Politecnico
di Milano

Software Engineering 2

Brief description of the course organization

Course objectives

- To offer an overview of the principles and techniques of software engineering

- Topics
  - Software life cycles, standard, project management and metrics
  - Specification languages
    - Alloy
  - Requirement analysis
  - Software architectures and implementation platforms
    - JEE
  - Validation and verification

… for those who graduated here

- **Ingegneria del Software 1 focused on development of small scale OO systems**
  - Lifecycles
  - Specification and design of a software module
  - Design patterns
  - Some principles concerning documentation
  - Module verification
  - Configuration management
- **Software Engineering 2 more focused on development of complex systems, attention to**
  - Requirement engineering
  - Architectural design,
  - All kinds of verification perspectives,
  - Project management, effort estimation

Course style

- This is a **graduate course**
- We require interaction and active participation
  - In class during lectures
  - During the development of a project
- Btw… do not pretend to study on slides only
- We are experimenting various formula… this means that we introduce some change every year…
- This year more exercise sessions and a few changes in the exam rules

Instructors

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- Exercises
  - Michele Guerriero (michele.guerriero@polimi.it)
  - Damian Tamburri(damianandrew.tamburri@polimi.it)

- The course schedule will be published on the web site
- The two classes proceed (mostly) in parallel

Book and other material

- Hans Van Vliet
  - Software Engineering: Principles and Practice, 3rd edition
- Ghezzi, Jazayeri, Mandrioli
  - Ingegneria del software: Fondamenti e Principi, Pearson Education Italia
  - Fundamentals of Software Engineering, Prentice Hall
- http://beep.metid.polimi.it/
- Slides, tools, exercises, interesting links, various info on exams, schedule variations, newsgroup and forum

Exams

- One final written exam
  - Score from 0 to 19
- A mandatory project assigned by us
  - Score from 0 to 13

Project

- Objective: to help students apply the approaches and principles we teach in class
- You will autonomously form groups of at most three persons
- Each person in the group can have a specific role (to be declared at the exam)
  - But all have to do some part of each of the assignments (see later)
- Participation at the project lab sessions is strongly recommended

- Another project will be given in April, with **NO ASSISTANCE BY INSTRUCTORS**

Feasibility study & Project estimation

Requirements analysis& specification

Design

Code inspection

Coding&Unit level quality assurance
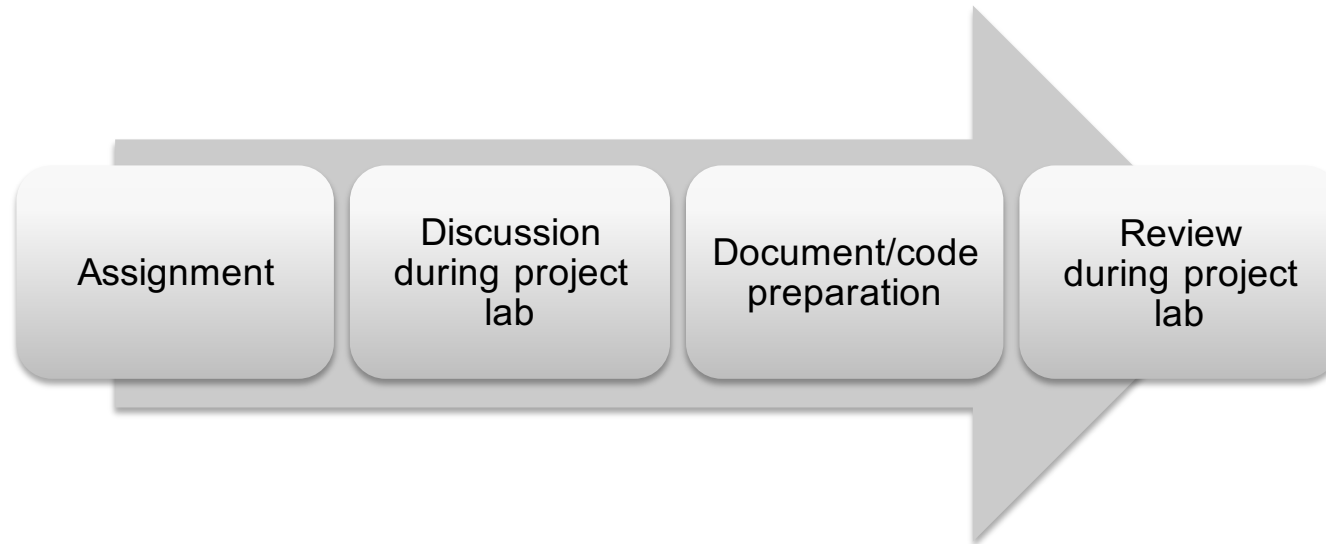
Integration&System test

Deployment

Maintenance

Approach

Assignment → Discussion during project lab → Document/code preparation → Review during project lab

- Note: it will be impossible to review the assignments of all students during project labs!
- Four assignments reviewed collectively during project labs
- These will be **randomly** selected
- All other assignments reviewed during the final presentations at the end of the course

Project phases

- Group registration 16/10
- Project assignment (excluding code inspection) 16/10
- Open discussion on RASD during the project lab of 26/10
- RASD submission deadline 13/11
- Presentation of RASDs and peer review on 16/11
- Open discussion on Design Document 30/11
- Design Document submission deadline 11/12
- Presentation of Design Documents and peer review 14/12 prof. Mottola, 15/12 prof. Di Nitto

Project phases

- Open discussion on testing assignment 21/12 prof. Mottola, 22/12 prof. Di Nitto
- Testing document submission deadline 15/01
- Open discussion on project management 11/01
- Project management document submission deadline 22/01
- Code inspection assignment 11/01
- Open discussion on inspection 18/01
- Inspection document submission deadline 05/02
- Final presentation (to be scheduled)

Project monitoring and evaluation

- Monitoring will occur during labs and on demand by contacting the instructors

- Evaluation: we will assess
  - Quality of the produced artifacts
  - Ability to justify design decisions
  - Ability to explain rationales
  - Ability to coordinate with the other group members
  - Ability to fulfill the deadlines
  - Presentation