# Space Visions Congress

Seminar: **Seminar: Java Programming Language**
**When: Friday April 27, 2007 1:00 a.m. to 5:00 p.m.**
Where: University of Central Florida Solar Energy Center (FSEC), 1519
Clearlake Road, Cocoa, Florida
Instructor: Ali Shaykhian

**Space Visions Congress** is sponsored by the Canaveral Council of Technical Societies (CCTS). CCTS is a voluntary, not-for-profit association of engineering, technical, and scientific societies that support memberships who live and work along Florida's Space Coast.

**Java Programming Language:** The Java seminar covers the fundamentals of Java programming language. No prior programming experience is required for participation in the seminar. The first part of the seminar covers introductory concepts in Java programming including data types (integer, character, ..), operators, functions and constants, casts, input, output, control flow, scope, conditional statements, and arrays. Furthermore, introduction to Object-Oriented programming in Java, relationships between classes, using packages, constructors, private data and methods, final instance fields, static fields and methods, and overloading are explained.
The second part of the seminar covers extending classes, inheritance hierarchies, polymorphism, dynamic binding, abstract classes, protected access. The seminar conclude by introducing interfaces, properties of interfaces, interfaces and abstract classes, interfaces and callbacks, basics of event handling, user interface components with swing, applet basics, converting applications to applets, the applet HTML tags and attributes, exceptions and debugging.

Specific expectations are:

o  Show how to create, compile and run Java applet and application
o  Read, recognize, and describe Java syntax
o  Recognize methods, decisions, loops and exceptions
o  Learn how to declare, define and use variables, final, arrays, and references
o  Show how to implement classes representing real objects
o  Learn to implement object-oriented designs, emphasize on encapsulation, inheritance and polymorphism
o  Group classes into a package
o  Understand inner classes and the concept of nameless object
o  Use Java Graphical User Interface components
o  Recognize events and event handling techniques

**Detail Outline**
An overview of Java, Java Applets and Applications
Object-Oriented Programming
A first simple program, entering the program, compiling the program
The Java class libraries

Data types, variables, and arrays
Control statements, Java's selection statements, if, switch
Iteration statements, while, do-while, for
Class fundamentals, the general form of a class
Introducing methods
Constructors, parameterized constructors, the this keyword
Overloading methods, overloading constructors
Using Objects as Parameters, returning objects
Introducing access control
Introducing final, static
Introducing Nested and Inner Classes
Inheritance, member access and inheritance
Abstract classes, final classes
Inner classes, anonymous inner classes
AWT classes, window fundamentals
Component, container, panel
Handling events in a frame window
Labels, Using Buttons, Applying Check Boxes, CheckboxGroup
Layout Managers, FlowLayout, BorderLayout
GridLayout, CardLayout
Exploring Swing
Check Boxes, Radio Buttons, Combo Boxes
Events, Event Sources, Event Listeners, Event Classes
The ActionEvent Class, The ActionListener Interface
The ComponentEvent Class, The ComponentListener Interface
The ContainerEvent Class, The ContainerListener Interface
The FocusEvent Class, The FocusListener Interface
The InputEvent Class,
The WindowEvent Class, The WindowFocusListener Interface, The WindowListener
Interface
Event Listener Interfaces
Using the Delegation Event Model
Handling Mouse Events
Handling Keyboard Events
Adapter Classes
Exception-Handling Fundamentals