



## Advanced Executable UML for Developers

### Overview

Learn how to build Executable UML models for real-time and embedded systems. Students develop a complete set of models for a working solution. Numerous exercises demonstrate the skills and thinking it takes to build fully executable and translatable models.

### What You Will Learn

#### UML and Executable UML

Unique needs of Real-Time Embedded Software  
Functional vs. Control vs. Object  
Functional Diagram Categories  
Benefits of Goals Executable UML

Orientation  
Evolution of UML  
UML and Real-Time

#### System Organization

Organizing Principles of Complex Real-Time Systems  
Consequences of Good and Bad Partitioning Schemes  
Partitioning Criteria for Implementation Independence  
Allocation vs. Deployment

Domains and Bridges  
Requirements and Assumptions  
UML Package Diagrams

#### Analysis

Requirements Specification vs. Implementation

Essential analysis tasks

#### Class Models

Class, Association and Relationship Abstraction  
Formal Data Semantics  
Relationships

Concepts and Goals  
Classes  
Attributes

#### State Models

Lifecycles of Classes  
Executable Synchronization Rules  
Executable Event Transmission Rules  
Behavior Patterns  
Collaboration  
Communication Patterns  
Timing Processes, Failure and Repetition

State Chart Notation  
State Tables  
Error Behavior  
Resource Contention  
Control Layering  
Scenario Execution

#### Procedure Models

Actions and Procedures in UML  
Primitive Actions  
Example Procedures

Executable UML Extensions  
Action Execution Rules

#### System Integration

Client and Service Domain Roles  
Configuration of Service Domains  
Counterpart Model Elements

Subsystems  
Bridge Interactions

#### Engineering Process

Productive Model Sequence and Deliverables  
How to Schedule Development Steps  
Maximizing Parallel Development

Characteristics of a Good Process  
How to Review Models

#### Implementation by Translation

Hand vs. Automated Coding  
Model Compiler Theory and Practice

Benefits



# TRAINING

## Who Should Attend

This course is intended for systems engineers, software developers, application analysts, project leaders and managers intensively involved in the analysis and development of systems. Software development experience at some level is essential. Prior experience in object-oriented development or modeling languages is helpful but not necessary.

## Training

All of our classes are taught by experienced real-time developers with excellent teaching skills. Real world examples are used throughout the lecture slides and case study exercises.

**Logistics** - This five-day course is offered both on-site and on our public schedule. Contact NRT for more information about pricing, phone; +46-8-792 25 80.

**Date Year 2011** - Monday – Friday, February (week 9), Monday – Friday, February (week 21), Monday – Friday, February (week 36), Monday – Friday, February (week 43)

**Teacher:** Mr. Leon Starr

**Duration** - 5 days.

**Price per Delegate** -

**Delegates** - The course is limited to 10 persons per course. The minimum number of delegates is 8, below that number the course will be postponed.

**Prerequisites** - A general understanding of project development and structured technologies.

**Training Material** - All course material is included in the training fee.