

ANALOG ELECTRONICS ENGINEERING LEARNING TOOLS USES TPACK ANALYSIS TO DEVELOP 21ST CENTURY SKILL

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ABSTRACT

This research is an R & D research that aims to develop a practical learning tool in the form of trainer and learning module. The trainer developed is analog II electronic trainer that will be used as a learning tool for the students of Electronic Engineering Education Study Program S1 in Analog II Electronics Engineering course. This development study refers to the Lee & Owens (2004) development model consisting of 4 phases, namely the assessment / analysis phase, the design phase, the implementation phase, and the evaluation phase. The product trial in the implementation phase is done in 2 stages, ie alpha test and beta test. The alpha test is done by 2 experts who master hardware, learning field experts, and practitioners in the field of analog electronics. While the beta test is done by students of S1 Prodi Pendidikan Teknik Elektronika and selected three categories, namely potential user, average user, and slow learner use. Instruments used in this study include instruments for product development and product evaluation instruments. Data analysis method used is quantitative descriptive and evaluative analysis technique. The analysis is done by 2 things, that is analysis to the eligibility of analogue II trainer that developed as learning tool of practice practice of Analog II Electronics and product evaluation by user ie S1 student of Prodi Elektronika class of 2016 which amounted to 39 people. The specification of the trainer consists of a rectangular box-shaped media object containing: (1) a circuit block that is: (a) a voltage feedback block; (b) phase shift oscillator block; (c) block regulator power supply; and (d) block of wien bridge oscillator; (2) reverse engineering blocks; (3) project board block; and (4) power blocks. The print media consists of two types: The module contains the material and the Jobsheet contains a practical guide and there is a specific sub-section for developing 21c century 21 skills: group discussion, assessment (assessing the HOTS aspect), project assignments, presentation assignments. Performance performance shows all blocks on the trainer to function as expected. Feasibility of a media expert with a score of 3.3 (very reasonable), material expert with a score of 2.97 (feasible), and users with a score of 3.3 (very feasible). These results indicate that the trainer is ready for use in learning to help master the understanding of material and 21st century skills development that is critical thinking and problem solving, creativity, communication and innovation.

Kata Kunci: Trainer, 4C skills in the 21st century, TPACK, Analog II