



TQA Level 3, 150 hour design-time.

THE COURSE DOCUMENT

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LEARNING STATEMENT

Information systems combine people, hardware, software, procedures and data resources to collect, transform and communicate information.

Information systems are used to manage and control information to solve problems in business and society. Students will be provided with the opportunity to gain the understanding and skills to analyse, design and develop information systems as well as evaluate the impact of information technology and systems. Students will use a range of appropriate information technologies to explore and engage in relevant problems that will provide pathways for further work or learning.

RATIONALE

The purpose of this course is to give students a deeper understanding of how organisations manage and control information to solve a range of problems. This subject provides a unique opportunity for students to consider the complex issues relating to emerging technologies as they relate to our daily and future lives.

At a time when our society is becoming increasingly reliant on information technology and systems, this subject equips students with a range of skills relating to information technology and systems that will help prepare them for further education and study in a wide range of disciplines. For example, problem solving strategies and project management skills are essential in current and future work environments. By undertaking this course, students will develop knowledge and understanding of these tools and techniques to help solve information problems and have opportunities to apply this knowledge in context.

In *Building Australian ICT Skills* (2006), The Australian Government Department of Communication, Information Technology and the Arts predicts that Information and Communications Technology (ICT) skills shortages, both within Australia and globally, point to the need for highly qualified professionals who have skills beyond basic ICT literacy. Additionally, ICT is seen as a major driver of economic growth and productivity through its capacity to enhance efficiency and innovation.

To be prepared for a future characterised by change, students need to learn to solve problems creatively, manage and retrieve information and communicate effectively. The strong problem solving focus of this course provides an opportunity to develop these skills.

PATHWAYS

Students intending to pursue a career in Information Systems, Information and Communications Technology, Computing, Commerce, Business, Education, Law, Engineering, Arts, or Sciences would benefit from undertaking this course.

Complementary studies in year 11 and 12 include subjects such as Computer Science, Accounting, Business Studies, Economics, Legal Studies, and VET Certificate I/II in IT.

Students attempting this course should have good literacy and communication skills. Previous experience with computing subjects in year 10 or 11, together with an interest in problem solving, is desirable.

ACCESS

It is essential that students undertaking this subject have the opportunity to work collaboratively (face-to-face or electronically) at various times throughout the course.

Students undertaking this course must be able to interact with a computer system.

RESOURCES

All students will require access to computers with the following minimum requirements:

- access to the internet including the web and email
- common application software (including word processing, spreadsheet, graphics and website software)
- relational database application software
- printing
- collaborative workspace.

COURSE SIZE AND COMPLEXITY

This course has been assessed as having a complexity level of TQA level 3.

TQA level 3 is a standard suitable to prepare students for further study at the tertiary level. It is an approximate match to current Tasmanian Certificate of Education (TCE) level 5 courses and VET competencies at this level are often those characteristic of an AQF Certificate III. The student is expected to acquire a combination of theoretical and / or technical and factual knowledge and skills and use judgement when varying procedures to deal with unusual or unexpected aspects that may arise. Some skills in organising self and others are expected.

This course has a design-time of 150 hours.

This course will contribute 15 credit points to the Tasmanian Certificate of Education.

This course contributes to the calculation of Tertiary Entrance Ranks.

COURSE DESCRIPTION

This course focuses on a number of interrelated 'big questions'. It aims to provide opportunities for students to gain knowledge and experience in relation to these questions:

1. How are real world information problems analysed and solved?
2. What are the components of an information system, and what are their inter-relationships?
3. What are the social issues associated with information technology and systems?

LEARNING OUTCOMES

On completion of the course, students will be able to:

- demonstrate knowledge and understanding of how real world information problems are analysed and solved
- demonstrate knowledge and understanding of information technology, the components of an information system, and the inter-relationships of these components
- demonstrate knowledge and understanding of social issues associated with information systems
- design and develop an information system
- use and evaluate an information system
- work collaboratively
- plan, organise, and complete activities.

