Course 324:
Building a Quality Software Architecture
(4 days)

Course Description…
After requirement comes architecture. What is it? What are the attributes of software architecture? What must be done to create a high quality, living software architecture? Are there approaches that will help in building the architecture? How do I document the architecture? The purpose of this course is to provide a software engineer the key principles and best practices needed build high-quality software architectures. The course will address each of these key questions both in lecture format as well as through hands on exercises.

Learning Objectives…
- Know the definition of software architecture
- Understand the parameters of software architecture
- Learn how to develop quality characteristics that all stakeholders can believe in
- Be able to list 9 different patterns used as a starting point for developing a software architecture
- Know how to use the layering concept to build a software architecture
- Learn how to use patterns to jumpstart the software architecture
- Know how to use simple methods of validation and testing of the architecture
- Know when a formal method may be required in architecture design
- Learn 7 rules for developing great documentation
- Understand how to build a documentation package for all stakeholders

Who should attend…
Software engineers and software managers responsible for building software architectures.

Prerequisites…
Two years working in software development and familiarity with at least one software development methodology.

See next page for a detailed course outline…

Course Outline…

Introduction and Overview

Course Objectives

Chapter 1: Introduction to Software Architecture

- Definition of a Software Architecture
- Purposes and Functions of a Software Architecture
- The Business Case for a Software Architecture
- The Overview of the Architecture Development Process
- Problems in Building a Software Architecture

Chapter 2: Quality Attributes

- Definition of a Quality Attribute
- Characteristics of a Quality Attribute
- Stakeholders and Quality Attributes
- A Beginning set of Quality Attributes
- Exercise: Creating a Quality Attribute

Chapter 3: Software Architecture Patterns

- What is an Architecture Pattern?
- 9 Patterns to Start
- Patterns and the Application Domain
- Patterns and Software Architecture
- Reference Architectures
- Exercise: Pattern Selection

Chapter 4: Building the Architecture

1) The Software Hardware Split
2) The Layer Concept of Architecture Building
3) Build Me a Model!
4) Starting from a Pattern
5) Tactics for Specific Attributes
6) Exercise: Building an Architecture

Chapter 5: Testing and Validating the Architecture

7) Review: The Functions of Testing and Validation
8) The Multiple Audience Problem
9) Simple Methods of Testing and Validation
10) A Peak at Formal Methods
11) Exercise: Validating an Architecture

Chapter 6: Documenting the Architecture

12) The Functions of Architecture Documentation
13) The Limits of Documentation
14) Using Views in Documentation
15) 7 Rules for Great Documentation
16) Exercise: Building a Document Package

Chapter 7: Case Studies and Final Project

This portion of the course incorporates the lessons learned throughout the program and builds in specific examples from your organization.

Please contact your ROI representative to discuss course customization!!!