

Integration of Sustainable Development into the Bachelor of Electrical and Electronics Engineering Degree Program in UNITEN

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Abstract : Engineers have a leading role in planning, designing, building and ensuring a sustainable future. Universiti Tenaga Nasional (UNITEN) acknowledges this role by assigning sustainable development as one of the expected traits that a UNITEN student should have upon graduation, formalized as the Programme Outcomes 7 (PO7): Students graduating from the Bachelor of Electrical and Electronics (BEEE) program will have the ability to demonstrate knowledge of the impact of professional engineering solutions in environmental contexts and the need for sustainable development. This paper explores how PO7 is integrated within the BEEE (Hons) program in UNITEN under the framework of Outcome Base Education (OBE). Five technical core courses were specifically assigned by UNITEN to reflect attainment of PO7. Under UNITEN's definition, the attainment criterion of a PO is set as 70/40. This means that 70% of the students taking the course achieve at least 40% of the full marks. The paper first gives an overview of the overall OBE system as applied in UNITEN, particularly describing the key and supporting courses approach adopted for each PO. Then, the paper reviews the mechanism in which PO7 is taught and assessed in the five assigned courses. Data on PO7 attainment from four of the five courses are collected and analyzed for two student cohorts to investigate the interrelationship between the courses assigned to PO7. It was found that the five courses have different mechanisms for assessing PO7, and that generally PO7 is attained for the assigned courses. This reflects positively on the UNITEN method for integrating sustainable development within the engineering undergraduate programme.

Keywords : direct assessment, engineering education, outcome base education, programme outcome, sustainable development

Conference Title : ICERI 2016 : International Conference on Education, Research and Innovation

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : August 18-19, 2016