mechanical interfaces with input and output systems
Strategies, methodologies and procedures		
• combine a mechanical and electrical system including components for example: actuators, effectors, motors, levers and control systems programmed to respond to input • analyse project management techniques to pro-type and deliver a solution considering security of systems and privacy of data	• design and combine a mechanical and electrical system including components for example: actuators, effectors, motors, levers and control systems programmed to respond to input • evaluate project management techniques to pro-type and deliver a solution considering security of systems and privacy of data	• combine a mechanical and electrical system including components for example: actuators, effectors, motors, levers and control systems programmed to respond to input

A Course	T Course	M Course
• use design methodologies to plan and prototype mechatronic systems	• use design methodologies to plan and prototype mechatronic systems	• use design methodologies to plan and prototype mechatronic systems
Theories, concepts and materials		
• analyse function and form of machines and mechanisms • analyse the principles of robotic and mechatronic movement, for example; force, velocity, acceleration, actuator • analyse existing embedded or robotic system • investigate the social implications of the dependence of robotics and management of embedded systems drawing on data	• evaluate function and form of machines and mechanisms • analyse the principles of robotic and mechatronic movement, including; force, velocity, acceleration, actuator • evaluate existing embedded or robotic systems • investigate the social implications of the dependence of robotics and management of embedded systems drawing on data	• describe the fundamentals of machines and mechanisms • describe the principles of robotic and mechatronic movement
Contexts		
• analyse the role of intelligent machines in society, for example; manufacturing, the military, civil society, service industries • examine ethical use of systems and environmental implications of system construction and deconstruction • investigate the history of robotics and mechanised systems and explain how the systems have been used to enhance society	• analyse the role of intelligent machines in society, for example; manufacturing, the military, civil society, service industries • analyse ethical use of systems and environmental implications of system construction and deconstruction • investigate the history of robotics and mechanised systems and explain how the systems have been used to enhance society	• describe the role of intelligent machines in society • investigate the history of robotics and mechanised systems
Communication		
• communicate complex ideas in a range of modes and mediums, for example; displaying data • apply strategies for collaboration and solving problems in teams	• communicate complex ideas in a range of modes and mediums • apply strategies for collaboration and solving problems in teams	• communicate complex ideas in a range of modes and mediums • apply strategies for collaboration and solving problems in teams

A Course	T Course	M Course
Reflection		
• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way

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 may be either guided through provision of electives within each unit or 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 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/M content descriptions. The knowledge, skills and understandings within the competencies reflect the same knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T/M 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/M content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of **Information Technology** contexts. Teachers must use this unit document in conjunction with the Units of Competence from the **Certificate II in Information, Digital Media and Technology or Certificate III in Information, Digital Media and Technology**, 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.

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.

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

All additional competencies associated with the relevant elective units may also be delivered to meet packaging rules:

Certificate II	
Code	**Competency Title**
ICTICT202	**Work and communicate effectively in an ICT environment**
ICTWEB201	**Use social media tools for collaboration and engagement**
ICTSAS201	Maintain inventories for equipment, software and documentation
ICTSAS203	Connect hardware peripherals
ICTSAS204	Record client support requirements

OR

Certificate III	
Code	**Competency Title**
BSBSUS401	**Implement and monitor environmentally sustainable work practices**
ICTICT202	**Work and communicate effectively in an ICT environment**
ICTICT304	Implement system software changes
ICTICT308	Use advanced features of computer applications
ICTWEB201	Use social media tools for collaboration and engagement
UEENEED102A	Assemble, set-up and test computing devices
UEENEED103A	Evaluate and modify object oriented code programs

All units of competency are optional for students undertaking an M course.

It is essential to access training.gov.au for detailed up to date information relating to the above competencies. A direct link to the specific qualifications can be found at:

Assessment

Refer to page 11.

Applications of Robotics — Value: 1.0

Applications of Robotics a — **Value 0.5**

Applications of Robotics b — **Value 0.5**

Unit Description

This unit of study provides opportunities for students to investigate the role of robots and other intelligent machines, including artificial intelligence, machine learning, etc, and the design, construction and application of robotic systems. They will use system architecture methodologies and the design process to complete a project; prototyping, constructing and evaluating an innovative system. Students will analyse their results and present their findings with justification.

