The Taxonomy Approach for Engineering Students’ Outcomes Assessment

Olena Titova¹, Petro Luzan²,
Qudrat Q. Davlatzoda³, Iryna Mosia²
and Maryna Kabysh²

¹Dmytro Motornyi Tavria State Agrotechnological University, 18, B. Khmelnytsky Ave., Melitopol 72312, Ukraine
²Institute of Vocational Education of the National Academy of Pedagogical Sciences of Ukraine, 98a, Vito-Lithuanian Lane, Kyiv 03045, Ukraine
³Tajik Technical University named after academician M. Osimi, 10, academicians Rajabov's Avenue, Dushanbe 734042, Republic of Tajikistan
olena.titova@tsatu.edu.ua

Abstract. The paper presents the analysis of the B. Bloom’s taxonomy approach to describe learning objectives in the connection with program learning outcomes as well as the assessment methodology and tools for analysis of engineering students’ cognitive skills of different levels. The research was aimed at the development of some recommendations for the designing of testing items which could be realized for multilevel assessment of the results of engineering students’ competency-based professional training. That was performed considering the evidences, which reflected the theory and practice of B. Bloom’s taxonomy use for learning outcomes, learning activities and assessment strategy description for engineering education. The verbal means were analyzed and used for the development of the recommendations, which could be applied to formulate the learning outcomes and tasks at different cognitive levels. The application of the taxonomy approach required the development of test items provided for six cognitive categories. A set of multiple choice and open-ended tasks was developed to perform a multilevel assessment of the results of the specific course mastering by agricultural engineering students. To study how the formulation and the test item type influence the assessment results, an experiment was performed. It showed the effectiveness of differential ability of the approach when taxonomy is used for the assessment of students’ learning outcomes.
Таксономічний підхід для оцінювання результатів студентів інженерних спеціальностей

Олена Тітова¹, Петро Лузан², Кудрат Камбар Давладзода³, Ірина Мося², Марина Кабиш²

¹ Таврійський державний агротехнологічний університет імені Дмитра Моторного, пр. Б. Хмельницького, 18, Мелітополь, Запорізька обл., 72312, Україна / вул. Жуковського, 66, м. Запоріжжя, Запорізька обл., 69600, Україна
² Інститут професійної освіти Національної академії педагогічних наук України, пр. Віто-Литовський, 98-а, м. Київ, 03045, Україна
³ Таджицький технічний університет імені академіка М. Осімі, пр. академіків Раджабових, 10, м. Душанбе, 734042, Республіка Таджикистан

References


