TSG 45
MATHEMATICS FOR NON-SPECIALIST/MATHEMATICS AS A SERVICE SUBJECT AT TERTIARY LEVEL

The Organizing Team

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As opposed to the general theme of mathematics education at tertiary level, this TSG deals with the specialties of mathematics education for non-mathematics major students, or mathematics as a service subject, i.e. mathematics education provided as a service in application study courses. The latter comprise all kinds of study courses in natural sciences, engineering, business and economy where more advanced mathematical terms and models are used but also study courses where mainly statistical methods are applied as in medicine and social sciences. The main educational goal of service mathematics consists of enabling students to understand and use the mathematical concepts, models and procedures as they are needed in the application study course as well as in later job profiles. Some of the specialties of service mathematics this TSG will discuss include the following:

- Which understanding and competencies are needed in application subjects (like mechanics, national economics, experimental pedagogic) in order to understand the terms and development of models and to work on tasks successfully? How can this information be used to specify a curriculum for a specific study course?
- Which are the most suitable learning arrangements (e.g. application problems and projects) that can be used by students to acquire such competencies?
- How can mathematics be relevant to the application study courses for students in such a way that they experience mathematics education as integral part of their study course and are thus motivated to undertake the necessary efforts?
- Which are the mathematical transition problems in an application study course when students enter university and which are the suitable measures to overcome them?

- What is the influence and role of technology in service mathematics courses? How does the availability of technology embodying mathematical concepts and procedures change the goals of mathematics and the ways of teaching and learning?
- Who teaches service mathematics and how do different backgrounds influence the teaching practices? Which are the suitable boundary conditions for successful teaching?
- Which are the promising designs for research in service mathematics and how can different roles be integrated: mathematician, mathematics educator, application specialist?

This TSG invites contributions to the questions given above as well as to other questions related to the provision of service mathematics. These might be educational research studies as well as reflective practitioner reports including state-of-affairs descriptions for different countries/regions which broaden the worldwide view on the topic.