

## Course 597: Ruby Foundations (4 days)

### **Course Description...**

This 4-day hands-on course is designed to teach the fundamentals of the Ruby language. It covers the syntax of the language along with the underlying concepts on which the language is built. The course focuses on Ruby's implementation of objects after covering the fundamental syntax and structures of the language. The course has a heavy emphasis on understanding the Object Oriented focus of Ruby and features a 1-day capstone project in which attendees successfully implement a large-scale Ruby system.

Approximately 60% of the classroom time is spent writing Ruby code. This course is independent of operating system.

### **Prerequisites...**

This course does not assume any prior programming experience.

### **Target Audience...**

Those who need a solid foundation in the Ruby programming language.

### **Course Outline...**

1. Object Oriented Programming
  - a. Introduction
  - b. Objects
  - c. Classes
  - d. Encapsulation
  - e. Inheritance
  - f. Polymorphism
2. A Development Environment for Ruby
  - a. Setting up Eclipse
  - b. Setting up Ruby Development Tools (RDT)
  - c. Learning the Editor
  - d. How to Run and Debug
3. First Steps: Objects in Ruby
  - a. Basic Variables
  - b. Thoughts to Objects
  - c. Basic Methods and Data Passing
  - d. Objects to Ruby Code



4. Building Blocks
  - a. Expressions
  - b. Text and Strings
  - c. Collections: Arrays, Lists, and Hashes
  - d. Flow of Control
  
5. Ruby Classes, Objects and Modules
  - a. Basic Program Design
  - b. All About Variables
  - c. Structs and Data Classes
  - d. All About Methods
  - e. Encapsulation
  - f. Polymorphism
  - g. Inheritance
  - h. Modules and Namespaces
  
6. Thinking in Objects
  - a. Object Oriented Design
  - b. Class Project
  - c. Individual Project
  
7. Error Handling; Advanced Debugging
  - a. Documentation with Rdoc
  - b. Exceptions
  - c. Catch and Throw
  - d. Test::Unit Assertions
  
8. I/O
  - a. Keyboard Input
  - b. Data Stream Output
  - c. File I/O
  
9. Basic Libraries and Gems
  - a. Using Code From Other Files
  - b. The Standard Libraries
  - c. RubyGems

## **Final Programming Project (1 day)**

- d. The emphasis of the project is to show students they can walk out of class able to write effective large-scale Ruby code.