ABSTRACT

An important issue in the field of information transmission is the effective utilization of the capacity channel under the requirements of dynamically increasing traffic. In practice, the multiplexing of many low bandwidth or low bit rate signals into high capacity trunks does this. DWDM is one of multiplexing scheme in optical communication that modulated light from several sources of distinct wavelength are required to be transmitted simultaneously over a single fiber.

In this final assignment, an optical sea cable transmission point to point link connecting Batam-Pontianak will be designed to configure ring topology Sumatera-Jawa-Kalimantan. Therefore, if trouble occurred at one particular point of link, it can be reroute to another. The design uses DWDM that multiplex $5 \times 2{,}5$ GBps (STM-16) SDH signals and consists of five EDFA with gain 33 dB to achieve power level above the sensitivity of detector.

Moreover, in the network design also discussed about nonlinearity effect on SSMF and NZDSF, optical fiber route, terminal and optical sea cable equipment, and power electric supply for the system. It is hope that the communication system can accommodate the traffic demand up to 2009 with good performance level.