Course Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Course Title: SOFTWARE ENGINEERING: ANALYSIS AND DESIGN

Course ID: ITECH7201

Credit Points: 15.00

Prerequisite(s): (ITECH1400 or ITECH5104)

Co-requisite(s): Nil

Exclusion(s): (ITECH3201)

ASCED: 020103

Description of the Course:
This advanced course will enable you to design and develop a complex software system. We will cover the tools and techniques used in the analysis and design of complex computer systems with emphasis on outcome of the early stages of software development. These include : the software requirements and specifications documentation, and software design documents.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Does Recognition of Prior Learning apply to this course? No

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory						
Intermediate						
Advanced					✔	

Learning Outcomes:

Knowledge:

K1. Explain the significance of detailed project planning and control, good communication and documentation and the use of appropriate tools in order to provide a quality product.

K2. Differentiate between software engineering and programming, and determing the relevant software configurations.

K3. Use an object orientated approach to design, implement, and maintain an information system.

K4. Determine how unit tests are used during software development to assist agile programming techniques such as refactoring.

Skills:

S1. Collaborate as a team to develop a fully documented and small business information system.

S2. Design and implement an information system.

Application of knowledge and skills:

A1. Develop complex software systems in accordance with industry standard development methodologies and practice.

Course Content:

Topics may include:

- Requirements Elicitation.
- Modeling with UML.
- Object-Oriented analysis.
- Concepts and techniques of object-oriented design: logical to physical design, user interface, program design, design packaging.
- Implementation of an object-oriented designed system, using an object-oriented programming language.
- Software testing.
- Project management: communication, planning, monitoring, quality assurance, change management.
- Maintenance issues.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni course, and all must be directly assessed in each program.*

FEDTASK attribute and descriptor	**Development and acquisition of FEDTASKS in the course**	
	Learning Outcomes (KSA)	**Assessment task (AT#)**

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students at this level will demonstrate an advanced ability in a range of contexts to effectively communicate, interact and work with others both individually and in groups. Students will be required to display high level skills in-person and/or online in: • Using and demonstrating a high level of verbal and non-verbal communication • Demonstrating a mastery of listening for meaning and influencing via active listening • Demonstrating and showing empathy for others • High order skills in negotiating and conflict resolution skills • Demonstrating mastery of working respectfully in cross-cultural and diverse teams.	S1, A1	AT1
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. • Creating and sustaining a collegial environment • Demonstrating a high level of self -awareness and the ability to self-reflect and justify decisions • Inspiring and initiating opportunities to lead others • Making informed professional decisions • Demonstrating initiative in new professional situations	S1, A1	AT1
FEDTASK 3 Critical Thinking and Creativity	Students at this level will demonstrate high level skills in working in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: • Reflecting critically to generate and consider complex ideas and concepts at an abstract level • Analysing complex and abstract ideas, concepts and information • Communicate alternative perspectives to justify complex ideas • Demonstrate a mastery of challenging conventional thinking to clarify complex concepts • Forming creative solutions in problem solving to new situations for further learning	S1, A1	AT1
FEDTASK 4 Digital Literacy	Students at this level will demonstrate the ability to work competently across a wide range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: • Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally • Collating, managing complex data, accessing and using digital data securely • Receiving and responding professionally to messages in a range of professional digital media • Contributing competently and professionally to digital teams and working groups • Participating at a high level in digital learning opportunities	S1, S2, A1	AT1, AT2

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 5 sustainable and Ethical Mindset	Students at this level will demonstrate a mastery of considering and assessing the consequences and impact of ideas and actions in enacting professional ethical and sustainable decisions. Students will be required to display skills in: • Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts • Professionally committing to the promulgation of social responsibility • Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others • Generating, leading and implementing required actions to foster sustainability in their professional and personal life.	A1	AT1

Learning Task and Assessment:

Students should complete all tutorial and lab exercises for the semester. Students should participate in lectures, tutorials lab classes and maintain a notebook with notes and exercises. Notes should be enhanced by guided reading. Students should attend and contribute to team meetings. Assessable tasks: The assessment for the subject will include at least one team assignment requiring the design and implementation of a small business application. Other assignments or class exercises will enable students to show their mastery of specific concepts tested. Test(s) will assess the knowledge and understanding of the concepts of the whole course.

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, S1, S2, A1	Test the knowledge and skills in the analysis and practical application of the introduced content. Presentations and/or reports covering a range of taught topics. Self-reflection of the learning process.	Assignments	60-80%
K1, K2, K3, K4, S2	Review and practice of skills and knowledge.	Examination	20-40%

Alignment to the Minimum Co-Operative Standards (MiCS)

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a program level. Although courses must undertake MiCS mapping, there is NO expectation that courses will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students
3. Co-deliver with industry
4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS program level reporting highlights how each program embraces the principals and practices associated with the Co-Operative Model. Evidence of program alignment with the MiCS, can be captured in the Program Modification Form.

MICS Mapping has been undertaken for this course No

Date:

Adopted Reference Style:

APA

Refer to the library website for more information

Fed Cite - referencing tool