COURSE CONTENT

Because of the rapidly changing nature of information and communications technologies, it is highly likely that new and important topics relevant to this subject will emerge over time. Consequently, the sections listed below are only intended to provide a starting point for the organisation of course content. Full details of current course content will be documented in the *Teaching and Learning Guide*.

The indicated times for each section are provided as a guide only. Furthermore, it is intended that the following sections are taught in an integrated way, not as isolated topics.

These sections are intended to describe a balance between the theoretical and practical aspects of this course. Specifically, it is recommended that theoretical components are studied within a problem solving or project based context. 'Case studies' provide an ideal opportunity for this kind of learning and are a recommended approach. See the *Teaching and Learning Guide* for more details and example case studies.

PROBLEM SOLVING AND PROJECT MANAGEMENT (25 HOURS)

Problem solving methodologies

Project management skills

COMPONENTS OF INFORMATION SYSTEMS (25 HOURS)

People (users and ICT professionals)

Hardware

Software

Procedures

Data resources

SOCIAL ISSUES ASSOCIATED WITH INFORMATION SYSTEMS (25 HOURS)

Intellectual property

Privacy

Computer crime

Benefits and costs of information systems

Occupational health & safety

APPLIED TASKS (50 HOURS)

In this practical section of the course, students will have the opportunity to undertake a range of applied tasks, from guided tutorials through to short challenge-based activities.

Some applied tasks may provide opportunities for students to develop skills necessary for the major project. A selection of example tasks will be described in the *Teaching and Learning Guide*, and may include a common assessment task.

Data Management Systems (25 hours)

The focus of this practical component is on the use of relational databases and spreadsheet software to collect, manage and control information to solve problems in business and society.

Other Applied Tasks (25 hours)

The range of tasks offered will depend on the interests and background of the teacher and the students, but may include opportunities to develop skills in one or more of the following areas:

- Advanced spreadsheet features
- Application programming
- Multimedia programming
- Website design and development
- Dynamic websites.

MAJOR PROJECT (25 HOURS)

This section of the course is intended to provide students with an opportunity to work in a team to design, implement, and evaluate an information system. The project topic will be negotiated by the teacher and the students and will depend on their interests and background.

It is recommended that students work in a team consisting of no less than three (3) and no more than six (6) students.

A selection of example project topics, including a variety of real-world applications at a range of levels of sophistication, will be described in the *Teaching and Learning Guide*.

ASSESSMENT

Criterion-based assessment is a form of assessment which identifies the extent of student achievement at an appropriate end-point of study. Assessment in the classroom is continuous, much of it is formative, and is done to help students identify what they need to do to attain the maximum benefit from their study of the course. Therefore, assessment for summative reporting should focus on what both teacher and student understand to reflect end-point achievement.

The primary audience for assessment and reporting is the student and the teacher, but may also include parents when appropriate.

The standard of achievement each student attains on each criterion is recorded as a rating 'A', 'B', or 'C', according to the outcomes specified in the standards section of the course.

A 't' notation must be used where a student demonstrates any achievement against a criterion less than the standard specified for the 'C' rating. The 't' notation is not described in course standards.

A 'z' notation is to be used where a student provides no evidence of achievement at all.

Providers offering this course must participate in quality assurance processes specified by the Tasmanian Qualifications Authority to ensure provider validity and comparability of standards across all awards. Further information on quality assurance processes, as well as on assessment, is available in the TQA Senior Secondary Handbook or on the website at <http://www.tqa.tas.gov.au>

Internal assessment of all assessment criteria will be made by the school. Schools will report the student's rating for each criterion to the Tasmanian Qualifications Authority.

The Tasmanian Qualifications Authority will supervise the external assessment of designated criteria (*) in TQA courses that include an external assessment regime. The ratings obtained from the external assessments will be used in addition to those provided from the school to determine the final award.

QUALITY ASSURANCE PROCESSES

The following processes will be facilitated by the TQA to ensure there is:

- a match between the standards for achievement specified in the course and the standards demonstrated by students
- community confidence in the integrity and meaning of the qualifications.
 1. Each provider will submit work from either the Social Issues or Applied Tasks sections of the course from a range of students to an annual meeting of all providers and, whenever possible, other expert stakeholders.

