Course Outline

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Textbook

- C. Wohlin et al. **Experimentation in Software Engineering**, Springer. 2012.
  - Chapters 1 to 11 (Part I and Part II)

Additional Literature

- General Software Engineering Books
  - I. Sommerville. **Software Engineering**, 9th Edition. Pearson, 2010.
  - R. Pressman. **Software Engineering: A Practitioner's Approach**, 7th Edition, McGraw-Hill Higher Education, 2009.
- Specific Books
  - Natalia Juristo and Ana M. Moreno. **Basics of Software Engineering Experimentation**, 1st edition. Springer, 2001.
  - N. E. Fenton, S. L. Pfleeger. **Software Metrics: A Rigorous and Practical Approach**, 2 edition, 1996.
  - M. Lanza e R. Marinescu. **Object-Oriented Metrics in Practice**. Springer, 2006.
- Papers

Assessment Method (Graduate)

- Two Exams: 15 points each
  - 1st Exam: 12 March
  - 2nd Exam: 19 May
- Group Work: 20 points
  - Details by March 24th
- Exercises: 10 points
- Final Project: 40 points
  - Details soon

Dates may vary

Assessment Method (Undergrads)

- Two Exams: 30 points each
  - 1st Exam: 12 March
  - 2nd Exam: 19 May
- Group Work: 20 points
  - Details by March 24th
- Exercises: 20 points
- ~~Final Project: 40 points~~
  - ~~Details soon~~

Dates may vary

3rd Exam (optional)

- The 3rd exam is allowed to students with at least 40 points (sum of all activities)
  - It replaces 1st or 2nd exam
  - 15 pts (Graduate) or 30 pts (Under)
  - Expected Date: 26 May
- Which lectures to study?
  - If it replaces 1st exam: Lectures 1 to 10
  - If it replaces 2nd exam: Lectures 12 to 27

Laboratory

- Sometimes, we may have lectures in laboratory
  - To book: ICEx 2011 or 2012
- Example
  - Simulate experiments
  - Use the R software

Course Website

- All course material and agenda are available in the course website
  - Link “Teaching (pt)” in my webpage

http://www.dcc.ufmg.br/~figueiredo/disciplinas

- Email: **ese.dcc@gmail.com**

Group Work (GW)

- Students are going to be divided into six groups (G1 to G6)
  - Group size depends on class size
  - Maximum 2 graduate students per group
- Illustrative small experiment
  - To plan an experiment (or quasi-experiment)
  - To run it in class
  - To present the results
  - To report in a small 5-page document

Important Dates (GW)

	G1	G2	G3	G4	G5	G6
Form Group	25/02	28/02	28/02	28/02	28/02	28/02
Define Topic	26/02	05/03	10/03	26/03	31/03	02/04
Run Experiment	17/03	19/03	24/03	09/04	14/04	16/04
Present Results	07/04	07/04	07/04	30/04	30/04	30/4
Send Report	08/04	08/04	08/04	01/05	01/05	01/05

Final Project (Graduate)

- Only for graduate students
  - Alone (preferable) or in pairs
- Main tasks
  - To plan and run an case study, SLR, survey, or experiment (preferable)
  - To present the results in class
  - To report in a 15-page document (similar to a research paper)

Important Dates (Final Project)

- Before 28/02
  - Define topic and send it by email
  - The earlier, the better
- 05/05, 07/05 and 12/05
  - Oral presentation of preliminary results
- 31/05
  - Send final report (by email)

Topics for the 1st Exam

- Empirical Strategies
  - Surveys, case studies, experiments
- Measurement
  - Product metrics: OO and concern
- Bad Smell and Detection Strategies
- Systematic Literature Reviews
- Case Studies
- Experiment Process

Topics for the 2nd Exam

- Scoping
- Planning
- Operation
- Analysis and Interpretation
- Statistics using R
- Experiments presented by group work
- Studies presented by graduate students

Preliminary Agenda

1. Course Outline
2. Introduction to Empirical Strategies
3. Measurement
4. Separation of Concerns
5. Detection Strategies
6. **Exercise**

Preliminary Agenda

7. Systematic Literature Reviews
8. Case Studies
9. Experiment Process
10. Review to 1st Exam
11. **1st Exam**

Preliminary Agenda

12. Experiment of Group 1
13. Experiment of Group 2
14. Experiment of Group 3
15. Scoping and Planning
16. Operation
17. Analysis and Interpretation

Preliminary Agenda

18. Oral Presentation: Groups 1, 2, and 3
19. Experiment of Group 4
20. Experiment of Group 5
21. Experiment of Group 6
22. Statistics using R
23. Oral Presentation: Groups 4, 5, and 6

Preliminary Agenda

24. Oral Presentation: Graduate Students
25. Oral Presentation: Graduate Students
26. Oral Presentation: Graduate Students
27. Review to 2nd Exam
28. **2nd Exam**

Preliminary Agenda

29. Review to 3rd Exam
30. **3rd Exam**

Next Lecture

- Motivation and Introduction to Empirical Strategies
- ESE book
  - Chapters 1 and 2
- Paper
  - Andreas Zeller, Thomas Zimmermann, Christian Bird. **Failure is a Four Letter Word**. PROMISE 2011.