Titel des Beitrags: A revised taxonomy for the competence oriented description of learning outcomes for study programs in engineering sciences

Abstract: The modularisation of study programs due to the Bologna Process leads to a growing number of selection choices and an increasing flexibility in the individual curriculum design. Therefore an appropriate description of the learning outcomes of the individual modules is crucial for ensuring consistent personal curricula and the continuous acquisition of competences. At the Technische Universität München, learning outcomes are currently described in continuous texts using Bloom’s taxonomy. Although this taxonomy is commonly accepted, in practical applications there are problems regarding a clear description of the acquired competences in engineering sciences. Thus, we extended Anderson’s and Krathwohl’s revision of Bloom’s taxonomy for the explicit application to engineering studies. In the reformulation we expressed the stage of qualification via a breakdown into quantified levels of knowledge (know what), skills (know how), and competences (know why). Furthermore, we introduced a tabular description instead of a continuous text. This allows for a systematic storage and analysis in a database. Therefore besides an appropriate and clear description of learning
outcomes, the new system delivers access to various possibilities: First, the new taxonomy facilitates the detection of conflicts between learning outcomes of different modules using a web-based tool for the analysis of module interfaces. Furthermore, the level system eases competence orientated examination via adapting questions to the respective qualification level addressed in the module description. Finally, the new system simplifies the recognition of credits, which becomes more important due to the increasing mobility of students.