

CSC407S / 2103S ECE450S

Software Architecture & Design (ECE: Software Engineering II)

Prof. Penny

LP396C

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Office hours: Thursdays 10:00 – 11:30
(or by appointment)

My Qualifications

- **B.Sc. / M.Sc. / Ph.D. in CS (UofT)**
 - Specializing in Software Engineering
 - Visual Architecture Description Languages
 - Major projects: MiniTunis, OOT, Polyx, CE 68000 Kernel, PUMA robot arm controller
- **Industry Experience**
 - 2 years architecting C++ at IBM Toronto Labs
 - C++ development environment
 - C++ & OODB across groups in Toronto, Texas, & Tokyo
 - 5 years architecting C++ at Algorithmics
 - >1MLoc C++ program, CORBA, RDBMS, Java, Web, ...
 - 10 related products, multiple releases of each
 - VP, Software Dev., managing team of >100, revenues >\$80M/yr.
 - Ongoing Consulting
 - Architecture reviews

Learning to Design/Architect Software

- Formal (book) knowledge (20%)
- Experience (80%)
 - Characteristics:
 - Large system (> 300 KLoc)
 - Arms-length folk trying to get work done using it
 - Associated revenue stream
 - Maintenance of multiple releases over several years
 - Understand the mistakes that are made and try to fix them

Grades

- Term (60%)
 - Assignment 1 (15%)
 - OOA (5%)
 - OOD + OOP (Java) (10%)
 - doc + UML + working Java
 - Assignment 2 (25%)
 - OOD + OOP (Java) w/ patterns
 - Assignment 3 (20%)
 - Systems architecture
 - Diagrams and written English
- Final Exam (40%)
 - open book (but it won't help)
- Final Grade
 - $\text{rawGrade} = \text{exam} * 0.4 + \text{term} * 0.6;$
 - $\text{return} (\text{exam} < 40\% ? \text{min}(49\%, \text{rawGrade}) : \text{rawGrade});$

CS Grad Students: more info later

Late policy: see info sheet

Work alone

Texts

- Design Patterns
 - Gamma, Helm, Johnson, & Vlissides
- Acquire some book on
 - Object Oriented Analysis
 - UML for OOA and OOD

Resources

- Home page
 - Handouts, lecture notes, links
- Newsgroup
 - ut.cdf.csc407h
- Office hours
 - Mine
 - TAs

Tutorials

- Each Friday, starting Jan.18
 - Assignments to rooms/groups will be posted
 - Grad students:
 - Meet with me in PT266 this Friday (Jan.11) at noon.
- Worked-out examples
- Group discussion
- Discussion of assignments
- Individual TAs will mark your assignments

Computing

- Assignments require
 - Written documentation
 - Printed Java code
 - UML diagrams
 - Other diagrams
- Any computer w/ Java (any jdk)
 - I use Microsoft Visio for UML and other diagrams, and Word for docs. Use what you want.

Topics

<i>week</i>	<i>topics</i>
1	Overview of design and architecture
2	Early work: info. Hiding & procedural design
3	OOA/D/P overview, UML for OOA
4	OOP, UML for OOD
5-10	Design Patterns
10-13	Systems Architecture