Specific Unit Goals

This unit should enable students to:

A Course	T Course	M Course
• analyse and use technologies in a range of contexts	• evaluate and use technologies in a range of contexts	• use technologies in a range of contexts
• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge	• produce or create solutions or products to address a need, problem or challenge

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course	M Course
Design process		
• apply the design process to solve a problem or address a need • create electronic, mechanical interfaces with input and output systems • create a prototype or sub-system to meet a need	• apply the design process to solve a problem or address a need • create electronic, mechanical interfaces with input and output systems • create a prototype or sub-system to meet a need	• apply the design process to solve a problem or address a need • create electronic, mechanical interfaces with input and output systems • use a given programming and circuitry design to construct a project
Strategies, methodologies and procedures		
• use design methodologies to plan and prototype robotic systems • apply project management strategies and methodologies, for example; Gannt charts, deliverables, scrum, agile management	• use design methodologies to plan and prototype robotic systems • apply project management strategies and methodologies, for example; Gannt charts, deliverables, scrum, agile management	• use design methodologies to plan and prototype robotic systems • apply project management strategies and methodologies, for example; Gannt charts, deliverables, scrum, agile management

A Course	T Course	M Course
• prototype a system using software applications and physical model construction	• prototype a system using software applications and physical model construction	• replicate or prototype a system using software applications or a physical model construction
Theories, concepts and materials		
• analyse concepts behind, the operation and implementation of machine intelligence, learning, vision, motion and other ways in which robots and machines interact with and navigate the world	• evaluate concepts behind, the operation and implementation of machine intelligence, learning, vision, motion and other ways in which robots and machines interact with and navigate the world	• describe machine intelligence, learning, vision, motion and other ways in which robots and machines interact with and navigate the world
• explain artificial intelligence concepts and solutions and applications such as; machine learning, computer vision, facial and voice recognition	• analyse artificial intelligence concepts and solutions and applications such as; machine learning, computer vision, facial and voice recognition	• describe artificial intelligence systems and applications
Contexts		
• investigate and analyse the driving forces behind the development of robotic systems in society and the justification and impetus for innovation, for example; Boston Dynamics, NASA, JPL	• investigate and analyse the driving forces behind the development of robotic systems in society and the justification and impetus for innovation, for example; Boston Dynamics, NASA, JPL	• investigate electronics, control systems and mechanical systems
Communication		
• communicate complex ideas in a range of modes and mediums, for example; displaying data	• communicate complex ideas in a range of modes and mediums	• communicate complex ideas in a range of modes and mediums
• apply strategies for collaboration and solving problems in teams	• apply strategies for collaboration and solving problems in teams	• apply strategies for collaboration and solving problems in teams
• communicate complex ideas to justify construction and design of a purpose built innovative system	• communicate complex ideas to justify construction and design of a purpose built innovative system	

A Course	T Course	M Course
Reflection		
• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way

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 may be either guided through provision of electives within each unit or 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 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/M content descriptions. The knowledge, skills and understandings within the competencies reflect the same knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T/M 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/M content descriptions.

Units of Competency

Competence must be demonstrated over time and in the full range of **Information Technology** contexts. Teachers must use this unit document in conjunction with the Units of Competence from the **Certificate II in Information, Digital Media and Technology or Certificate III in Information, Digital Media and Technology**, 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.

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

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

All additional competencies associated with the relevant elective units may also be delivered to meet packaging rules:

Cert II	
Code	**Competency Title**
BSBSUS201	**Participate in environmentally sustainable work practices**
ICTICT209	Interact with ICT clients
ICTICT211	Identify and use basic current industry specific technologies
ICTICT212	Incorporate Indigenous needs and perspectives into ICT environment
ICTSAS202	Apply problem-solving techniques to routine ICT malfunctions

OR

Cert III	
Code	**Competency Title**
ICTICT409	Develop macros and templates for clients using standard products
ICTICT418	Contribute to copyright, ethics and privacy in an ICT environment
BSBCRT401	Articulate, present and debate ideas
ICTICT402	Determine project specifications and secure client agreement

All units of competency are optional for students undertaking an M course.

