

# Course Outline

**Title:** PRINCIPLES OF SOFTWARE ENGINEERING

**Code:** ITECH3501

**Faculty / Portfolio:** Faculty of Science

## Program Level:

	AQF Level of Program					
	5	6	7	8	9	10
Level						
Introductory						
Intermediate						
Advanced			✓			

**Pre-requisites:** (ITECH1000 and ITECH1006)

**Co-requisites:** Nil

**Exclusions:** Nil

**Progress Units:** 15

**ASCED Code:** 029999

## Learning Outcomes:

### Knowledge:

- K1.** explain the methods and techniques involved in designing, implementing and maintaining an information system, in particular using an object-oriented approach;
- K2.** describe the most recent advances in deriving the laws, hypotheses, and conjectures in planning, developing, evaluating and introducing modern information systems;
- K3.** identify the causes of success and failure in information systems, derived from documented case studies;
- K4.** describe the use of appropriate tools in order to develop a quality product;
- K5.** compare alternative agile methods, tools and products reflecting the collective experience of practitioners;

### Skills:

- S1.** develop skills to analyse the user requirements;
- S2.** analyse the laws, rules, and theories in Information Systems;
- S3.** design an information system;
- S4.** analyse the causes of recent Information System Failure;
- S5.** document a detailed design of a small business information system while working in a small team;
- S6.** relate the Information System Failure causes to the Handbook Laws;
- S7.** analyse and evaluate the Agile Information System Development methods;

### Application of knowledge and skills:

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- A1.** Synthesise concepts from software engineering principles to write integrated reports to address given scenarios

### Values and Graduate Attributes:

#### Values:

- V1.** Develop a professional approach in all aspects of system design  
**V2.** Develop the ability to work effectively within teams.

#### Graduate Attributes:

Attribute	Brief Description	Focus
Continuous Learning	In a blended learning approach facilitated by the use of a development environment requiring planning, development and implementation of software solutions, students will continue to develop their knowledge and skills.	High
Self Reliance	Students will participate in a self-directed and collaborative learning environment to develop their theoretical and technical expertise in the field of software development.	Medium
Engaged Citizenship	Students will produce System design solutions which meet industry standards.	Medium
Social Responsibility	Students will use industry standard development environments	Medium

#### Content:

Topics may include:

- Object oriented approach to software development.
- Examples of previous successful and failed systems.
- Object-oriented analysis and design; Unified Modelling Language.
- The derivation of rules, laws and theories from lessons learned by the profession.
- Use of models in system development.
- Applicable laws derived through all stages of system development.
- The management of object oriented projects; quality assurance, inspections and walkthroughs.
- Agile information system methods, including the Capability Maturity Model, Rapid Prototyping and Extreme Programming.
- Object- oriented design and implementation.
- Choosing among various approaches to system development.

#### Assessment:

The assessment for the course will include at least one team assignment requiring the design of a small business application. Other assignments or class exercises will enable students to show their mastery of specific concepts tested. The examination will test the knowledge and understanding of the concepts of the whole unit.

Learning Outcomes Assessed	Assessment Task	Assessment Type	Weighting
K1, K2, K3, K4, K5, S1, S2, S3,S4,S5,S6,S7,A1	Group research report & Individual case study presentation	Assignments	20 - 50%

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K1, K2, K3, K4, K5, S1, S2, S3,S4,S5,S6,S7,A1	Tutorial exercise, lectures, readings	Examination(s)	50 - 80%
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### Adopted Reference Style:

APA

### Presentation of Academic Work:

<https://federation.edu.au/students/assistance-support-and-services/academic-support/general-guide-for-the-presentation-of-academic-work>