Unit Outline

Software Engineering: Design (CITS2220)

6 points / Semester 1
Location: UWA (Crawley)

Handbook Description

This unit covers basic software process models and process management including (1) requirements analysis—actors, scenarios and use cases; object identification from use cases; modelling courses of objects with UML class diagrams; modelling object interactions with UML sequence diagrams; modelling the behaviour of individual objects with UML statecharts; (2) software design—using formal rationale to document design decisions; advanced design constraints including reliability, availability, maintainability; (3) software architectures—monolithic, distributed, client/server, event driven; (4) object-oriented concepts and design patterns—observer; abstract factory, adapter; bridge and façade; and (5) testing software—standard test processes (unit tests, integration, system, performance, acceptance, installation); code inspections; equivalence class tests; path testing; conformance testing; and use case tests.

Prerequisites: Corequisites:

Unit Aims

Students are able to use the object-oriented paradigm to analyse, design and test computer software; read and analyse requirements analysis documentation including UML models; read and develop system design documents; know several standard software architectures and design patterns; design and execute test cases using white and black box methods; become effective team members; undertake problem identification, formulation and solution; and apply knowledge of basic science and engineering skills.

Teaching Staff

Unit Co-ordinator: Dr Du Huynh

Textbook
Contact Hours

38 (lectures: 26 hrs; practical classes: 12 hrs)

Assessment

This comprises two written assignments, a mid-semester test and a final examination. The written assignments develop in-depth technical competence in software engineering design, problem identification, formulation and solution and practical application of methods for designing and testing software. Practice classes support the assignments using group exercises to develop students' ability to communicate and function effectively in a team. The mid-semester test and examination focus on problem solving, the application of basic knowledge and in-depth technical competence in software engineering design. The expectation of lifelong learning is fostered by student-led solutions for software engineering problems and reflection on the quality of those solutions by self-assessment. Supplementary assessment is not available in this unit except in the case of a bachelor's pass degree student who has obtained a mark of 45 to 49 and is currently enrolled in this unit, and it is the only remaining unit that the student must pass in order to complete the course.

Unsatisfactory Progress

Any student who does not demonstrate satisfactory progress in this unit, as defined in the FECM Policy on Assessment Practices and Procedures, may be refused admission to the final examinations. The final deadline for notification of unsatisfactory progress is the last day of Week 10.

Penalties

The School of Computer Science and Software Engineering has adopted a policy on minimum penalties for late items of assessment. This is the default policy of all units unless indicated otherwise, in writing, by the specific unit coordinator.

This policy shall apply to all items of continuous assessment, whether submitted either physically or electronically. Immediately after the submission deadline for an item of continuous assessment, a penalty of 20 percent will be applied PER DAY or PART THEREOF. The minimum mark possible for late submission is zero. The percentage is based on the item’s total contribution to the unit’s assessment. For example, a project contributing 40% to the unit’s assessment will incur a penalty of 8 marks for each day late until it is submitted or a mark of zero results.

A more detailed description is given in this School’s Policy on Late Submission. The Faculty does have an appeals
procedure, the details of which can be found at the Policy for Appeals.

**Plagiarism**

Plagiarism is broadly defined to be when any portion of the work presented for assessment, can be attributed to another party. The student making the submission should acknowledge what aspects of the presented work is not directly derived by them. For the purposes of plagiarism it is irrelevant that you have been given permission by someone to copy their work and present it as your own.

You are directed to the School of Computer Science and Software Engineering Policy on Plagiarism and the Faculty of Engineering, Computing and Mathematics Policy on Plagiarism.

**Academic Conduct Essentials (ACE)**

All students who have not previously been enrolled at UWA are required to complete a short compulsory online module called Academic Conduct Essentials (ACE) within the first 10 weeks of semester. ACE introduces students to essential knowledge regarding ethical scholarship, helps prepare them for the expectations of their university career and informs them of correct academic conduct.

The unit can be accessed via WebCT. The final unit quiz must be completed with a mark of 80% or greater. Students may attempt the quiz as many times as they wish to gain the required pass mark. Completion of the unit will be recorded as an Ungraded Pass (UP) on students’ academic records. Non-completion (NC) within the required timeframe will also be documented on formal academic records. More information on ACE is available at ace.uwa.edu.au

**Special Consideration**

Applications for consideration, deferral of tests or exams or extensions of time for assignments on medical, personal or other grounds must be lodged with the faculty office no later than three working days after the due date for the assessment in question. This rule will apply to all students, except in exceptional circumstances.

**Faculty Marks Adjustment Policy**

Final assessment is subject to the Faculty Scaling Policy.

**Supplementary Examinations**

Supplementary examinations will be awarded in accordance with Faculty Policy on supplementary assessment.

**Student Rights**
The University's charter of student rights is available at http://www.secretariat.uwa.edu.au/home/policies/charter

**Academic misconduct**

The University of Western Australia strongly supports teaching and learning that promotes academic literacy and ethical scholarship for all students. As part of this commitment, UWA has recently developed new guidelines relating to Academic Misconduct (including plagiarism). It is also developing a range of resources for students and staff to further strengthen academic literacy and ethical scholarship at UWA. Further details are available on the Teaching and Learning website.