Information Systems & Digital Technologies Level 2-3

Overview and Key Features

Years 9 to 12 Learning 2020

Department of Education

Tasmanian Government

The purpose of this paper

The purpose of this paper is to provide information regarding the overview and key features of the proposed *Information Systems & Digital Technologies Level 2-3.*

It is designed to enable all interested stakeholders to reflect and provide feedback on key features including learning outcomes, structure, sequencing and likely content. This feedback will be considered in writing the draft course.

Consultation

Throughout the course development process there will be four opportunities for formal stakeholder consultation:

- Course Scope
- Structural Overview and Key features (Nov/Dec 2020)
- Initial Draft Course (March 2021)
- Final Draft Course (June 2021)

This paper represents the second of four course consultation points for teachers to engage in the course development process for *Information Systems & Digital Technologies Level 2-3*.

Course Rationale

The technology landscape is dynamic and evolving and information systems play a critical role in organisations and businesses. This provides opportunities for innovative and enterprising individuals to respond to emerging digital transformation through the analysis, creation, implementation, testing and management of information systems. The *Information Systems & Digital Technologies* suite will enable learners to be well-informed, analytical consumers of digital information and technology and to become confident creators of systems solutions.

Through studies in *Information Systems & Digital Technologies* learners develop an understanding of the importance of data and information and how it is processed and communicated through hardware and software applications to solve a range of information problems. They will investigate information systems, past, current and emerging and engage in an exploration of the IT profession and the wide-ranging career opportunities that exist both within the IT sector and more broadly in sectors such as public health, energy, defense, food and agribusiness, advanced manufacturing, community organisations, building and construction and the cultural and tourism industry.

Through authentic project work using a systems development process, learners studying *Information Systems & Digital Technologies Level 2-3* will gain a broad range of skills including project management, collaboration, communication and critical and creative thinking. Learners consider organisational or business needs and opportunities through the lens of both human-human and human–computer interactions and evaluate solutions from the perspective of user experience, considering security, social context, legal and ethical requirements and sustainability.

Study of *Information Systems & Digital Technologies* will support learners to develop an understanding of the impact of information technologies on society both locally and globally and provides opportunities for them to develop skills that will prepare them for a variety of post-school opportunities.

Years 9 to 12 Curriculum Framework

Years 9 to 12 Education Framework informs the design of *Information Systems & Digital Technologies Level 2-3* course and it fits within the Professional Studies focus area of the Years 9 to12 Curriculum Framework.

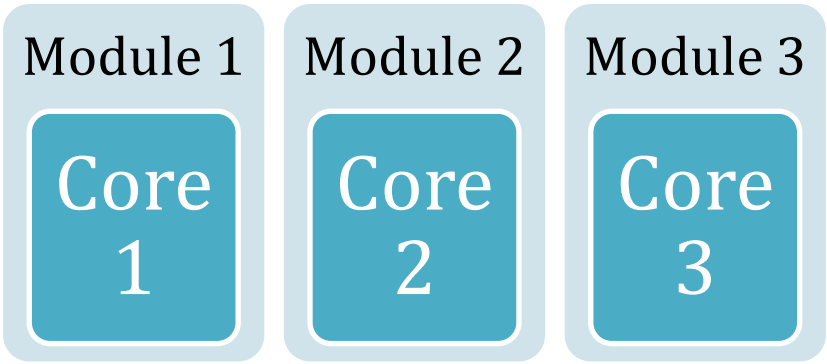
Pathways in
Information Systems & Digital Technologies builds on students' learning in the Years 7-10 Australian Curriculum - Digital Technologies. *Information Systems & Digital Technologies Level 2-3,* may be studied as a standalone course.

Level 2

Learning Outcomes
On successful completion of this course learners will be able to:

- describe, explain and analyse the components of an information system, and the inter-relationships between these components
- describe, explain and analyse social issues associated with digital systems and how digital information systems and solutions can be used by individuals and organisations
- describe and explain the security implications of the interaction between hardware, software and users and how they can be controlled and managed
- identify and analyse needs and opportunities for the development of digital information systems
- design and develop a solution in response to needs and opportunities and evaluate the effectiveness of the solution
- plan, organise, and complete activities, using a project management approach
- develop critical and creative thinking, communication and collaboration, and personal, social and ICT skills

Course Structure



Modules Available
Core 1:
Core 2:
Core 3:

Course Delivery
To be developed through consultation.

Module content

Level 2 - Model A

This model enables teachers to develop a program of learning that is underpinned by the concepts of project management, collaborative teams and systems development cycle but can be contextualised to meet student, school and local needs.

