

Mini CNC Design to Increase Students' Programming and Control CNC Competencies

by E Prianto, T H T Maryadi, Sunomo, C A J Malik, M W Purnomo, and O M Caecaria

ABSTRACT

Practical tools used in learning must support and adapt to the needs of the Industrial Revolution 4.0 era with the characteristics of working automatically, 3D printing, internet-based work of things (IoT) and Data of Things. One practice tool that works with these principles is a CNC machine. Mini CNC design that has been made has been equipped with modern computing technology. Mini CNC learning media aims to make students not only skilled in terms of operating the machine, but students can develop their skills in the design and programming of a CNC machine. This research was conducted based on the ADDIE model, namely Analysis, Design, Development, Implementation and Evaluation. The results of the design and manufacture of IoT-based Mini CNC 3D printers for learning media consist of designing hardware and software. Linearity test results showed there was no significant difference between the setting value and the measured value of the results of the work process of the tool and being able to do the cutting process from wood, fiber or aluminum, so that the Mini CNC was suitable for use as a learning media.

Kata Kunci: Mini CNC, Competence, Programming, Control