

WLC-SA101: Solution Architecture 101

Three days, instructor-led

About this Course

Today's large-scale software systems are among the most complex structures ever built by humans, containing millions of lines of code, thousands of database tables, and hundreds of components, all running on dozens of computers. This presents some formidable challenges to software development teams—and if these challenges aren't addressed early, systems are delivered late, over budget, or with an unacceptably poor level of quality.

Most projects nowadays recognize the importance of appointing a software architect, or in some cases a group of software architects, to provide technology guidance and leadership to the rest of the team. However, as an industry, there is no generally accepted definition of what software architects do, how they do it, or what they are expected to deliver.

This course is intended as a practical guide for software architects, whether you are experienced or just starting your career. It focuses on three fundamental concepts: stakeholders, viewpoints, and perspectives.

Prerequisites

- UML and Systems and Analysis design knowledge
- IT: Could be either senior developer or business analyst

Materials

- Instructor: PC, Internet, Projector
- Student: Pencil, Eraser and lots of bond paper

Course Outline

Module 1: What is Architecture?

Lessons

- What is Architecture?
- Why do you do Architecture?
- When do you do Architecture?
- Solution Architecture vs. Enterprise Architecture
- Stakeholders
- Architectural Description

Module 2: The Role of the Software Architect

Lessons

- The Architecture Definition Process
- The Role of the Architect
- Architectural Specializations
- The Organizational Context
- The Architect's Skills
- The Architect's Responsibilities

Module 3: Viewpoints and Views

Lessons

- Architectural Views
- ViewPoints
- Benefits of Using Views and ViewPoints

Module 4: Architectural Perspectives

Lessons

- Quality Properties Architectural Perspectives
- Applying Perspectives to Views
- Consequences of Applying a Perspective

- The Benefits of Using Perspectives
- Perspective Pitfalls
- Comparing Perspectives to ViewPoints

Module 5: Architecture Definition Process

Lessons

- Guiding Principles
- Process Outcomes
- The Process Context
- Supporting Activities
- Architecture Definition Activities
- Process
- Exit Criteria Architecture Definition in the Software

Module 6: Concerns, Principles, and Decisions

Lessons

- Problem-Focused Concerns
- Solution-Focused Concerns
- Other Real-World Constraints
- What Makes a Good Concern
- Architectural Principles
- Architectural Decisions
- Using Principles to Link Concerns and Decisions Checklist

Module 7: Identifying and Engaging Stakeholders

Lessons

- Selection of Stakeholders
- Classes of Stakeholders
- Examples Proxy Stakeholders
- Stakeholder Groups

- Stakeholders' Responsibilities
- Checklist

Module 8: Identifying and Using Scenarios

Lessons

- Types of Scenarios
- Uses for Scenarios
- Identifying and Prioritizing Scenarios
- Capturing Scenarios
- What Makes a Good Scenario?
- Applying Scenarios
- Effective Use of Scenarios
- Checklist

Module 9: Using Styles and Patterns

Lessons

- Introducing Design Pattern Styles, Patterns, and Idioms
- Patterns and Architectural Tactics
- An Example of an Architectural Style
- The Benefits of Using Architectural Styles
- Styles and the Architectural Description
- Applying Design Patterns and Language Idioms Checklist

Module 10: Producing Architectural Models

Lessons

- Why Models are Important
- Types of Models
- Modelling Languages
- Guidelines for Creating Effective Models
- Modelling with Agile Teams
- Checklist

Module 11: Creating the Architectural Description

Lessons

- Properties of an Effective Architectural Description
- Glossaries
- The ISO Standard
- Contents of the Architectural Description
- Presenting the Architectural Description
- Checklist

Module 12: Evaluating the Architecture

Lessons

- Why Evaluate the Architecture?
- Evaluation Techniques
- Scenario-Based Evaluation Methods
- Evaluation during the Software Lifecycle
- Validating the Architecture of an Existing System
- Recording the Results of Evaluation
- Choosing an Evaluation Approach
- Checklist

Module 13: The Context Viewpoint

Lessons

- Concerns
- Models
- Problems and Pitfalls
- Checklist

Module 14: The Functional Viewpoint

Lessons

- Concerns Models
- Problems and Pitfalls
- Checklist

Module 15: The Information Viewpoint**Lessons**

- Concerns
- Models
- Problems and Pitfalls
- Checklist

Module 16: The Concurrency Viewpoint**Lessons**

- Concerns
- Models
- Problems and Pitfalls
- Checklist

Module 17: The Development Viewpoint**Lessons**

- Concerns
- Models
- Problems and Pitfalls
- Checklist

Module 18: The Deployment Viewpoint**Lessons**

- Concerns
- Models
- Problems and Pitfalls

- Checklist

Module 19: The Operational Viewpoint**Lessons**

- Concerns
- Models
- Problems and Pitfalls
- Checklist

Module 20: Achieving Consistency across Views**Lessons**

- Relationships between Views

Course Inclusions:

- Microsoft Official Curriculum (MOC) and/or Wizards Learning Courseware (WLC)
- Microsoft Certified Trainer (MCT)
- Lunch, AM and PM Snacks
- Certificate of Achievement
- Course Notes