<table>
<tr><th>CORE A</th><th>CORE B</th></tr>
<tr><td rowspan="3">Project Management, Collaborative Teams and Systems Development Cycle</td><td>Introduction to Systems Development

Introduction to:

• Exploring profession/industry*
• Ways of thinking: design thinking, computational thinking, systems thinking
• Hardware
• Software
• Exploring emerging technologies
• Exploring systems & UX
• Digital Technology & Society
• Information Management/analytics (records management/data synthesis (infographics), privacy)
• Cybersecurity

Structured project(s)

– apply technological thinking skills to design and develop a system in response to an identified need.

- guided by a software development cycle</td></tr>
<tr><td>CORE C</td></tr>
<tr><td>Systems Development Project

Professional/Industry inspired project/case study (health/public sector/police etc)

Application of:

• Ways of thinking: design thinking, computational thinking, systems thinking
• Exploring profession/industry
• Hardware
• Software
• Exploring emerging technologies
• Exploring systems & UX
• Digital Technology & Society
• Information Management/analytics (records management/data synthesis (infographics), privacy)
• Cybersecurity

Negotiated project (Class or individual) - using a software development cycle

Folio – project management, detailing systems development cycle, project management, reflection</td></tr>
</table>

*Case studies, incursions, site visits

Level 2 - Model B

Students develop their understanding of systems development through 3 discrete modules, with the potential to recognise smaller chunks of learning.

CORE A i.e. Web development (creation, planning, maintenance and modelling of Internet-based computer systems)	Focus • Technological ways of thinking: design thinking, computational thinking, systems thinking • Exploring profession/industry • Hardware • Software • Stakeholders Project management methodologies, systems design & collaborative teams • Structured project(s) – guided by a software development cycle
CORE B i.e. Intelligent Systems (how these systems interact with human users in changing and dynamic physical and social environments)	Focus • Exploring emerging technologies • Exploring systems & UX • Digital Technology & Society Project management methodologies, systems design & collaborative teams • Negotiated project (Class or individual) - using a software development cycle
CORE C i.e. Business Analysis (Business Analytics, digital transformation, applying innovation and entrepreneurial skills to real world problems)	Focus • Professional/Industry inspired project (health/public sector/police etc) • Information Management/analytics (records management/data synthesis (infographics), privacy) • Cybersecurity Project management methodologies, systems design & collaborative teams • Folio – project management, detailing systems development cycle, project management, reflection

Level 2 - Model C

This model front loads the development of project management, collaborative teams and the systems development cycle before engaging with one or more specific themes for delivery.

<table>
<tr><td></td><td></td><td>CORE A</td><td>Professional Practice
Project management methodologies & collaborative teams
Technological ways of thinking: design thinking, computational thinking, systems thinking
Exploring profession/industry
Exploring emerging technologies
Exploring systems & UX
Structured project(s) – guided by a software development cycle</td><td rowspan="6">Project Management</td><td>Core A Delivered before B & C</td></tr>
<tr><td rowspan="5">Example themes for Delivery</td><td>A

Web development

(creation, planning, maintenance and modelling of Internet-based computer systems)</td><td rowspan="5">CORE B</td><td rowspan="5">Systems development A – apply technological thinking skills to design and develop a system in response to an identified need.
UX design
Hardware
Software
Information management & communication
Digital Technology & Society
Negotiated project (Class or individual) – using a software development cycle</td><td rowspan="5">Core B & C can be delivered sequentially or concurrently</td></tr>
<tr><td>B

Intelligent Systems

(how these systems interact with human users in changing and dynamic physical and social environments)</td></tr>
<tr><td>C

Data Management & Security

(Business Analytics, digital transformation, applying critical and creative thinking to real world problems)</td></tr>
<tr><td>D

Telecommunication networks

(principles & techniques of design, implementation, and analysis of communication networks which is the key technology for the modern ICT systems)</td></tr>
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	CORE C	**Systems development B** Professional/Industry inspired systems development project using the ***same*** or ***alternative mode of delivery*** (1 x 100hrs / 2 x 50hrs) • Folio – detailing systems development cycle, project management, reflection	

