ZMATH 2010b.00301
Blyth, Bill; Labovic, Aleksandra
Using Maple to implement eLearning integrated with computer aided assessment.
Int. J. Math. Educ. Sci. Technol. 40, No. 7, Spec. Iss., 975-988 (2009).

Summary: Advanced mathematics courses have been developed and refined by the first author, using an action research methodology, for more than a decade. These courses use the computer algebra system (CAS) Maple in an 'immersion mode' where all presentations and student work are done using Maple. Assignments and examinations are Maple files downloaded from the web, and submitted via the web. A recent, parallel, development has been a Maple component of an otherwise traditional first year calculus course. CAS is widely used to learn mathematics, but is also used in computer aided assessment (CAA) packages, such as AiM, STACK and MapleTA. In our courses, assignments are completed electronically within Maple and a variety of assessment strategies have been developed and trialled. Recently these assessment procedures have evolved into CAA. Since students directly work with, and submit, Maple files we do not require an external CAA package: we utilize Maple directly to implement the CAA. We have previously reported on our use of Maple to automatic mark assignments. This article discusses a novel development and implementation of semi-automatic marking: students have numeric and symbolic answers marked immediately (partial automatic marking); student comments and plots are marked by the tutor later. The tutor allocates marks in an efficient and structured way: these marks are added to the auto-generated marks, the full marking report is generated and returned to the student. Students enjoy Maple activities, particularly automatically marked work where students seem to mimic computer game players trying to 'clock' a game.