Changing Assessment Methods: New Rules, New Roles

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The extended abstract:

The European Higher Education Area implies a deep change in the teaching of Mathematics in engineering schools. It is no longer possible, for example, a drastic division between lectures with examples, practical classes without a computer and laboratory sessions. Nor is it possible to maintain the same traditional assessment forms.

In the case of use of Computer Algebra Systems (CAS) over the past 20 years, its limitation to the math labs has led to a narrow view by the student: the use of a CAS is an additional work, not included in the learning process.

In this paper, we present two experiments carried out in the academic year 2011-12. Both experiences contribute to establishing a new role in the integrated use of CAS in teaching mathematics. The students can use the CAS throughout all the learning process, including assessment activities.

The first experiment refers to a Linear Algebra course in the degree in Mechanical Engineering from the Polytechnic University of Madrid (UPM). In this course the software chosen was Maxima because it is a freely available and powerful open source CAS easy to use. The second experience was carried out in the course of Mathematical Methods for Signal Processing in the Computing Engineering degree at UPM. The software used was MATLAB, which is the most widely used technical computing software for engineers.

Results including the similarities and differences of experiences will be presented. As well as the analysis of the students' impressions, according with the realized enquiries.

The keywords:
Computer Algebra Systems, assessment's methods, use of technology, team work, engineering mathematics