The work, while not necessarily fully resolved, will be assessed by the provider against a range of nominated assessment criteria and the overall award. The TQA will give each provider guidance regarding the selection of students.

The meeting of providers will confirm or modify the nominated assessments.

A report will be given to the provider by the TQA of any variations between the initial and modified assessments.
 2. All students will submit a resolved portfolio for assessment by an external assessment panel. There will also be a written external assessment instrument. The results of these assessments place upper limits on the award achievable by each student.

EXTERNAL ASSESSMENT REQUIREMENTS

The following criteria will be assessed externally: 1, 2, 3, 4 and 5.

Further information regarding external assessment processes and requirements is given in TQA issued [Assessment Guidelines](#).

COURSE CRITERIA

The assessment for Information Technology and Systems will be based on the degree to which the student can:

1. *Demonstrate knowledge and understanding of how real world information problems are analysed and solved
2. *Demonstrate knowledge and understanding of the components of an information system, and their inter-relationships
3. *Demonstrate knowledge and understanding of social issues associated with information systems
4. *Design and develop an information system
5. *Use and evaluate an information system
6. Work collaboratively
7. Plan, organise, and complete activities.

* denotes criteria that are externally assessed.

STANDARDS

CRITERION 1 Demonstrate knowledge and understanding of how real world information problems are analysed and solved*C RATING**

A student can:

- demonstrate sound knowledge and clear understanding of some problem solving and project management strategies
- recognise and describe how these strategies and skills are used in familiar contexts.

B RATING

A student can:

- demonstrate detailed knowledge and clear understanding of a range of problem solving and project management strategies
- analyse the ways in which these strategies and skills might be used in familiar and unfamiliar contexts.

A RATING

A student can:

- demonstrate extensive knowledge and comprehensive understanding of a wide range of problem solving and project management strategies
- critically analyse the ways in which these strategies might be used in familiar and unfamiliar contexts.

CRITERION 2 Demonstrate knowledge and understanding of the components of an information system, and their inter-relationships*C RATING**

A student can:

- describe the components of an information system, and their inter-relationships in familiar contexts
- compare the capabilities and characteristics of alternatives for a component of an information system in familiar contexts
- use appropriate terminology to describe the use of familiar technology.

B RATING

A student can:

- describe the components of an information system, and their inter-relationships in familiar and unfamiliar contexts
- analyse the capabilities and characteristics of alternatives for a component of an information system in familiar and unfamiliar contexts
- use appropriate terminology to describe the use of familiar and unfamiliar technology.

A RATING

A student can:

- accurately describe the components of an information system, and their inter-relationships in familiar and unfamiliar contexts, and analyse the ways in which the components might be used
- critically analyse the capabilities and characteristics of alternatives for an information system in familiar and unfamiliar contexts
- use appropriate terminology to accurately describe the use of familiar and unfamiliar technology.

***CRITERION 3 Demonstrate knowledge and understanding of social issues associated with information systems**

C RATING	<p>A student can:</p> <ul style="list-style-type: none"> • recognise and describe social issues associated with information systems in familiar contexts • demonstrate a responsible attitude to the use of information systems • apply some ethical principles in the development and use of information systems.
B RATING	<p>A student can:</p> <ul style="list-style-type: none"> • recognise and describe social issues associated with information systems in familiar and unfamiliar contexts • demonstrate a responsible attitude to the use of information systems • apply ethical principles in the development and use of information systems.
A RATING	<p>A student can:</p> <ul style="list-style-type: none"> • recognise, analyse and describe in detail social issues associated with information systems in familiar and unfamiliar contexts • consistently demonstrate a responsible attitude to the use of information systems • consistently apply relevant ethical principles in the development and use of information systems.

CRITERION 4 Design and develop an information system*C RATING**

A student can:

- design and develop a range of simple information systems.

