CSE 322 (Proposed)

CSE 322: Software Development in Java

Description

Introduction to programming in Java; tools for coding, testing, version control, and documentation; language-specific best practices stemming from foundational principles of component-based design.

Level, Credits, Class Time Distribution, Prerequisites

Level	Credits	Class Time Distribution	Prerequisites
U	3	3 1-hr lectures	222/H222

Quarters Offered

- Au, Wi, Sp, Su

General Information, Exclusions, Cross-listings, etc.

Intended Learning Outcomes

- Master core Java language features including objects, classes, interfaces, inheritance, and exceptions
- Be familiar with advanced language features including generics, assertions, threading, nested classes and nested interfaces
- Be exposed to exotic language features including reflection and annotations
- Master core SDK packages including: collections framework, logging, and IO
- Be familiar with advanced SDK packages including: swing for GUIs, network programming, and concurrency
- Be familiar with foundations of an object-oriented paradigm, in particular: encapsulation, inheritance, and polymorphism
- Master core best practices for component-based development including: separation of abstract state and concrete representation and coding to the interface
- Be familiar with the application of design patterns including: immutable objects, factories, and singleton objects
- Be familiar with best practices with regards to object equality, object cloning, and checked/unchecked exceptions
- Master the use of Eclipse as a develpment environment
- Be familiar with CVS, JUnit, and Javadoc

Texts and Other Course Materials

- *The Java Programming Language* - Arnold, Gosling, and Holmes
- *Effective Java Programming Language Guide* - Bloch

Topics

Number of Hours	Topic
1	Overview: compilation, primitive types
11	Language: Objects and classes, packages, generics, inheritance, interfaces, exceptions, reflection, garbage collection, nested classes, annotations.
5	Packages: Collections, Logging, IO, Swing, Concurrency, Network Programming
5	Best Practices: equality, cloning, immutable objects, exceptions
2	Patterns: factories, singletons
6	Tools: Eclipse, CVS, Junit, Javadoc

Representative Lab Assignments

- Frequency plagiarism using collections framework
- GUI for data mining using Swing
- Implementing, testing, and documenting an arbitrary-sized natural number type

Grades

Individual assignments	50%
Team assignments	20%
Exam	25%
Participation	5%

Relationship to BS-CSE Program Outcomes/EC 2000 Criterion 3 Outcomes

a	b	c	d	e	f	g	h	i	j	k
*		***	*	***		**		*		***

Course Coordinator:
Prepared by Paul Sivilotti
Last modified: Jan 9 2007 4:56PM