It is essential to access training.gov.au for detailed up to date information relating to the above competencies. A direct link to the specific qualifications can be found at:

Assessment

Refer to page 11.

Negotiated Study — Value: 1.0

Negotiated Study a — **Value 0.5**

Negotiated Study b — **Value 0.5**

Prerequisites

Students must have studies two standard 1.0 units.

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 not 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	M Course
• undertake a project using design methodologies to plan and develop a robotic or mechatronic system or subsystem that satisfies a need or solves a problem	• undertake a project using design methodologies to plan and develop a robotic or mechatronic system or subsystem that satisfies a need or solves a problem	• undertake a project using design methodologies to plan and develop a robotic or mechatronic system or subsystem that satisfies a need or solves a problem

Content Descriptions

All knowledge, understanding and skills below must be delivered:

A Course	T Course	M Course
Design process		
• apply the design process to solve a problem or address a need	• apply the design process to solve a problem or address a need	• apply the design process to solve a problem or address a need
Strategies, methodologies and procedures		
• use design methodologies to plan and prototype robotic systems • apply project management strategies and methodologies	• use design methodologies to plan and prototype robotic systems • apply project management strategies and methodologies	• use design methodologies to plan and prototype robotic systems • apply project management strategies and methodologies

A Course	T Course	M Course
Theories, concepts and materials		
• analyse robots and machines theories, concepts and materials	• evaluate robots and machines theories, concepts and materials	• describe robots and machines theories, concepts and materials
Contexts		
• investigate and analyse the driving forces behind the development of robotic systems in society and the justification and impetus for innovation, for example; Boston Dynamics, NASA, JPL	• investigate and analyse the driving forces behind the development of robotic systems in society and the justification and impetus for innovation, for example; Boston Dynamics, NASA, JPL	• investigate electronics, control systems and mechanical systems
Communication		
• communicate complex ideas in a range of modes and mediums, for example; displaying data • apply strategies for collaboration and solving problems in teams • communicate complex ideas to justify construction and design of a purpose-built innovative system	• communicate complex ideas in a range of modes and mediums • apply strategies for collaboration and solving problems in teams • communicate complex ideas to justify construction and design of a purpose-built innovative system	• communicate complex ideas in a range of modes and mediums • apply strategies for collaboration and solving problems in teams
Reflection		
• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way	• reflect on own learning • present, communicate and reflect on processes to design electronic systems to collect data and present them in a meaningful way

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 may be either guided through provision of electives within each unit or 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 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/M content descriptions. The knowledge, skills and understandings within the competencies reflect the same knowledge, skills and understandings of the BSSS course unit content descriptions.

Alternatively, a college may choose the A/T/M 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/M content descriptions.

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.

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
- Networking & Security
- Digital Products

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 fulfil 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, as well as statistical moderation of course scores, including small group procedures, for T courses.

Moderation by Structured, Consensus-based Peer Review

Review is a subcategory of moderation, comprising the review of standards and the validation of Unit Grades. In the review process, Unit Grades, determined for Year 11 and Year 12 student assessment portfolios that have been assessed in schools by teachers under accredited courses, are moderated by peer review against system wide criteria and standards. This is done by matching student performance with the criteria and standards outlined in the unit grade descriptors as stated in the Course Framework. Advice is then given to colleges to assist teachers with, and/or reassure them on, their judgments.

Preparation for Structured, Consensus-based Peer Review

Each year, teachers teaching a Year 11 class are asked to retain originals or copies of student work completed in Semester 2. Similarly, teachers teaching 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 in to 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
- 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 memoranda and Information Papers.

Visual evidence for judgements made about practical performances

(also refer to BSSS Website Guidelines)

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

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

Course Developers

Name	College

Appendix B – 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 C – 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 D – 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 E – Implementation of VET Qualifications

VET Qualifications

ICT20115 Certificate II in Information, Digital Media and Technology

For the **Certificate II in Information, Digital Media and Technology** (Release 2) the following packaging rules apply:

Total number of units = 14

7 core unit plus

7 elective units

The elective units consist of:

- Up to 7 from the elective units listed below
- Up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate II or III level.

