Software Engineering

Course Information

SoftEng
http://softeng.polito.it

Who

- Maurizio Morisio
  - Dept. Control and Computer Engineering
  - maurizio.morisio@polito.it
  - 011-0907033

- Luca Ardito
  - Dept. Control and Computer Engineering
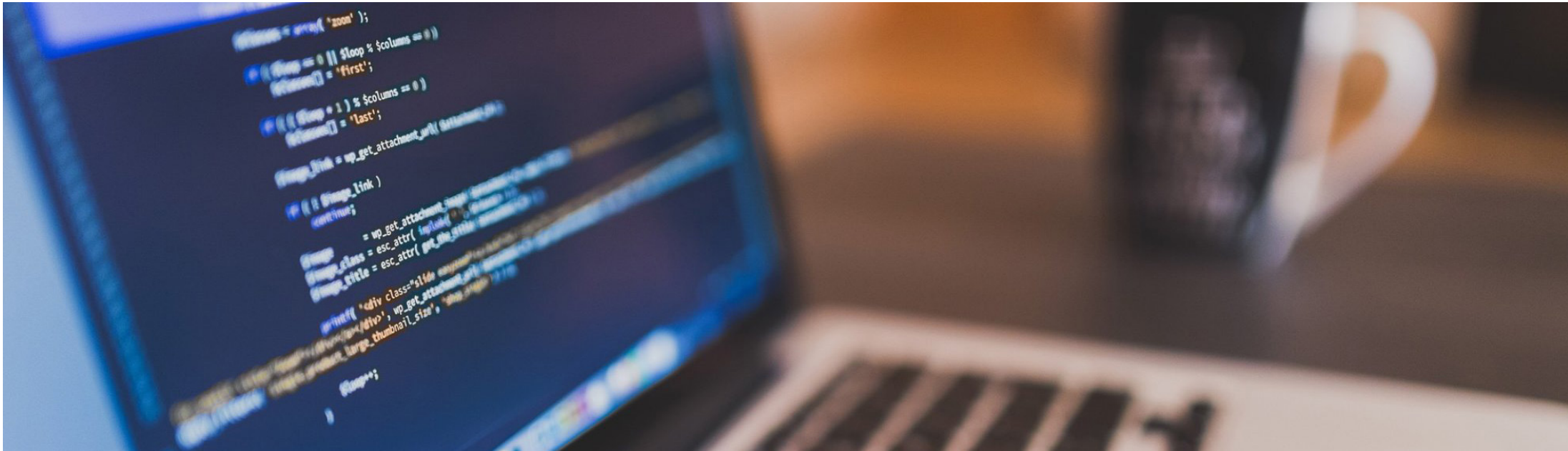 - luca.ardito@polito.it
  - 011-0907170

Why

- Software is everywhere!

Why

- Software engineering != just writing code

Why

Software glitch cost Hamilton victory - Mercedes

25 March 2018

MERCEDES   AUSTRALIA   HAMILTON

We identified that there was an issue with the software that was telling us at that point that Lewis was safe, and that Vettel would drop out behind us, and then obviously you saw what happened and Vettel dropped out in front after he came in for his pit stop," Shovlin said. "The issue isn't actually with the race strategy software that we use, it was an offline tool that we create these delta time laps with, and we found a bug in that tool that meant that it gave us the wrong number.

When (and where)

Day	Room
Monday	R3
Wednesday	12A
Thursday	R1

- BYOD (Bring Your Own Device)!
  - Rooms R1 and R3 have plugs!
- All the lectures will be streamed and recorded

SOftEng
http://softeng.polito.it

How

- Lectures and Exercises

- Participation is important
  - live / in streaming / on demand

- Slack discussions
  - Join right now following this link: https://tinyurl.com/454rrsv2

- Participation != Attendance

How
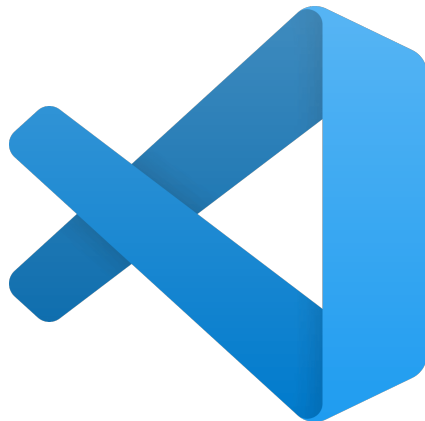
What

- Software Engineering
    - Motivation
    - Issues

- Requirements
    - UML

- Design
    - UML

- Verification and Validation
    - Inspections
    - Testing

How to... pass the exam

- Two parts
  - Project work (explained in detail later)
  - Exam

- Exam: 33 points
  - Passed if mark >= 18

- Project: 33 points
  - Passed if mark >= 18

- Final Grade
  - GradeExam * 0,4 + GradeProject * 0,6
  - GradeExam >= 18 && GradeProject >= 18

Books and References

- Bruegge Dutoit, Object Oriented Software Engineering
- Ian Sommerville, Software Engineering, Pearson ed.
  - Also, Pfleeger, Pressman, Shach
- Martin Fowler, UML Distilled

And then?

- How does Software development work in practice?
  - Modern teams organize with agile practices

- Quality is a key component in engineering practice, how does it work in Software engineering?
  - Software analytics allow measuring and controlling Sw projects

- Evolution is intrinsic in software, how do you tame it?
  - Advanced debugging methods, log analysis, reverse engineering techniques

Software Engineering 2!

- Professors: Marco Torchiano, Antonio Vetrò
- A practical, project-oriented course to learn how software is crafted in modern teams
- Let's try in practice
  - Software Scrum
  - Planning poker
  - Technical debt
  - Software smells

Project

Process and product

- Apply a state-of-the-art software engineering process to a (small) project:
  - Use of tools
  - Use of techniques
  - Use of process
  - Work in a team

Constraints

- Project must be developed in parallel with course
- The object to be developed is the same for all the teams
  - Discussion inside the team is essential
  - Copying between teams is forbidden
- Antiplagiarism tools will be applied
- All communications only via defined tools
  - (mostly the Git repository, or Slack)

Steps

1. Teams will be defined by us
   - You cannot choose your teammates (as it happens in real life!)

2. Set up repository
   - You will receive an email (@polito account) for setting up your account and team repository

3. Access objects of development on repository

4. Produce various deliverables

Object to be developed

- Medium companies and retailers need a simple application to manage the relationship with suppliers, and the inventory

- EZWH is a software application to
  - manage suppliers and orders
  - manage reception of ordered items
  - manage internal orders and deliveries

To be produced

- Requirements document

- Design document

- Code

- Test suite – unit level, integration level

- Test suite, API level

- Change Request