POWER ELECTRONICS LABORATORY TRAINING SET FOR VOCATIONAL EDUCATION

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ABSTRACT

This article concerning with modifying and to developing the lab. experiment unit modul made by PPPGT-VEDC Malang Indonesia to being robust, durable and better performance for vocational educaton. The modification and development are; three phase source decreased from 45 volt to 24 volt per phase in order to make the same electrical source with homemade PLC modul designed by the authors. For the load, bulb lamp 100w 220V replaced with 24V double filament motorcycle lamp; buck and bost dc converter, its driver with opamp and NE 566 replaced with TL 494 configured for closed loop and openloop fashion. Its power supply replaced with 9-15Vdc transformerless switching system directly connected to 24 Vac source. For three phase control, ballast fluorescent lamp inductive load replaced by three phase inductif motor 24V. Inductive coupling phase control modules with TCA 785 replaced with optic coupling fashion using MOC 3021 . New module; the three phase VSD modul 24/41 volt still in progress. Phase failure relay added to protect the 24/41V three phase sourc.
With R&D method, the results show that the phase controls circuit work well The output current of 24Vac input switching power supply is 4 ampere for 8,36-17,6Vdc output with 0,5 volt drop, the buck converter is 15 volt to 6 volt with voltage drop 0,13 volts for 3,66 ampere dc output current, the boost converter works at 15 volt input and 25 volt output with 0,1 volt drop for 1,78 ampere output dc current.

Kata Kunci: *power electronics, trainer*