CS2020 Software Engineering

Level: 2 Credits: 20 Teaching Period: 1 & 2 Module Tutor: Dr DJ Evans

Aims

To enable students to:

- Understand the need for a disciplined approach to software development, encapsulated by the software development life cycle.
- Learn and understand the key stages of the software development life cycle.
- Explain the differences between contemporary and classical systems for implanting the software development life cycle.
- Gain the skills necessary to design a software system using the software engineering lifecycle process and communicating stages of design with the Unified Modelling Language (UML) notation.

Content

The Software Development Life Cycle: Conception, Business case, Business context, System requirements, Requirements analysis, Systems analysis, Design, Implementation, Testing, Deployment, Maintenance.

The Unified Modelling Language (UML): Models, Use Case diagrams, Activity diagrams and State Chart Diagrams, Sequence and Collaboration diagrams, Class diagrams, Component Diagrams.

Managing the process: Customers, Organization Types, Project Management, Teams and team dynamics, Computer Assisted Software Engineering (CASE) Tools, Documentation.

Teaching

Lectures: 40 hours; Tutorial classes: 10 hours; Coursework, study and examination: 150 hours
Total student time: 200 hours

Assessment

Written exam: 80% (3 hours, May/June)
Practical assignment: 20%

Module outcomes *What the student should gain from successful completion of the module*	*Teaching/Learning Methods*	*Assessment Methods*
Knowledge and Understanding		
Understanding of the software engineering life cycle. Knowledge of UML notation. The ability to document a software design, generated by following the software engineering lifecycle, with the UML.	Lectures, problem sheets and tutorials	Exam and coursework
Intellectual Skills		
Be able to design a simple piece of software and express the design using UML notation. The ability to analyse and interpret UML diagrams.	Lectures, problem sheets, practical work and tutorials	Exam and coursework
Professional/Subject-Specific Skills		
Ability to elicit business processes and document them using UML.	Lectures, problem sheets and tutorials	Exam and coursework
Transferable Skills		
Enhanced skills in problem solving and abstraction.	Practical work	Exam and coursework

Learning resources

Lunn: Software Development with UML
Farmer, McRobb & Bennett: Object Oriented Systems Analysis and Design
Sommerville: Software Engineering (6th or 7th edition)

Other study requirements to take this module

CS1410 Java Program Development
CS2010 Group Project (as a parallel activity – desirable but not essential)