

# Teaching Software Project Management using Simulations – The AMEISE Environment: from Concepts to Class Room Experience

Tutorial Abstract

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## 1. Objectives

The AMEISE (A Media Education Initiative for Software Engineering) approach focuses on the simulation of software project management processes. Based on Stuttgart University's SESAM (Software Engineering Simulation by Animated Models) [1], the AMEISE tool-set allows for repeatedly experiencing the complexity of software project management within a game-like simulation environment [2, 3, 4].

The tutorial participants have the opportunity to run an AMEISE simulation using the so-called quality assurance (QA) simulation model. Based on the description of the required project (simulation goals, available resources), the participants act as a technical project manager who determines the simulated development process by adequate staffing and allocating software development as well as quality assurance tasks.

After the simulation process, the success of each project is being analyzed using the AMEISE self-assessment feature. Participants should get new perspectives within the area of software engineering education. In more detail, the objectives are:

- to become acquainted with AMEISE as a simulation environment for (software) project management,
- to experience “exercising” software engineering project management with AMEISE,
- to be able to evaluate the prospective usage of AMEISE for own educational purposes.

## 2. Relevance of the Tutorial

An experience-dominated subject like software project management cannot be learned by merely attending lectures [5, 6]. Additional labs, however, even with only modest real-life projects, call for substantial effort to be spent by the instructors as well as by the partaking students. With these issues in mind, we developed the concept for AMEISE, a simulation framework (utilizing the SESAM simulation core) for practicing management of software engineering projects.

In accordance with the objectives of CSEE&T 2012, this tutorial addresses both academic instructors as well as practitioners giving them the opportunity to obtain first-hand experience with an environment applicable for teaching and learning software project management by simulation.

## 3. Presenters

*Andreas Bollin* received his Ph.D. from the University of Klagenfurt. He was technical and teaching assistant at the Chair of Software Technology at the Technical

University of Graz and joined the Institute of Informatics-Systems at Klagenfurt University in 2000 where he is currently active as Assistant Professor at the Software Engineering and Soft Computing research group. His research interests are project management and software engineering (with a focus on reverse engineering and formal methods). He is also active in the area of e-learning and new technologies to enhance various aspects of teaching computer science.

*Elke Hochmüller* received her Ph.D. from the University of Vienna and the Venia Docendi from Klagenfurt University, respectively. She was Assistant Professor at the Institute of Informatics-Systems at Klagenfurt University and is currently Full Professor in the Network Engineering and Communication Programme at the Carinthia University of Applied Sciences. Apart from more than 20 years of experience in software engineering education, her teaching and research activities focus on various software engineering topics, like requirements engineering and process modelling.

*Ladislav Samuelis* is Associate Professor at the Department of Computers and Informatics of the Technical University Košice, Slovakia. His research interests include automatic program synthesis and intelligent tutoring systems. He received his Ph.D. in the field of Informatics from the Technical University of Budapest.

#### **4. Environment and Setting**

AMEISE is a client-server application. The server is running at the AMEISE service provider in Klagenfurt, Austria. The AMEISE client is a Java Swing application (prerequisites: internet access, JRE 6). Depending on the number of participants, the simulation runs are done in groups of two or as single work.

#### **5. Tutorial Activities and Format**

The tutorial consists of three sessions. It starts with a general introduction to software project management, the AMEISE system and the concepts behind it. After a short break, teams of two are formed and the tasks of the simulation model are discussed. The objective is to prepare a first (small) project plan and to apply it using the AMEISE simulation environment. The last session concludes with discussing the results that can be drawn from the simulation runs.

All the trainees will have the opportunity to finish their simulation runs (or to start new ones) within two weeks after the tutorial. All finished simulation runs will be evaluated, and each tutorial participant will get his or her assessment report via email.

#### **References**

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