
Field Report: Development and Realisation of an Online-Test of Basic Competences in Mathematics

TUE/E/01 17:00–17:20

*Reinhold Hübl** (DHBW Mannheim), *Katja Derr* (DHBW Mannheim), *Dirk Saller* (DHBW Mannheim)

An interdisciplinary team at the department of Engineering at the Baden–Württemberg Cooperative State University Mannheim is working on a learning platform for applied mathematics. The starting point was to promote teenagers' basic skills by means of a practical approach.

Background of this initiative is a lack of interest of highschool students in picking up programs in engineering and considerable difficulties many students have in the field of mathematical basics. Moreover, first–year students experience serious problems even with high–school mathematics. It requires enormous efforts to try to avoid these difficulties and, at the same time, to try to comply with the requirements of a course program. Thus, Mathematics has become a dreaded subject for many students.

It is the goal of the learning platform to get students interested in mathematical issues before starting a degree program, not only in order to improve the reputation of Mathematics and to overcome inhibitions, but also to increase the awareness of the mathematical requirements of technical courses of studies.

As a first step a ten minute online–test — *MathX³* — was implemented to enable highschool students to assess their basic knowledge of Mathematics. Ten exercises related to practical applications deal with various areas of Mathematics from fractions to statistics. At the end of the test the students will get their own results and will be able to compare them with others' results.

Experience so far shows a considerable acceptance of the program: Since its launch in June 2008 the site has been visited about 18000 times and more than 9000 tests have been completed (updated: May 5, 2009).

The next steps of the project include an increase in the pool of exercises, an upgrade of the statistics center and the introduction of group logins for classes. In addition to the further development of the test we are planning to create a data base for e–learning modules to demonstrate mathematical solutions by means of sample processes gotten from practical problems. These examples will be chosen and didactically edited in collaboration with the industrial partners of the DHBW Mannheim.