CAS: A Tool for Improving Autonomous Work

Alfonsa García, Francisco García
Technical University of Madrid (Spain)

Ángel Martín del Rey, Gerardo Rodríguez
University of Salamanca (Spain)

Agustín de la Villa
Technical University of Madrid & Pontificia Comillas University (Spain)

avilla@upco.es

Abstract

The EHEA proposes a student-centered teaching model. Therefore, it seems necessary to actively involve the students in the teaching-learning process. Increasing the active participation of the students is not always easy in mathematical topics, since, when the students just enter the University, their ability to carry out autonomous mathematical work is scarce.

In this paper we present some experiences related with the use of Computer Algebra Systems (CAS). All the experiences are designed in order to develop some mathematical competencies and mainly self-learning, the use of technology and team-work. The experiences include some teachers' proposals including: small projects to be executed in small groups, participation in competitions, the design of different CAS-Toolboxes, etc.

The results obtained in the experiences, carried out with different groups of students from different engineering studies at different universities, makes us slightly optimistic about the educational value of the model.

Keywords

Autonomous work, Computer Algebra Systems, Engineering studies, Participation in competitions, Small projects, Toolboxes