B RATING

A student can:

- evaluate a range of information problems and, in response, design appropriate information systems
- develop information systems suitable for a business or other organisation.

A RATING

A student can:

- analyse a range of information problems and, in response, design appropriate information systems
- develop effective and robust information systems suitable for a business or other organisation.

***CRITERION 5 Use and evaluate an information system**

C RATING	<p>A student can:</p> <ul style="list-style-type: none">• competently use a range of simple functions of information systems• make judgements about whether or not the system achieves its intended purposes.
B RATING	<p>A student can:</p> <ul style="list-style-type: none">• competently use a range of simple and complex functions of information systems• evaluate the suitability of the system for its intended purposes.
A RATING	<p>A student can:</p> <ul style="list-style-type: none">• competently and appropriately use a broad range of simple and complex functions of information systems• critically analyse the suitability of the system for its intended purposes, and propose possible alternatives.

CRITERION 6 Work collaboratively**C RATING**

A student can:

- generally work collaboratively as a member of a team
- participate in evaluation of team strategies to achieve planned outcomes.

B RATING

A student can:

- contribute effectively to the setting and achievement of team goals
- evaluate the effectiveness of team strategies to achieve planned outcomes.

A RATING

A student can:

- facilitate effective group processes to achieve team goals
- critically evaluate the effectiveness of team strategies to achieve planned outcomes
- monitor, evaluate and adapt processes to achieve team goals.

CRITERION 7 Plan, organise and complete activities**C RATING**

A student can:

- set goals and make plans to achieve these goals
- carry out planned activities within set times to create a final product.

B RATING

A student can:

- set realistic goals, make and adapt plans to achieve these goals, and evaluate the effectiveness of planning
- carry out planned activities within set times and create an effective final product.

A RATING

A student can:

- set realistic goals and justify choices, make and adapt plans to achieve these goals, and critically analyse the effectiveness of planning
- carry out planned activities within set times and create a high quality final product.

QUALIFICATIONS AVAILABLE

Information Technology and Systems (*with the award of*):

PRELIMINARY ACHIEVEMENT
SATISFACTORY ACHIEVEMENT
COMMENDABLE ACHIEVEMENT
HIGH ACHIEVEMENT
EXCEPTIONAL ACHIEVEMENT

AWARD REQUIREMENTS

The final award will be determined by the Tasmanian Qualifications Authority from the 12 ratings (7 ratings from the internal assessment and 5 ratings from the external assessment).

The minimum requirements for an award in this course are as follows:

EXCEPTIONAL ACHIEVEMENT (EA)

10 'A', 2 'B' ratings (4 'A', 1 'B' from external assessment)

HIGH ACHIEVEMENT (HA)

4 'A', 5 'B', 3 'C' ratings (2 'A', 2 'B' and 1 'C' from external assessment)

COMMENDABLE ACHIEVEMENT (CA)

6 'B', 5 'C' ratings (2 'B', 2 'C' from external assessment)

SATISFACTORY ACHIEVEMENT (SA)

10 'C' ratings (3 'C' from external assessment)

PRELIMINARY ACHIEVEMENT (PA)

6 'C' ratings

A student who otherwise achieves the ratings for a CA (Commendable Achievement) or SA (Satisfactory Achievement) award but who fails to show any evidence of achievement in one or more criteria ('z' notation) will be issued with a PA (Preliminary Achievement) award.

COURSE EVALUATION

Formal evaluations of the course will be undertaken during the second and fourth years of accreditation. An evaluation report will be provided to the TQA.

The evaluations will focus on identifying any issues with regards to:

- the match between the standards for achievement specified in the course and the standards demonstrated by students
- community confidence in the integrity and meaning of the qualifications
- access, delivery and resources

and, if appropriate, make recommendations regarding changes to the course.

COURSE DEVELOPER

Department of Education, Tasmania.

ACCREDITATION

The accreditation period for this course is from 1 January 2008 to 31 December 2012.

VERSION HISTORY

Version 1 – Accredited version (4 October 2007).