

TEACHING MATHEMATICS: MATHEMATICS SOFTWARE COURSE

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In order to obtain a mathematical result it is often necessary to perform numerical experiments using specialized software which allow to strengthen the credibility of the conjecture, to correct or discard it. Let us assume that the conjecture (initial or corrected) has been proved theoretically. Then the obtained result must be prepared and typeset according to the requirements of the chosen journal and set to the editorial board. Therefore every mathematician (for example, an expert in differential equations) must be able to 1) perform numerical experiments, 2) typeset the results. Since university mathematical education studies consists of bachelor, master and doctoral studies the mentioned aspects should be implemented in these studies. At the bachelor level it would be very desirable to study the basics of the typesetting system LaTeX because almost all mathematical journals from the SCI list require the papers to be submitted in the LaTeX format. Numerical experiments can be performed using various software – Mathematica, Maple, Matlab etc., often the choice of the software is determined by the accessibility of the software and financial issues. In any case at least one of the mentioned software systems must be available to bachelor students. Apart from that it would be desirable to familiarize the mathematics bachelor students with preparation requirements for study reports, bachelor theses and presentations as well as traditions of the university. At master and doctoral level the courses related to mathematical software must be more specific and oriented towards specific areas or research.

References:

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4. Fujita, H., Hashimoto, Y., Hodgson, B.R., Lee, P.Y., Lerman, S., Sawada, T. (2004). Proceedings of the ninth international congress on mathematical education. Springer.
5. Lamport, L. (1994) *A document preparation system LaTeX*. Addison-Wesley Professional.