LEARNING SYSTEM THERMOPR@CTICE FOR THE CALCULATION OF EXERCISES WITH MATHCAD

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Abstract—The learning system Thermopr@ctice represents an internet-based learning environment for calculating exercises using the computer algebra system Mathcad. This new working method for the learner consists of replacing the conventional paper worksheet with the Mathcad working screen. The exercises – here for those learning Technical Thermodynamics – are provided to the learner via the internet in individual variations and with individual numerical values in the Mathcad format. The exercises are solved during supervised seminars or on the computer at home. The teaching materials which are necessary for the solution are provided in Mathcad format. After calculating each subtask, the learner sends the solution to Thermopr@ctice. If an error occurs, the system will request interim results. The learning system takes the students closer to modern working methods in the workplace by using a computer algebra system and subject-related property libraries. Since the system has been designed for the purpose of self-study, it is particularly suitable for further education and distance learning. It can be applied to other subjects in which the acquisition or consolidation of knowledge takes place by calculating exercises. Thermopr@ctice was developed within the scope of the joint research project "Saxon Education Portal" from the Saxon Ministry of Science and Art and since then it has been continuously improved and enhanced.

Keywords—education, elearning; thermodynamics; Mathcad