

Unified Modeling Language 2.0

Tutorial at the
2005 IEEE Symposium on Visual Languages and Human-Centric Computing
(VL/HCC'05)
Dallas, Texas, USA
September 20, 2005

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| Date | September 20, 2005, 9.00 – 17.00 (Full Day) | | |
| Venue | VL/HCC Symposium 2005 | | |
| Address | Southfork Hotel, 1600 North Central Expressway, Plano, TX 75074, USA | | |
| Price | | Early (before August 20) | Late (after August 20) |
| | IEEE members: | US\$ 145 | US\$ 195 |
| | Non-Member: | US\$ 180 | US\$ 230 |
| | Students: | US\$ 95 | US\$ 130 |
| Audience | This tutorial addresses everybody using UML more or less frequently in teaching, research and practical software engineering. This includes PhD-Students, academic staff, and practitioners alike. | | |

Over the last couple of years the Unified Modeling Language (UML) has become the „lingua franca of Software Engineering“. In March, the Object Management Group (OMG) has finally adopted the new version 2.0 of the UML. Thus, this tutorial at VLHCC'05 is a unique opportunity to get acquaintance with this new standard.

Everybody in the field of Software Engineering needs at least a basic understanding of UML. Everybody using UML in teaching, research or industrial practice needs to update their knowledge to UML 2.0 sooner or later. In the proposed tutorial, the whole breadth of the UML will be presented, with an emphasis of the visual notation and its pragmatics.

Our goal is to provide participants of the tutorial with a working knowledge of UML. Thus, the whole course is based on a case study, and is accompanied with interactive exercises. We also consider commercial tools supporting UML 2.0, and provide an up-to-date assessment of industrial and academic experience with UML. We conclude with a assessment of the potential and future developments of the UML.

This tutorial is based on two UML textbooks by H. Störrle, published in April by Pearson Education under the title „UML 2 für Studenten“ and in June by Addison-Wesley under the title “UML 2 erfolgreich einsetzen“. Those participants that are capable of reading German will be provided with a copy sponsored by the publisher. For academic staff, the figures of the book, additional exercises and solutions to selected exercises will be made available in the web. The slides of the tutorial will be made available to all participants.

Preliminary schedule

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| 9 ⁰⁰ | Opening, organization | |
| 9 ¹⁵ - | Introduction | UML overview, the role of modeling; history and significance of the UML, Structure of the UML, Novelties in UML 2.0 |
| 10 ¹⁵ | Context and Requirements | Context: System context and system boundaries (including some non-functional requirements) |
| | | Business processes: Describing processes and mapping to application domains (actors/use cases), tabular description schema |
| | | Comparison of business use cases, functions and services, includes/extends-relationship, use case taxonomies |
| | | Creating good UML diagrams: Models, diagrams and sketches, naming conventions, layout patterns for diagrams |
| | Structure 1: Architecture | Architecture: Describing CompositeStructures using architecture diagrams, Components, describing design patterns using Collaborations, Describing networks and systems with nodes and links |
| 10 ³⁰ - | Structure 2: Classes and Packages | Classes and associations: Attributes, Operations (methods), simple and complex Associations, AssociationClasses, abstract Classes, template Classes, embodiment, Interfaces |
| 11 ³⁰ | | Package diagrams: Packages, Namespaces, visibility/scope, import |
| | | OCL constraints: syntax and type-system, alternatives for OCL |
| 11 ⁴⁵ - | Behavior: Activities | Activities: Action, initial/final state, fork/join, choice, abstraction |
| 12 ⁴⁵ | | Data flow and partitions: ObjectNodes, FlowFinalNodes, Pins/Parameter, traverse-to-completion |
| | | Algorithmic activities: Exceptions, LoopNodes, ExpansionRegions, structured data (streams, collections) |
| 14 ⁰⁰ - | Behavior 2: State Machines | Simple state machines: Simple states, initial/final states, Transitions, do/entry/exit-Activities |
| 14 ⁴⁵ | | Complex state machines: (Concurrent) Regions, entry/exit-Points, deep entry/exit, run-to-completion |
| 15 ⁰⁰ - | Behavior 3: Interactions | Simple Interactions: Discussion of alternative notations (communication, sequence and timing diagrams, interaction overview diagrams) |
| 15 ⁴⁵ | | Complex Interactions: Positive InteractionOperators, negation and assertion |
| 16 ⁰⁰ | Tools | UML tools (Tau, Rhapsody, Rose/XDE, Poseidon, Magic Draw) |
| 17 ⁰⁰ -17 ³⁰ | Closing | Additional information sources, first industrial experiences with UML 2.0, future developments in UML |

Speakers

Dr. Alexander Knapp is a research and teaching assistant at the department of computer science of the Ludwig–Maximilians–Universität München at the chair of Prof. Dr. M. Wirsing. In the winter term 1998/99 he spent a research visit to SRI, Menlo Park, California with Prof. J. Meseguer, PhD. He obtained his PhD in 2000, his dissertation is titled "A Formal Approach to Object–Oriented Software Engineering". His main research interests are the integration of formal and semi–formal software engineering methods and the semantics of programming and modeling languages.

Dr. Harald Störrle completed his PhD on software architecture in 2000 at the University of Munich (Prof. Dr. M. Wirsing). Till October last year he worked as a software architect in the Competence Center Informatics of FJH AG in Munich, one of the biggest standard software manufacturers in Germany. Since January, he works as a senior consultant for MGM EDV–Beratung GmbH in Munich. In his industrial work he has been working on some of the largest software projects in Germany over the last years. Additionally, he is lecturing Software Engineering at the University of Munich.

Both speakers have been using UML successfully for many years in research, teaching and industry. Both of them have published numerous scientific articles on UML and are recognized experts in the field.