

1st Workshop on Innovative Software Engineering Education

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Abstract: Due to the growing numbers of students, courses can no longer be offered in high quality without systematic approaches. Hence, this workshop aims at presenting and discussing innovative teaching approaches in software engineering education, which are highly relevant for teaching at universities, colleges, and in online courses.

Keywords: Project Courses, Active Learning, Large Courses, Digital Teaching, Online Courses

1 Introduction

The number of students grows continuously and, thus, software engineering teachers face more and more challenges. Motivating students to actively participate in a course is especially difficult for large classes. Even though practice-oriented and project-based training becomes increasingly important, such project courses in cooperation with industry often come along with high effort. To compensate this situation, digital teaching, online courses, and other new teaching concepts complement the curriculum. They offer a wide range of possibilities for modern and attractive teaching, yet introduce further methodical, technical and organizational challenges to be considered by the teachers.

2 Goals

The aim of the *1st Workshop on Innovative Software Engineering Education* is to bring software engineering instructors together to actively work and discuss the most important topics, challenges, and solution approaches. The goal is to create a platform for sharing experiences and identifying common topics of interest to foster collaboration. The workshop discusses which specific challenges have not yet been solved, so that an agenda for the improvement of software engineering education can be developed taking into account changing social, economic and political conditions.

The workshop provides an interactive forum with paper and poster presentations, and room for discussion. Authors give short talks about their contributions (Section 3), which are

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followed by intensive discussions. The discussions are moderated by selected supporters, who prepare (critical) questions thus stimulating and guiding the discussion. It is the overall goal of each workshop session to use the presented papers as starting point to enter the plenary discussion and shape the topics for interactive group discussions.

3 Contributions

The workshop received 20 submissions covering a wide range of topics in the field of software engineering education of which 12 submissions (1 full paper, 7 short papers, 4 posters) have been accepted and selected for presentation. The accepted papers address different topics, such as tool-support for automating parts of the education thus reducing effort, e.g., assessment of code quality in programming assignments. Other topics are the management of change in project courses, the combination of hardware and software development, and the teaching of pattern-based development. Furthermore, using reflection techniques, monitoring of student frustrations levels, and teaching domain-specific requirements engineering to industry are discussed in the workshop. Finally, the use of competition between software projects in education is presented in the workshop.

Jürgen Börstler (Blekinge Institute of Technology) starts the workshop by giving his keynote on the current challenges in software engineering education. The keynote is followed by the authors presenting their papers and posters briefly to initiate the discussion. Furthermore, for each regular paper a poster is presented in a dedicated poster session, which allows for building small groups discussing topics of interest.

All participants contribute to the identification of challenges and problems, and they also contribute to the development of ideas and solution approaches. For this, different working sessions will be part of the workshop in which, among other things, the most interesting challenges are brainstormed, outlined, and prepared for a plenary discussion. A desired outcome of the workshop is a set of appropriate solutions for the challenges identified including new approaches, technologies, methods, and tools needed to improve software engineering education. Outcomes culminate in a collection of topics to motivate and guide the final discussion, which will focus on future joint areas of work, new ideas, and further activities.

4 Conclusion

It is gratifying how many papers have been submitted to the workshop, even from an international audience. This underlines the importance of new and innovative approaches in software engineering education and motivates for additional workshops in the future.