

ABSTRAK

RANCANG BANGUN PERANGKAT TRAINING KIT FTTH SEBAGAI MEDIA PEMBELAJARAN DAN PELATIHAN TEKNOLOGI JARINGAN FIBER OPTIK

(2025 : xv + 60 Halaman + 68 Gambar + 1 Tabel + 6 Daftar Pustaka)

MUHAMMAD ARYO WIBISONO

062230330776

JURUSAN TEKNIK ELEKTRO

PROGRAM STUDI TEKNIK TELEKOMUNIKASI

POLITEKNIK NEGERI SRIWIJAYA

Perkembangan teknologi informasi dan komunikasi (TIK) yang pesat menuntut ketersediaan infrastruktur jaringan yang handal dan berkinerja tinggi. Fiber To The Home (FTTH) menjadi solusi dengan memanfaatkan serat optik untuk transmisi data berkecepatan tinggi dan stabil. Penelitian ini bertujuan merancang dan membangun perangkat training kit FTTH sebagai media pembelajaran dan pelatihan jaringan fiber optik menggunakan Mikrotik dan aplikasi Winbox. Hasil penelitian menunjukkan training kit ini mampu mensimulasikan jaringan FTTH mulai dari Optical Line Termination (OLT), Optical Distribution Cabinet (ODC), Optical Distribution Point (ODP), hingga Optical Network Terminal (ONT). Dengan alat ini, pengguna dapat memahami topologi jaringan, instalasi, konfigurasi IP, VLAN, manajemen bandwidth, hingga troubleshooting. Training kit ini diharapkan menjadi solusi pembelajaran interaktif yang meningkatkan keterampilan teknis dan kesiapan tenaga kerja di bidang telekomunikasi. Dengan adanya *Training Kit* berbasis perangkat lunak ini, diharapkan peserta didik dapat memperoleh pengalaman belajar yang lebih interaktif dan mendalam, serta siap menghadapi tantangan di industri telekomunikasi modern.

Kata kunci: FTTH, Training Kit, Fiber Optik, Winbox, Telekomunikasi.

ABSTRACT

DESIGN OF FTTH TRAINING KIT DEVICE AS A LEARNING AND TRAINING MEDIA FOR FIBER OPTIC NETWORK TECHNOLOGY

(2025 : xv + 60 Pages + 68 Picture + 1 Tables + 6 Bibliography)

MUHAMMAD ARYO WIBISONO

062230330776

***ELECTRO ENGINEERING TELECOMMUNICATION
ENGINEERING SRIWIJAYA STATE POLYTECHNICS***

The rapid development of information and communication technology (ICT) demands reliable and high-performance network infrastructure. Fiber To The Home (FTTH) is a solution that utilizes optical fiber for high-speed and stable data transmission. This study aims to design and develop an FTTH training kit as a learning and training tool for fiber optic network technology using Mikrotik devices and the Winbox application. The results show that the training kit can effectively simulate FTTH networks from Optical Line Termination (OLT), Optical Distribution Cabinet (ODC), Optical Distribution Point (ODP), to Optical Network Terminal (ONT). With this tool, users can understand network topology, installation, IP configuration, VLAN, bandwidth management, and troubleshooting. This training kit is expected to become an interactive learning solution that enhances technical skills and prepares a competent workforce in the field of telecommunications. With this software-based Training Kit, it is hoped that students will gain a more interactive and in-depth learning experience and be prepared to face the challenges of the modern telecommunications industry.

Keywords: *FTTH, Training Kit, Fiber Optic, Winbox, Telecommunications.*