This course, with listed competencies, meets these requirements at the time of development. Colleges are advised to check current Training Package requirements before delivery.

Competencies for Certificate II in Information, Digital Media and Technology

Code	Competency Title	Core/Elective
BSBWHS201	**Contribute to health and safety of self and others**	**Core**
BSBSUS201	**Participate in environmentally sustainable work practices**	**Core**
ICTICT201	**Use computer operating systems and hardware**	**Core**
ICTICT202	**Work and communicate effectively in an ICT environment**	**Core**
ICTICT203	**Operate application software packages**	**Core**
ICTICT204	**Operate a digital media technology package**	**Core**
ICTWEB201	**Use social media tools for collaboration and engagement**	**Core**
ICTICT205	Design basic organisational documents using computing packages	Elective
ICTICT206	Install software applications	Elective
ICTICT207	Integrate commercial computing packages	Elective
ICTICT209	Interact with ICT clients	Elective
ICTICT211	Identify and use basic current industry specific technologies	Elective
ICTICT212	Incorporate Indigenous needs and perspectives into ICT environment	Elective
ICTSAS201	Maintain inventories for equipment, software and documentation	Elective
ICTSAS202	Apply problem-solving techniques to routine ICT malfunctions	Elective
ICTSAS203	Connect hardware peripherals	Elective
ICTSAS204	Record client support requirements	Elective
ICTSAS208	Maintain ICT equipment and consumables	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.

ICT30115 Certificate III in Information, Digital Media and Technology

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

Total number of units = 17

6 core units *plus*

11 elective units

The elective units consist of:

- 5 units from one of the following specialist elective groups:
  - Group A Applications
  - Group B Network administration
  - Group C Support
  - Group D Web technologies
  - Group E Multimedia
- Up to 6 from any of the specialist elective groups below or from Group F general elective units below
- Up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate III or IV level.

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

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

Competencies for Certificate III in Information, Digital Media and Technology

***Note**: The following competencies for Certificate III in Information, Digital Media and Technology have been aligned to the Robotics and Mechatronics course from the training package. Specialist Group A electives must be delivered along with a selection of 6 other electives with no more than 3 from imported competencies.*

Code	Competency Title	Core/Elective
BSBWHS304	**Participate effectively in WHS communication and consultation processes**	**Core**
BSBSUS401	**Implement and monitor environmentally sustainable work practices**	**Core**
ICTICT202	**Work and communicate effectively in an ICT environment**	**Core**
CTICT301	**Create user documentation**	**Core**
ICTICT302	**Install and optimise operating system software**	**Core**
ICTSAS301	**Run standard diagnostic tests**	**Core**

Code	Competency Title	Core/Elective
Group A - Applications		
ICTICT203	Operate application software packages	Elective
ICTICT304	Implement system software changes	Elective
ICTICT307	Customise packaged software applications for clients	Elective
ICTICT308	Use advanced features of computer applications	Elective
ICTICT409	Develop macros and templates for clients using standard products	Elective
Group D - Web technologies		
ICTWEB201	Use social media tools for collaboration and engagement	Elective
Group F - General elective units		
ICTPRG301	Apply introductory programming techniques	Elective
ICTWHS204	Follow work health and safety and environmental policy and procedures	Elective

Imported Competencies (allowed in Training Package packaging rules)

Code	Competency Title	Imported from
ICTICT418	Contribute to copyright, ethics and privacy in an ICT environment	Imported from Cert IV IT
BSBCRT401	Articulate, present and debate ideas	Imported from Cert IV IT
ICTICT402	Determine project specifications and secure client agreement	Imported from Cert IV IT
ICTICT408	Create technical documentation	Imported from Cert IV IT
ICTPRG413	Use a library or pre-existing components	Imported from Cert IV IT
ICTSAS404	Acquire ICT system components	Imported from Cert IV IT
UEENEEA101A	Assemble electronic components	Cert IV Electronics and Communications
UEENEEA102A	Select electronic components for assembly	Cert IV Electronics and Communications
UEENEEA106A	Use lead-free soldering techniques	Cert IV Electronics and Communications
UEENEED102A	Assemble, set-up and test computing devices	Cert IV Electronics and Communications
UEENEED103A	Evaluate and modify object oriented code programs	Cert IV Electronics and Communications

