Fuzzy Comprehensive Assessment of Engineering-Education Outcomes

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ABSTRACT

In recent years, some of the developments have brought in severe competition that challenges the vitality of Taiwan's 160 universities and colleges. Not to lag behind in the competition, these educational institutions have to boost their educational quality and competitiveness. The concept of accreditation of engineering programs emerged out of this environment as a driving force to assure the standard of bachelor ’ s degree level of engineering programs in Taiwan. In preparing the IEET accreditation, three key issues should be addressed: a mechanism for continuous education improvement, an evaluation system to measure students』 learning and an analysis approach to investigating teaching insufficiency. In order to solve these issues, this research proposes the use of Plan-Do-Check-Action (PDCA) structure to facilitate continuous education improvement, the Multi-criteria and Multi-connection Comprehensive Assessment (MCCA) model to quantify overall students』 learning and Important-Performance Analysis (IPA) to explore the improvement priority. Finally, the proposed approach will be applied to the Environmental Engineering Department of Da-Yeh University to demonstrate its use.

Keywords : accreditation ; Plan-Do-Check-Action(PDCA) ; Multi-criteria and Multi-connection Comprehensive Assessment(MCCA) ; Important-Performance Analysis(IPA) ; engineering education

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