CSC 510 Software Engineering
An introduction to software life cycle models, size and effort estimation, project management, risk management, formal technical reviews, analysis, architecture, design, coding and verification methods, configuration management, and change control, software architectures, the Capability Maturity Model Integration, and software process improvement. Emphasis on software-intensive development projects. An individual research project that describes state-of-the-art methodologies, approaches, or techniques in the Software Engineering field is required. Three (3) credit hours.

**Course Evaluation**

**HOMEWORK:** [total 30%]

There will be three (3) Assignments and will be individual. The value of each assignment will be 10% each for a total of 30% for all three assignments.

**EXAMINATIONS:** [total 50%]

There will be a Mid-term exam (20%) and Final cumulative Exam (30%). Exams will be in principle closed book.

**SOFTWARE DEVELOPMENT:**

Not expected any software development.

**RESEARCH PROJECT:** [total 20%]

There will be one research project individually oriented (20%). Students will propose a topic in Software Engineering by February 17th of 2012 and the instructor will accept or reject the topic. Final report for the project is due on April 27th. In case of rejection, the student may select from a cluster of topics shown below. The Research Project will have a minimum of 25 pages (main text of the paper not including pages for table of contents, title, references, appendices, etc.) double spaced, font point 12 and will involve reading the state-of-the-art papers in the selected topic. The research project will contain at least 20 references (conference papers, journal papers, books) in addition to any web site references. The primary sections for the project will include: (a) Introduction to the topic; (b) literature review on latest work published in the topic; (c) analysis of the topic by the student; (d) analysis on how the topic is relevant to industry; (e) areas where the student sees potential for future research work; (f) conclusions.
Sample topics for the course include:

(a) Managing geographically distributed software development teams
(b) Current state-of-the-art in Agile software development
(c) “In-sourcing” software development
(d) State-of-the-art in Software Security
(e) Empirical Software Engineering?
(f) How to use Software Engineering practices in the Video-Game industry in commercial software development
(g) Approaches to Software Estimation
(h) State-of-the-art software verification (testing) techniques
(i) Self-healing software systems

**Course Quizzes: [extra bonus points]**

There will be quizzes associated with topics during the course. Quizzes will be posted in the Message Board and students are expected to answer the quizzes. Based on the quality of the answer, the instructor will assign extra-bonus points (at the discretion of the instructor based on the thoughtfulness and quality of the answers) that will be added to the final mark. Amount of points will be announced with the quiz posting.

**Letter Grades**

The numeric grade is the weighted average of grades in each category. The alphabetic grade is calculated as:

- A+ = 97.0 - 100
- A = 93.0 - 96.9
- A- = 90.0 - 92.9
- B+ = 87.0 - 89.9
- B = 83.0 - 86.9
- B- = 80.0 - 82.9
- C+ = 77.0 - 79.9
- C = 73.0 - 76.9
- C- = 70.0 - 72.9
- D+ = 67.0 - 69.9
- D = 63.0 - 63.9
- D- = 60.0 - 62.9

**Instructor**

Dr. Aldo Dagnino

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