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

ICT30115 Certificate II in Information Digital Media and Technology Competencies

BSSS Unit Title	Competencies	
Building & Programming Circuits	**BSBWHS201**	**Contribute to health and safety of self and others**
	ICTICT204	**Operate a digital media technology package**
	ICTICT205	Design basic organisational documents using computing packages
Digital & Analog Interactions	**ICTICT201**	**Use computer operating systems and hardware**
	ICTICT203	**Operate application software packages**
	ICTICT206	Install software applications
	ICTICT207	Integrate commercial computing packages
	ICTSAS208	Maintain ICT equipment and consumables
Robotics & Mechatronic Systems	**ICTICT202**	**Work and communicate effectively in an ICT environment**
	ICTWEB201	**Use social media tools for collaboration and engagement**
	ICTSAS201	Maintain inventories for equipment, software and documentation
	ICTSAS203	Connect hardware peripherals
	ICTSAS204	Record client support requirements
Applications of Robotics	**BSBSUS201**	**Participate in environmentally sustainable work practices**
	ICTICT209	Interact with ICT clients
	ICTICT211	Identify and use basic current industry specific technologies
	ICTICT212	Incorporate Indigenous needs and perspectives into ICT environment
	ICTSAS202	Apply problem-solving techniques to routine ICT malfunctions
Negotiated Study	Nil	

ICT30115 Certificate III in Information Digital Media and Technology Competencies

BSSS Unit Title	Competencies	
Building & Programming Circuits	**BSBWHS304**	**Participate effectively in WHS communication and consultation processes**
	ICTPRG301	Apply introductory programming techniques
	ICTWHS204	Follow work health and safety and environmental policy and procedures
	UEENEEA101A	Assemble electronic components
	UEENEEA102A	Select electronic components for assembly
	UEENEEA106A	Use lead-free soldering techniques
Digital & Analog Interactions	**ICTICT301**	**Create user documentation**
	ICTICT302	**Install and optimise operating system software**
	ICTSAS301	**Run standard diagnostic tests**
	ICTICT203	Operate application software packages
	ICTICT307	Customise packaged software applications for clients
	ICTICT408	Create technical documentation
	ICTPRG413	Use a library or pre-existing components
	ICTSAS404	Acquire ICT system components
Robotics & Mechatronic Systems	**BSBSUS401**	**Implement and monitor environmentally sustainable work practices**
	ICTICT202	**Work and communicate effectively in an ICT environment**
	ICTICT304	Implement system software changes
	ICTICT308	Use advanced features of computer applications
	ICTWEB201	Use social media tools for collaboration and engagement
	UEENEED102A	Assemble, set-up and test computing devices
	UEENEED103A	Evaluate and modify object oriented code programs
Applications of Robotics	ICTICT409	Develop macros and templates for clients using standard products
	ICTICT418	Contribute to copyright, ethics and privacy in an ICT environment
	BSBCRT401	Articulate, present and debate ideas
	ICTICT402	Determine project specifications and secure client agreement
Negotiated Study	Nil	

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. This evidence must be gathered over a number of assessment items. 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 F – Course Adoption Forms

B S S S AUSTRALIAN CAPITAL TERRITORY	**Course Adoption Form for Accredited A Courses**

The college is entered on the National Register (training.gov.au) to award Certificates or Statements of Attainment (SOA) delivered by this course (V Adoption only)

☐ Yes ☐ No

College:

Course Title: Robotics and Mechatronics	**Classification**: A	☐ V Adoption
Framework: Technologies 2018		

