Software Architecture

Summary

Software architecture has emerged as an active area pursued with intense interest by researchers and practitioners alike from the disciplines of software engineering and software design. Designing, developing, and evolving complex software systems requires a mastery of analytical and technical skills, as well as a knowledge of appropriate processes, architectures and design patterns. Software architects building complex systems must create the illusion of simplicity through decomposition, abstraction, and encapsulation of functionality.

This course teaches the fundamentals of software architecture, drawn from research and best practice on large software projects. Course participants will learn techniques and tools for modeling, analyzing, evaluating, and controlling the development of complex software systems.

The course is composed of lectures and class exercises with ample opportunity for participant questions and discussions. Much of the class time is devoted to exercises in which participants, typically working in small teams, practice the skills being taught.

Audience

This course is designed for (future) software architects, software managers and project managers.

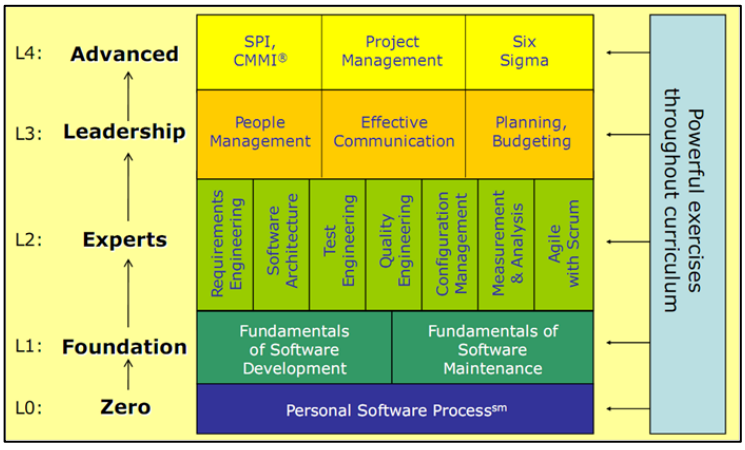
Criteria

Course candidates should have a background and some years experience in software engineering. The "Foundation" courses are highly recommended.

Duration

2 days (4 modules).

Our Software Engineering Curriculum



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Program

Module 1:
- What is Software Architecture?
  - Definition
  - Importance
- Principles and Styles
  - Design Principles
  - Architectural styles

Module 2:
- Real-time Systems
  - Task management and scheduling
  - Task interaction
  - Memory management
  - Fault tolerance
- Architectural Views
  - Introduction
  - Kruchten's Four Views

Module 3:
- Architectural Evaluation Techniques
  - Introduction
  - SAAM
  - ATAM®
  - CBAM

Module 4:
- Re-use
  - Concept
  - Product Lines
  - COTS
- Becoming a Software Architect
  - Becoming a master
  - Duties, skills, knowledge

During the course, an integral case study (cruise controller) is used to demonstrate the discussed concepts and techniques. Example solutions to all course exercises are provided.

SE-CURE AG can also customize this course or any of our other standard courses to meet your exact in-house training needs and specifications. For example, class exercises can be tailored to include actual examples from your organization in order to make the training more relevant to your environment.

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