CSIT314
Software Development Methodologies

Subject Introduction

Who am I?

- Associate Professor Hoa Khanh Dam
  - PhD in Computer Science - RMIT University, Australia
  - M.App.Sc. in Information Technology - RMIT University
  - Bachelor of Computer Science - University of Melbourne
- Previous positions:
  - Technical Architect / Project Manager at B.A.O. Solutions
  - Software Engineer at Exari Systems.
- Research interests:
  - **Artificial Intelligence** for **Software Engineering**
  - And more info at my website http://www.uow.edu.au/~hoa

Teaching team

- Lecturer:
  - Associate Professor Hoa Khanh Dam
- Tutors:
  - Full time cohort:
    - Terence Chew tchew@uow.edu.au
    - Lionel Lim
  - Part time cohort:
    - Kheng Teck Tan ktan@uow.edu.au
  - If you have any inquiry about groups, project and labs, please contact your tutor.

Subject objectives

- On successful completion of this subject, students will be able to:
  - Demonstrate an in-depth **understanding of the stages involved in software development** and the issues to be considered at each stage.
  - Compare and contrast different **software development methodologies and process models**, and assess their suitability in different development contexts.
  - Deploy appropriate theory, practices, and tools for the **specification, design, implementation and evaluation** of computer-based systems.
  - Function effectively as part of a **team** to apply state-of-the-art software development methodologies to the development of a software system.
  - Apply different strategies for **assessing and improving software** development processes.
  - Apply **professional standards** in software development.

Topics

- Introduction and Software Development Lifecycle
- Overview of software process models and ethics
- Advanced Unified Modelling Language
- Test driven software development
- Principles and practices of continuous integration and delivery
- DevOps software development practices
- Unified software development process
- Extreme programming
- Kanban software development method
- Capability Maturity Model Integration (CMMI) model
- Data-driven software development
- Ethics in developing emerging software systems

Resources

- Lectures
  - PDF files with slides from lectures
- Assignments
- Supplementary materials

One-stop shop: Moodle

Overall assessment

- Lab exercises (10%):
  - Will be assessed in the **4th lab session.**
- Group project (40%)
  - Final deliverables (due **17th November 2022**)
  - Project presentation Q&A – **last lab session**.
- Examination (50%)
  - **Technical Fail**
    - To be eligible for a Pass in this subject a student must achieve a mark of at least **40% in the Final Examination**.
    - Students who fail to achieve this minimum mark & would have otherwise passed may be given a TF (Technical Fail) for this subject.

Tutorial/Lab

- Each tutorial/lab:
  - First half: an exercise
  - Second half: project
    - Work on the project.
    - Meet "the client" session.
    - Tutor will note your group's attendance, progress, interactions with "client", etc. which are the factors considered for the final marking of the project.

The group project

- Group size: 6-7
- ***Formation of groups is your responsibility.***
- Project specification has been released.

- You will have to form a group **within the same lab as you ASAP**, and submit details of group membership **by the end of next week**.

  - The group leader needs to email your group details (student numbers, names and emails) to your tutors:
    - Full time cohort: Terence Chew (tchew@uow.edu.au)
    - Part time cohort: Kheng Teck Tan (ktan@uow.edu.au)
  - CC the email to all other team members.
  - **Contact your tutor if you need assistance in forming a group.**

  - Penalties may be applied if submitting this late.

Q & A

- Q: Can we obtain a HD in this subject?
  - A: "Yes, we can!"
- Q: Great! Sounds easy but how?
  - A: Sure, you need to do exercises in the Lab, work hard on the project and do well in the exam.
- Q: Of course, but still how?
  - A: Yes, you need to attend the lectures regularly (very important in this subject), read reference texts, and read Lecture slides.
  - You should also do Lab exercises
- Q: Hmmm, it's not that easy but it's ok, I can do it in just only 1 week before the exam, huh?
  - A: No, you have to do it every week.
- Q: Oh no, it's so difficult ☹. I don't want a HD anymore, I just want a P. So less work?
  - A: Yes, but you still have to do the same things.