



The 17th SEFI Mathematics working Group Seminar

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Proceedings

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The logo for the Institution of Mechanical Engineers, featuring the text "Institution of MECHANICAL ENGINEERS" in white on a red background.

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Introduction

It is one of the main goals of SEFI's Mathematics Working Group to provide a forum for the exchange of views and practices regarding the mathematical education of engineers in Europe. The main means for pursuing this aim is to hold a seminar at an attractive place in Europe every second year. In 2014, we hold the seminar in Dublin because there is a very strong and active Irish community of lecturers interested in the mathematical education of engineers.

Since the last seminar in Salamanca, Spain, in 2012, there was one major achievement which is the third edition of the group's curriculum document which is called "[A Framework for Mathematics Curricula in Engineering Education](#)". This document is based on the concept of mathematical competence which is defined as the ability to master the mathematical challenges in situations where mathematics could be helpful. Besides helping in setting up mathematics curricula, the document is also meant to summarize and provide links to former seminar contributions which dealt with important topics in the mathematical education of engineers. The document can be freely downloaded from the group's web site at <http://sefi.htw-aalen.de>.

The group's 17th seminar in Dublin will further discuss the competence concept and other important issues. The response to the corresponding call for papers was very satisfying such that a rich programme resulted from this call which is reflected in the proceedings of the seminar.

There are three invited speakers two of which report about different aspects of the use of technology. Schramm presents a minimum requirement catalogue for beginning students and how students can be supported to check and improve their competence regarding this catalogue by using web technology. Sangwin provides the "big picture" of 400 years of educational technology. Moreover, Joyce gives an industry view of the mathematical education of engineers.

The paper presentations are grouped in seven sessions:

1. Competencies and Attitudes
2. Transition from School to University - Offerings for Students with Deficits and for Bright Students
3. Projects
4. Support Measures
5. Teaching/learning Methods
6. Using Technology
7. Assessment.

Moreover, there are special discussion sessions on the topics:

- What are the important issues in the mathematical education of engineers?
- How can we use technology to improve teaching and learning?

The programme is completed by software demonstrations and poster presentations giving a rich overview of tendencies and developments all over Europe. Most contributions are accompanied

by a paper in the proceedings such that the latter provide an excellent summary of the topics dealt with at the seminar. The author would like to cordially thank the local organizers for doing the language editing that makes the proceedings much more readable.

Aalen, June 2014

Burkhard Alpers

Editors

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