

Feasibility of Welding Technology E-Modules to Analyze The Strength of Welded Joints

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Abstract

Background - *One of the competencies that graduates of the Mechanical Engineering Education Department must have is to be able to analyze the strength of a weld joint. Increasing student competence in analyzing the strength of welded joints, as a reference, a feasible and practical instructional media is needed. Instructional media that specifically analyzes the strength of welded joints are not yet available at the Department of Mechanical Engineering Education of Unimed, so this Instructional media is developed which specifically analyzes the strength of welded joints. Instructional media is developed in electronic form (e-modules) to make it more practical in use.*

Purpose - *The purpose of this study was to determine the feasibility of welding e-modules. Feasibility can be determined through the e-module development process.*

Design/methodology/approach - *The e-module development uses the research and development (R and D) method from Borg and Gall. The steps for developed e-modules use the ADDIE model (Analysis, Design, Development, Implementation and Evaluation), namely (1) Needs analysis, (2) Planning and formulating learning objectives. (3) Development in the form of making modules (4) Feasibility of e-modules through validation by material experts, media experts and instructional design experts. Data collection techniques were carried out by distributing questionnaires and observations.*

Findings - *This study resulted in (1) evaluation of material experts that the technology subject matter was included in the very feasible criteria with an average score of 4.30. (2) The learning design expert's assessment is included in the very feasible criteria with an average score of 4.20. (3) the evaluation of instructional media experts falls into the feasible criteria with*

an average score of 4.03, (4) an increase in the value of student learning outcomes by 75.50%, this proves that e-module technology is suitable for use.

Research limitations - *The research subjects were limited to 5th semester students of the Department of Mechanical Engineering Education of Unimed.*

Originality/value - *The welding technology e-module was developed originally because it has never been developed by other researchers and has been proven to improve student competence in analyzing the strength of welded joints.*

Keywords : feasibility, e-modules, welding technology, weld joints