Main Page

From DesignLab

Welcome to the CS891 Design Lab Course Website

This hands-on course in the final semester of the four-year Bachelor of Technology programme is the culminating capstone project to foster reflection and synthesis of accumulated knowledge and skills, so that students may demonstrate their capacity for independent, critical thinking and creativity. The course shall prepare the graduating students for the expectations and standards of their workplace by mirrorring professional practice in an engineering problem-solving context. Working in teams, students shall first identify a problem from within their community and thereafter conceive, design, implement and deliver a mid-sized project to address this problem. Students will take on different roles (e.g. Project Manager, QA Engineer) and each be responsible for specific aspects of the team deliverables. The project shall be multi-disciplinary in nature, utilising skillsets from Software Engineering (CS701) and Project Management (HU801). In particular, students are required to follow a software development life cycle model, adhering to industry quality standards (such as CMMI) with the help of tools that foster professional practice (such as wiki, source repository, issue tracker, test bench). Through case studies and workshops by practitioners, students shall gain practical insight into best practices and common pitfalls.

Contents

Learning Outcomes

By the end of the course, students shall be able to:

- Formulate the requirements from a given problem
- Synthesise and employ knowledge from Software Engineering and Project Management
- Create, design, develop and deploy a solution, according to the SDLC
- Incorporate good design principles in solution
- Plan and execute a project
- Conform to a designated quality standard
- Employ industry best practices and tools

Assessment

Throughout the semester, the project will be graded according to SDLC deliverables (Project Plan, Requirement Specification, Design Document, Source Code, Test Results etc.).

At the end of the semester, the project shall be subject to an audit for conformance to CMMI Level 2.

The final grade shall consist of:

- a team component - team’s performance in product demonstration and process audit, and
- an individual component - the individual’s deliverables according to his / her role.

Project

Working in teams, ALL students will follow the rubics of the Microsoft Imagine Cup World Citizenship Competition.

"Find a problem in the world, even in your own life or community, that affects many people, and then work to solve it. Build a project that could change lives – and change your own in the process, because the team you assemble to bring this vision to life will learn more and challenge themselves more than any of you can yet imagine. Become the change you want to see in the world."

Project Team Organisation

Each team shall consist of 5-6 people, each taking on a distinct role. (For teams of 6, there will be 2 Developers.)

Each member of the team is responsible for the delivery of the project. Besides

your primary role, you will play your part as a team member, taking on secondary roles to ensure the success of the team.

Role	Description
Project Manager	You are responsible for the overall successful delivery of the project.
QA Manager	You are responsible for the overall product and process quality of the project.
QA Engineer	You are responsible for the implementation of the various quality plans, so as to deliver a quality product.
Lead Developer	You are responsible for the technical leadership of the project.
Developer	You are responsible for the technical implementation of the project.

Schedule

Date	Task Description	Deliverables / Submission
Feb 10	Problem Analysis Video (https://www.imaginecup.com/Content/Details/17414)	
Feb 12	Use Case Model Review	
Feb 17	SRS Review	
Feb 24 (Tue)	■ SRS Review ■ Conceptual Model	Use Case Model on Wiki
Feb 26 (Thu)	■ Conceptual Model ■ Project Plan (including QA Plan) Review	SRS on Wiki
Mar 3 (Tue)	■ Design Document (Class and Sequence Diagrams) ■ Prototyping	Project Plan on Wiki

Mar 12 (Thu)	Mid-Semester Exam I	Design Document on Wiki
Mar 17 (Tue)	Test Plan and Test Cases using TestLink	
Mar 24 (Tue)	Implementation and Unit Testing with JUnit	■ Test Plan and Test Cases in TestLink
Mar 31 (Tue)	■ Code Review ■ Source Code Repository using SVN	■ Code Review Report on Wiki ■ Source Code in SVN
Apr 7 (Tue)	■ Release 0.1 + Deployment ■ Test Plan in Testlink ■ Bug report in Bugzilla	■ Release 0.1 tagged in SVN ■ Release 0.1 deployed on target platform
Apr16 (Thu)	Release 0.1 Test Report Review	■ Test report in Testlink and metrics on Wiki ■ Bug report in Bugzilla
Apr 21 (Tue)	Release 0.2 + Demo/Audit Preparation	■ Test report in Testlink and metrics on Wiki ■ Bug report in Bugzilla
Apr 30 (Thu)	Release 1.0 + Product Demo	
May 2 (Sat)	CMMI Level 2 Audit	
May 5 ~ 8	Mid-Semester Exam II	

May 12 ~ 20	WBUT Practical Exam	

Standards Documentation

Media:Cmmi13.quickref.pdf

Project Document Templates

Project Closure Report Template

Change Request Form

Change Analysis Form

Code Review Checklist

Meeting Minutes Template

Software Requirement Specification Template

Use Case Template

Project Tools

- Wiki (http://93.188.165.124/wiki) for project documentation
- ProjectLibre (http://www.projectlibre.org) for project planning
- VisualParadigm Community Edition (http://www.visual-paradigm.com /download/community.jsp) for UML modelling
- TestLink (http://93.188.165.124/testlink/index.php) for test case management
  - Media:TestLink.UserManual.pdf
- SVN (http://93.188.165.124/svn) for source code version control / configuration management
  - TortoiseSVN (http://tortoisesvn.net) as GUI Client on WindowsOS
  - TortoiseSVN User Manual (http://greenbay.usc.edu/csci577/tools /Subversion/Subversion_User_Manual.pdf)
- Bugzilla (http://93.188.165.124/bugzilla) for issue / bug tracking
  - Bugzilla User Manual (http://93.188.165.124/bugzilla/docs/en /html/using.html)

MediaWiki has been successfully installed.

Consult the User's Guide (https://meta.wikimedia.org/wiki/Help:Contents) for information on using the wiki software.

Getting started

- Configuration settings list (https://www.mediawiki.org/wiki/Special:MyLanguage/Manual:Configuration_settings)
- MediaWiki FAQ (https://www.mediawiki.org/wiki/Special:MyLanguage/Manual:FAQ)
- MediaWiki release mailing list (https://lists.wikimedia.org/mailman/listinfo/mediawiki-announce)
- Localise MediaWiki for your language (https://www.mediawiki.org/wiki/Special:MyLanguage/Localisation#Translation_resources)

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