PENGEMBANGAN MODUL SEBAGAI MEDIA PEMBELAJARAN PADA KOMPETENSI DASAR INPUT ANALOG *PROGRAMMABLE LOGIC CONTROLLER* DI SMK

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ABSTRAK

Penelitian Tugas Akhir Skripsi ini bertujuan untuk mengetahui: (1) tingkat kelayakan modul pembelajaran input analog PLC pada mata pelajaran Sistem Kontrol Terprogram di jurusan Teknik Otomasi Industri SMK Negeri 2 Depok dan (2) peningkatan hasil belajar kognitif siswa yang mengikuti pembelajaran Sistem Kontrol Terprogram dengan menggunakan modul pembelajaran input analog PLC.

Penelitian ini merupakan penelitian *Research and Development* (R&D) dengan model pengembangan ADDIE oleh Robert Maribe Branch. Tahapan pengembangan yaitu *Analyze, Design, Development, Implementation,* dan *Evaluation*. Penelitian ini dilakukan di SMK Negeri 2 Depok dengan subjek penelitian siswa kelas XII Teknik Otomasi Industri. Teknik pengumpulan data menggunakan instrumen angket dan tes. Instrumen angket diuji validitasnya menggunakan *expert judgment*, instrumen tes diuji validitasnya menggunakan *korelasi product moment*. Reliabilitas instrumen tes diuji menggunakan *alpha cronbach*. Teknik analisis data dilakukan dengan analisis deskriptif.

Hasil penelitian dapat diketahui bahwa: (1) kelayakan modul pembelajaran berdasarkan ahli media mendapatkan persentase 85% dengan kategori "Sangat Layak', ahli materi mendapatkan persentase 82,76% dengan kategori "Sangat Layak", dan respon siswa mendapatkan persentase 83,27% dengan kategori "Sangat Layak". (2) Pembelajaran menggunakan modul input analog PLC meningkatkan hasil belajar kognitif siswa dengan hasil *pretest* 11 dan *posttest* 16,08. Hasil *pretest* dan *posttest* terdapat perbedaan yang signifikan ditunjukkan dari uji *U Mann Whitney* dengan nilai signifikansi 0.000 lebih kecil dari 0.05.

Kata kunci: Modul Pembelajaran, Sistem Kontrol Terprogram, Input Analog PLC

MODULE DEVELOPMENT AS LEARNING MEDIA IN BASIC COMPETENCY OF ANALOG INPUT PROGAMMABLE LOGIC CONTROLLER IN VOCATIONAL SCHOOL

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ABSTRACT

This Final research thesis aims to determine: (1) the feasibility of learning modules analog inputs PLC on subjects Control Systems Programmatic in the Department of Mechanical Industry Automation SMK Negeri 2 Depok and (2) an increase in cognitive learning outcomes of students who take the learning Control System Programmed with use the learning module PLC analog input.

This study is a Research and Development (R&D) with the ADDIE development model by Robert Maribe Branch. Stages of development that is Analyze, Design, Development, Implementation, and Evaluation. This research was conducted at SMK Negeri 2 Depok with class XII student research subjects Industrial Automation Engineering. The technique of collecting data using questionnaires and tests. Questionnaires were tested for validity using expert judgment, the test instrument validity was tested using product moment correlation. Instrument reliability was tested using Cronbach alpha test. Data analysis techniques with descriptive analysis.

Results of the study showed that: (1) the feasibility of learning modules based media expert gets a percentage of 85% to the category of "It's Worth", subject matter experts to get the percentage of 82.76% to the category of "Very Decent ", and the response of students earn a percentage 83.27% with the category of "Very Decent". (2) Learning to use an analog input module PLC improve cognitive achievement of students with 11 pretest and posttest results 16.08. Results pretest and post-test indicated a significant difference from the Mann Whitney U test with 0.000 significance value less than 0.05.

Keywords: Learning Module, Programmable Control Systems, PLC Analog Input.