



COURSE TITLE : Introduction to Programming 1
 COURSE PREREQUISITE : None
 COURSE DURATION : 16 weeks (3 hours/week)
 COURSE METHODOLOGY: Combination of lecture, lab exercises and written exercises.

Course Description

Introduction to Programming 1 teaches students to program using the Java programming language with the help of the NetBeans Integrated Development Environment. As an introduction, this course gives students an overview of the different components of the computer, different number systems and its conversions and Problem-solving strategies. For each topic, some coding guidelines will be discussed starting week 3.

Topics from week 1 to 12 are considered essential and should be covered all throughout the course. Topics labeled * are advance topics but should be covered if time permits. Topics labeled ** are considered optional.

Course Outline

Week	Topics
1	Introduction to Computer Programming <ul style="list-style-type: none"> • Basic Components of a Computer: Software & Hardware • Overview of Computer Programming Languages • Program development life cycle (algorithms) • Number Systems and Conversions
2	Introduction to Computer Programming <ul style="list-style-type: none"> • Number Systems and Conversions (cont.) Introduction to Java <ul style="list-style-type: none"> • Java Background • Phases of a Java Program
3	Getting to know your Programming Environment <ul style="list-style-type: none"> • My First Java Program: "Hello World!" • Writing programs by using a text editor and console • Dealing with errors • Writing programs by using NetBeans Programming Fundamentals <ul style="list-style-type: none"> • Dissecting my First Java Program

Week	Topics
4	Programming Fundamentals <ul style="list-style-type: none"> • Comments, statements, blocks, identifiers, keywords, literals • Primitive data types • Variables • Operators(arithmetic, relational) • Operator Precedence
5	Programming Fundamentals <ul style="list-style-type: none"> • Operators(logical, conditional) • Operator Precedence Getting Input from the keyboard <ul style="list-style-type: none"> • Using BufferedReader • Using JOptionPane
6	Control Structures <ul style="list-style-type: none"> • Decision control structures (if, else, switch)
7	Control Structures <ul style="list-style-type: none"> • Repetition control structures (while, do-while, for) • Branching statements (break, continue, return)
8	Java Arrays Command Line arguments
9	Working with the Java Class Library <ul style="list-style-type: none"> • Introduction to Object-oriented programming • Encapsulation • Classes and Objects • Class variables and methods
10	Working with the Java Class Library <ul style="list-style-type: none"> • Casting, Converting and Comparing Objects
11	Object-Oriented Programming <ul style="list-style-type: none"> • Defining your own classes • Declaring attributes (instance variables, static variables) • Declaring methods (accessor, mutator) • The this reference
12	Object-Oriented Programming <ul style="list-style-type: none"> • Overloading methods • Declaring constructors • The this() constructor call
13*	Object-Oriented Programming <ul style="list-style-type: none"> • Packages • Access modifiers (default, public, private, protected)
14**	Inheritance <ul style="list-style-type: none"> • Defining superclasses and subclasses • The super keyword • Overriding methods • final methods and final class
15**	Polymorphism <ul style="list-style-type: none"> • Abstract classes • Interfaces
16**	Basic Exception Handling <ul style="list-style-type: none"> • try, catch, and finally statements

Requirements

Minimum Hardware Configuration

- **Microsoft Windows operating systems:**
 - **Processor:** 500 MHz Intel Pentium III workstation or equivalent
 - **Memory:** 384 megabytes
 - **Disk space:** 125 megabytes of free disk space
- **Solaris™ operating system:**
 - **Processor:** 450 MHz Ultra™ 10 workstation or equivalent
 - **Memory:** 384 megabytes
 - **Disk space:** 125 megabytes of free disk space
- **Linux operating system:**
 - **Processor:** 500 MHz Intel Pentium III workstation or equivalent
 - **Memory:** 384 megabytes
 - **Disk space:** 125 megabytes of free disk space

Recommended Hardware Configuration

- **Microsoft Windows operating systems:**
 - **Processor:** 780 MHz Intel Pentium III workstation or equivalent
 - **Memory:** 512 megabytes
 - **Disk space:** 125 megabytes of free disk space
- **Solaris™ operating system:**
 - **Processor:** 500 MHz Ultra™ 60 workstation or equivalent
 - **Memory:** 512 megabytes
 - **Disk space:** 125 megabytes of free disk space
- **Linux operating system:**
 - **Processor:** 800 MHz Intel Pentium III workstation or equivalent
 - **Memory:** 512 megabytes
 - **Disk space:** 125 megabytes of free disk space

Operating System

NetBeans IDE runs on operating systems that support the Java™ VM. Below is a list of platforms that NetBeans IDE has been tested on.

- Microsoft Windows XP Professional SP1
- Microsoft Windows 2000 Professional SP3
- Solaris operating system (SPARC® Platform Edition), versions 8, 9, and 10
- Solaris operating system (x86 Platform Edition), versions 8, 9, and 10
- Red Hat Linux 9.0
- Red Hat Enterprise Linux 3
- Sun Java Desktop System

NetBeans IDE is also known to run on the following platforms:

- Various other Linux distributions
- Mac OS X 10.1.1 or later
- Open VMS 7.2-1 or later
- Other UNIX® platforms, such as HP-UX

Software

NetBeans IDE runs on the J2SE JDK 5.0 (Java™ 2 JDK, Standard Edition), which consists of the Java Runtime Environment plus developers tools for compiling, debugging, and running applications written in the Java™ language. NetBeans IDE 4.0 has also been tested on J2SE SDK version 1.4.2.

For more information, please visit:

<http://www.netbeans.org/community/releases/40/relnotes.html>