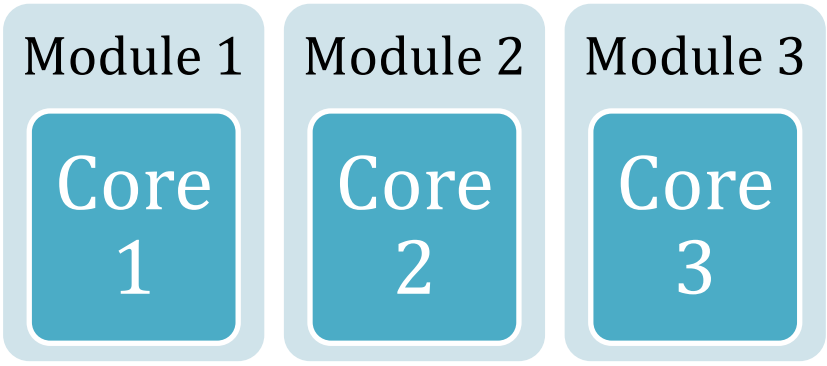
Level 3

Learning Outcomes

On successful completion of this course learners will be able to:

- analyse the inter-relationships between components of an information system and justify selection of hardware and software to meet a specified need
- synthesise and evaluate social issues associated with digital systems and how digital information systems and solutions can be used by individuals and organisations
- analyses the security implications of the interaction between hardware, software and users and propose strategies to control and manage risks
- identify and analyse needs and opportunities for the optimal development of digital information systems
- design and develop an optimal solution in response to client needs, justify choices and evaluating the effectiveness of the solution
- use project management protocols, adhering to accepted standards and conventions, to effectively respond to a client brief
- develop critical and creative thinking, communication and collaboration, and personal, social and ICT skills

Course Structure



Modules Available

Core 1: Designing for Digital Success

Core 2: Data Management & Informatics

Core 3: Applied Information System Case Study

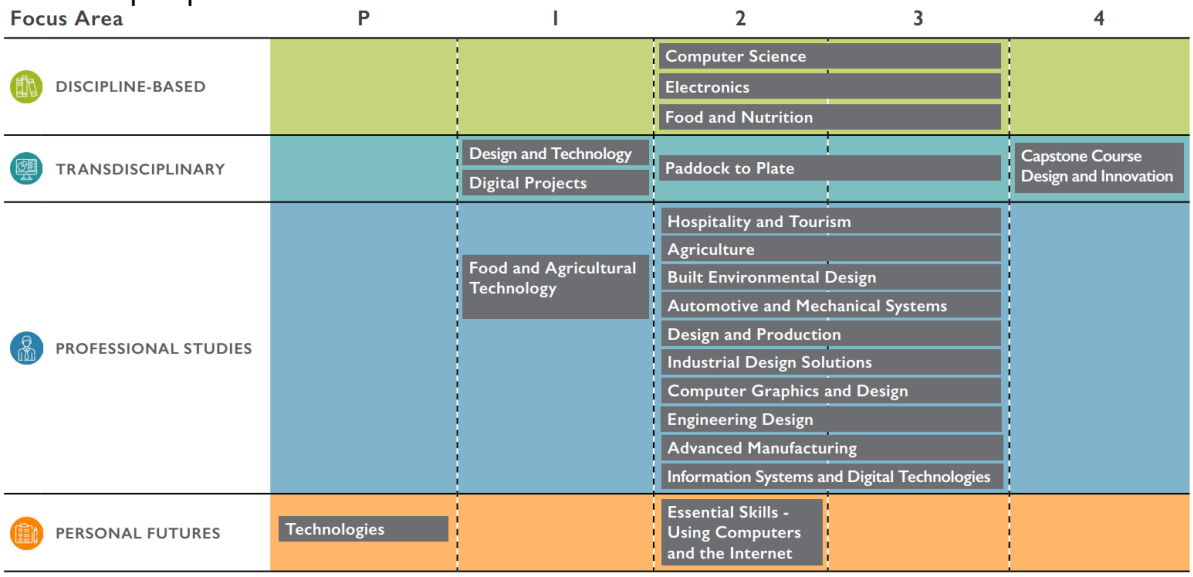
Course Delivery

To be developed through consultation.

Module content

Core A & B can be delivered sequentially or concurrently	CORE A	**Designing for Digital Success** • People, data, process and digital systems • Systems Development Lifecycle (SDLC) • Project management • Interview & Presentation • Project management task
	CORE B	**Data Management and Informatics** Investigating the use of contemporary and emerging technologies and customer needs to develop digital solutions. • Data, information & effective communication • User interfaces (UI) and the user experience (UX) – (aesthetics, functionality, accessibility, usability - user testing) • Data storage, communication, security and cybersecurity • Social, Ethical and Legal Issues • Research investigation • System task documenting SDLC
Core C delivered on completion of Core A & B	CORE C	**Applied Information System Case Study** • Major Project • Exam - undertaken by students using a computer

Relationship to possible Future Provision



Note: Subject to ongoing accreditation considerations in line with the Accreditation Framework