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An Expert System for Assessment of Learning Outcomes for ABET Accreditation

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Abstract : Learning outcomes of a course (CLOs) and the abilities at the time of graduation referred to as Student Outcomes (SOs) are required to be assessed for ABET accreditation. A question in an assessment must target a CLO as well as an SO and must represent a required level of competence. This paper presents the idea of an Expert System (ES) to select a proper question to satisfy ABET accreditation requirements. For ES implementation, seven attributes of a question are considered including the learning outcomes and Bloom’s Taxonomy level. A database contains all the data about a course including course content topics, course learning outcomes and the CLO-SO relationship matrix. The knowledge base of the presented ES contains a pool of questions each with tags of the specified attributes. Questions and the attributes represent expert opinions. With implicit rule base the inference engine finds the best possible question satisfying the required attributes. It is shown that the novel idea of such an ES can be implemented and applied to a course with success. An application example is presented to demonstrate the working of the proposed ES.

Keywords : expert system, student outcomes, course learning outcomes, question attributes
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