



THE UNIVERSITY OF BRITISH COLUMBIA

Software Engineering
at
ECE



Where we are today



SE faculty profile

- 5-8 people
- over 50 years of industrial experience
- broad range of expertise
 - Computer aided design (CAD)
 - Computer security
 - Embedded systems
 - Human computer interaction (HCI)
 - Knowledge engineering
 - Real-time systems
 - Software architecture
 - Software development process
 - Software safety



SE faculty profile (cont-d)

- Contributions to industry standards
 - IEEE
 - Guide for application of Architectural Description, P1471.1
 - OMG
 - CORBA Security Service
 - Resource Access Decision Facility
 - OASIS
 - eXtensible Access Control Markup Language (XACML)
- Collaborations with industry
 - IBM
 - Microsoft
 - Osellus
 - Ensemble
 - Navtek



SE faculty profile (cont-d)

- Ongoing research projects
 - HCI
 - Glove-Talk
 - Iamascope
 - MusiKalscope
 - Online collaborations
 - NODAL: A System for Ubiquitous Collaboration
 - The GeoWeb: Bringing Location to the Web...
 - TerraVision: Distributed, interactive 3D Terrain Visualization.
 - Software safety



Undergraduate “exit” courses

Required

- Requirements Engineering
- Software Engineering Prjct
- Economic Analysis of Engineering Projects
- Computer Communications
- Computer Architecture
- Real-Time Digital System Design
- Engineering Project

Electives

- Verification of Software-Intensive Systems
- Software Architecture
- Human Computer Interfaces in Engineering Design
- Software Systems for Modeling and Simulation
- Advanced Object-Orientation
- Software Project Management
- Computer Graphics



Graduate courses

- Software and System Testing
- Distributed Systems for Human Collaboration
- Human Interface Technologies
- Fault-tolerant Digital Systems



Where we are going



Broad teaching objectives

- Train software engineers who can work in teams, not just individual programmers
 - **Requirements specification**
 - **Testing**
 - **Architecture**
 - **HCI**
 - Acquisition of software
 - Project management
 - Language & cultural background
- Develop students' broad understanding of engineering disciplines



Specific teaching objectives

- Toward CEAB's accreditation in SE
- Better preparation in computing and software in 1st and 2nd year
 - More competitive students by co-op
 - Less stress in 3rd and 4th years
- Enable professionals from industry to take graduate (M. Eng) courses
 - 5:30 PM or later



Additional courses

- Undergraduate
 - Computer Security
 - Design of Distributed Applications
- Graduate
 - Distributed Software Systems Security



New research directions

- Software process
 - Modeling and simulation
 - Tool support
 - Resource management
 - Estimation
 - Configuration
- Security
 - Architectures for security mechanisms in software applications
 - HCI methods for security administration
 - Security infrastructure ownership costs
 - Privacy and security of online collaborations



Think cross-disciplinary !

