Fundamentals of Software Maintenance

Summary

In this course the fundamentals of software maintenance are discussed. It gives an overview of where the software maintenance industry stands today and which core activities, processes and techniques can be distinguished. Topics discussed include a maintenance lifecycle model, corrective maintenance, adaptive maintenance, perfective maintenance, preventative maintenance, reverse engineering techniques, configuration management, process engineering and IT Governance (ITIL, COBIT).

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

Anyone directly involved in software engineering. The course is highly recommended for both experienced and less experienced software engineers and software (project) managers.

Criteria

There are no prerequisites for this course. Experience and/or affinity with software engineering are however recommended.

Duration

2 days (4 modules).

Remarks

This course addresses a high market potential/need. It supports organizations gaining their staff a common understanding of fundamentals of software maintenance.
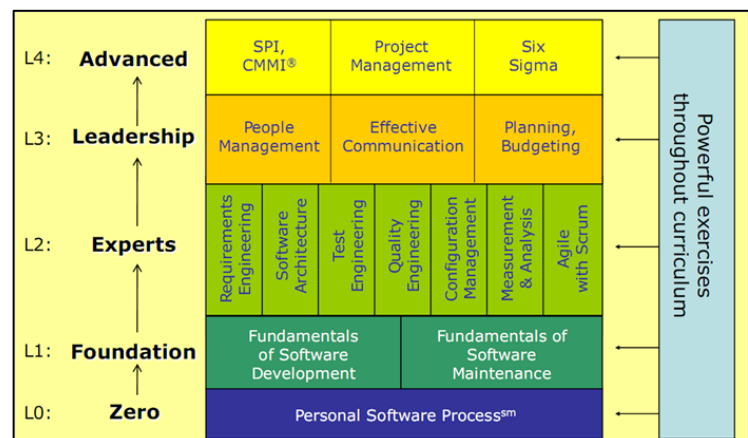
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Our Software Engineering Curriculum

L4:	Advanced	SPI, CMMI®	Project Management	Six Sigma	
L3:	Leadership	People Management	Effective Communication	Planning, Budgeting	Powerful exercises throughout curriculum
L2:	Experts	Requirements Engineering / Software Architecture / Test Engineering / Quality Engineering / Configuration Management / Measurement & Analysis / Agile with Scrum			
L1:	Foundation	Fundamentals of Software Development	Fundamentals of Software Maintenance		
L0:	Zero	Personal Software Process℠			

Program

Module 1:
- Software Maintenance
    - o Past, Present, Future
- Maintenance Process and Organization
    - o Lehman's laws
    - o Maintenance categories
    - o Maintenance process

Module 2:
- Corrective maintenance
    - o The art of debugging
- Adaptive maintenance
    - o Portability
    - o Software, hardware, operating system
- Perfective maintenance
    - o Comprehension, understanding

Module 3:
- Preventative maintenance
    - o Legacy systems
    - o Assessment
    - o Re-engineering techniques
    - o Refactoring
- Reverse engineering
    - o Migration

Module 4:
- Configuration Management
    - o Branching strategies
- Process Engineering
    - o Ways to improve
- IT Governance
    - o COBIT
    - o ITIL

During the course, 1-2 challenging exercises in each module are used to demonstrate the discussed concepts and techniques. Example solutions to all course exercises are provided.