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Department of Electrical Engineering and Computer Science

**COURSE OUTLINE**
**EECS 4314: Advanced Software Engineering**
**Fall 2019**

**Instructor:**
Dr. Zhen Ming (Jack) Jiang
Office Hours: Time: Mondays 2:30 – 3:30 pm or by appointment
Email: zmjiang at cse dot yorku dot ca
Location: LAS 1012E

*For course related questions, please post to the forum. For personal issues (e.g., grading etc.), please email with the subject "EECS4314".*

**Lectures:**
Mondays and Wednesdays 13:00 - 14:30 pm
Location: LSB 107

**Course TA:**
Minke Xiu

**Calendar Descriptions for this Course:**
This course goes into more detail about some of the software engineering techniques and principles presented in earlier courses, as well as introduces advanced aspects of software engineering that are not addressed elsewhere:

- Software process and its various models and standards (CMMI, ISO 9001).
- Software architecture, i.e. the structure of data and program components that are required to build a software system. Examples include distributed and component-based architectures.
- Model Driven Engineering and the use of software description languages.
- Software metrics, such as metrics for software quality, software design metrics, as well as testing and maintenance metrics.
- Project management concepts on coordinating people and products.
- Cost estimation and project scheduling for large software systems.
- Risk management and mitigation.
- Software configuration management (software evolution, change management, version and release management).
- Emerging technologies, such as security engineering, service-oriented software engineering, and aspect-oriented software development.

**Learning Outcomes:**
- Derive models of software systems and express them in a language such as UML.
- Understand the differences between different types of software architecture
- Derive cost estimation tables delineating the tasks to be performed, and the cost, effort, and time involved for each task.
- Identify risks associated with a given software project, and develop plans to mitigate and manage these risks.

- Manage software projects by identifying the sequence of tasks that will enable the project to complete in time, assigning responsibility for each task, and adapting the schedule as various risks become reality

**Topics Covered:**
- Software architecture
- Software project scheduling
- Software cost estimation
- Software metrics and software performance (if time permits)

**Required Textbooks:**
N/A

**Optional Textbooks:**
Title/Edition: Software Engineering (10th Edition)
Author: Ian Sommerville
Publisher: Pearson; 10 edition (March 24 2015)

Title/Edition: Refactoring: Improving the Design of Existing Code
Author: Martin Fowler, Kent Beck, John Brant, William Opdyke, Don Roberts
Publisher: Addison-Wesley Professional; 1 edition (June 28 1999)

**Significant Dates:**

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|---|---|
| First Class | Sept. 04, 2019 |
| Fall Reading Days (no class, university open) | Oct. 12 – Oct. 18, 2019 |
| Thanksgiving | Oct. 14, 2019 |
| Drop Date | Nov. 08, 2019 |
| Last Class | Dec. 02, 2019 |
| Fall Class Ends | Dec. 04, 2019 (Assignment Due) |
| Fall Study Day | Dec. 04, 2019 |
| Exam Period | Dec. 05 – 20, 2019 |

**Assessment:**
- Assignments: 60%
- Final: 40%

Note1: No late deliverables will be accepted.
Note2: Missed tests with good reason (normally medical and documented with attending physician form: http://www.registrar.yorku.ca/pdf/attend_physician_statement.pdf) will have their weight transferred to the final exam. There are no "make up" tests. Tests missed for no reason are deemed to have been written and failed and are marked "F".

**Academic Honesty and Cheating:**
Cheating, plagiarism and other forms of academic fraud are taken very seriously by the University, the Faculty, and the teaching staff. Consult York's policy on academic honesty:
http://www.cse.yorku.ca/admin/coscOnAcadHonesty.html