Dates of Course Accreditation:	**From**	2020	**To**	20XX

Identify units to be adopted by ticking the check boxes

Adopt	Unit Title	Value (1.0/0.5)	Length
☐	**Building & Programming Circuits**	**1.0**	**S**
☐	Building & Programming Circuits a	0.5	Q
☐	Building & Programming Circuits b	0.5	Q
☐	**Digital & Analog Interactions**	**1.0**	**S**
☐	Digital & Analog Interactions a	0.5	Q
☐	Digital & Analog Interactions b	0.5	Q
☐	**Robotics & Mechatronic Systems**	**1.0**	**S**
☐	Robotics & Mechatronic Systems a	0.5	Q
☐	Robotics & Mechatronic Systems b	0.5	Q
☐	**Applications of Robotics**	**1.0**	**S**
☐	Applications of Robotics a	0.5	Q
☐	Applications of Robotics b	0.5	Q
☐	**Negotiated Study**	**1.0**	**S**
☐	Negotiated Study a	0.5	Q
☐	Negotiated Study b	0.5	Q

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

Principal: / /20	**College Board Chair:** / /20

BSSS Office Use

Entered into database: / /20

BSSS AUSTRALIAN CAPITAL TERRITORY	**Course Adoption Form for Accredited T Courses**

The college is entered on the National Register (training.gov.au) to award Certificates or Statements of Attainment (SOA) delivered by this course (V Adoption only)

☐ Yes ☐ No

College:

Course Title: Robotics and Mechatronics	**Classification**: T	☐ V Adoption
Framework: Technologies 2018		
Dates of Course Accreditation:	**From** 2020	**To** 20XX

Identify units to be adopted by ticking the check boxes

Adopt	Unit Title	Value (1.0/0.5)	Length
☐	**Building & Programming Circuits**	**1.0**	**S**
☐	Building & Programming Circuits a	0.5	Q
☐	Building & Programming Circuits b	0.5	Q
☐	**Digital & Analog Interactions**	**1.0**	**S**
☐	Digital & Analog Interactions a	0.5	Q
☐	Digital & Analog Interactions b	0.5	Q
☐	**Robotics & Mechatronic Systems**	**1.0**	**S**
☐	Robotics & Mechatronic Systems a	0.5	Q
☐	Robotics & Mechatronic Systems b	0.5	Q
☐	**Applications of Robotics**	**1.0**	**S**
☐	Applications of Robotics a	0.5	Q
☐	Applications of Robotics b	0.5	Q
☐	**Negotiated Study**	**1.0**	**S**
☐	Negotiated Study a	0.5	Q
☐	Negotiated Study b	0.5	Q

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

Principal: / /20	**College Board Chair:** / /20

BSSS Office Use

Entered into database: / /20

BSSS
AUSTRALIAN CAPITAL TERRITORY

Course Adoption Form for Accredited M Courses

The college is entered on the National Register (training.gov.au) to award Certificates or Statements of Attainment (SOA) delivered by this course (V Adoption only)

☐ Yes ☐ No

College:

Course Title: Robotics and Mechatronics	**Classification**: M	☐ V Adoption
Framework: Technologies 2018		
Dates of Course Accreditation:	**From** 2020	**To** 20XX

Identify units to be adopted by ticking the check boxes

Adopt	Unit Title	Value (1.0/0.5)	Length
☐	**Building & Programming Circuits**	**1.0**	**S**
☐	Building & Programming Circuits a	0.5	Q
☐	Building & Programming Circuits b	0.5	Q
☐	**Digital & Analog Interactions**	**1.0**	**S**
☐	Digital & Analog Interactions a	0.5	Q
☐	Digital & Analog Interactions b	0.5	Q
☐	**Robotics & Mechatronic Systems**	**1.0**	**S**
☐	Robotics & Mechatronic Systems a	0.5	Q
☐	Robotics & Mechatronic Systems b	0.5	Q
☐	**Applications of Robotics**	**1.0**	**S**
☐	Applications of Robotics a	0.5	Q
☐	Applications of Robotics b	0.5	Q
☐	**Negotiated Study**	**1.0**	**S**
☐	Negotiated Study a	0.5	Q
☐	Negotiated Study b	0.5	Q

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

Principal: / /20	**College Board Chair:** / /20

BSSS Office Use

Entered into database: / /20