Workshop on Software Engineering for E-Learning Systems (SEELS'21)

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Abstract: The workshop "Software Engineering for E-Learning Systems" (SEELS) is interested in the software engineering question related to the design of e-learning systems, the realization of networked e-learning landscapes at schools and universities, and the operation and maintenance of such systems. The goal is to identify and discuss current research questions in that area. This may include topics such as technical interfaces of e-learning systems, security issues in heterogeneous e-learning landscapes, or management of domain-specific requirements in universal e-learning systems.

Keywords: E-Learning; Software Engineering; System Design; Distributed E-Learning Systems

1 Background and Goals

The development of e-learning systems and the composition of networked e-learning landscapes with a large number of heterogeneous systems must take into account a wide variety of different requirements. In parts, e-learning systems resemble classical information systems, including the associated questions of scalability, expandability, maintainability and secure communication between the distributed components. In the course of ubiquitous learning, however, they also require extensive expertise in mobile software engineering, place high demands on data protection due to the processing of personal data, even during the basic design of the systems, and in innovative scenarios they borrow from games engineering and the design of virtual reality. Even during the development of individual systems, these conditions require a careful approach, while the trend towards creating networked e-learning landscapes within an educational institution or even across several institutions further increases the complexity of development and operation. Recent experiences with online teaching on a large scale have also revealed further weaknesses where issues in the software-technical design of e-learning systems limit their effective and efficient use.

While national and international e-learning conferences focus on (media-)didactical, subject-specific and socio-technical questions (including usability) and therefore pursue the question,

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how to build good e-learning systems, this workshop will focus explicitly on software-technical questions and therefore pursue the question, *how to build e-learning systems well*.

The goal of the workshop is to make the special features of the domain visible and at the same time to sharpen the view for software-technical questions within the community as well as to offer a forum for relevant discussions. Concrete working topics can be, for example, the question of universal interfaces for establishing e-learning landscapes, (data) security in heterogeneous e-learning landscapes (including BYOD scenarios), the management of subject-specific requirements in university-wide e-learning landscapes, or the use of microservice architectures. Current research questions in these or similar areas are to be identified in the workshop in order to provide the community with links to general software engineering topics.

2 Working Mode

The workshop is conducted as a half-day workshop that offers space for research contributions as well as for reports from the successful practical development of e-learning systems. In addition, the workshop calls for position papers, which can be presented at the workshop in short impulse talks and should lead to the identification of research questions beyond the current state-of-the-art.

3 Committee

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- Michael Striewe (Universität Duisburg-Essen)

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