ABSTRACT

Learning about the digital communication blocks system in the Faculty of Applied Sciences, especially in the Telecommunications Engineering major has not used the adequate learning tools module to support students' in understanding the learning material, especially in Digital Communication System. This fact can be proven by the results of questionnaires. From 50 correspondents nearly 90% of responses are require the adequate learning models by using a simulator. Therefore, we need a simulator for Digital Communication System learning material.

In this Final Project, a learning module and simulator for the Digital Communication System Block was designed with information in the form of video using MATLAB. Digital Communication System Block consists of a source of information, source coding using Huffman code, channel coding using linear block code, digital quadrature phase-shift keying modulation, channels that are used are fading rayleigh, with the addition of AWGN noise, and demodulation process on the receiver side. The method that been used to test the performance results of this system is BER by comparing the number of bits lost during the transmission process with the number of bits sent.

This Final Project resulting in a Digital Communication System Block simulator with information in the form of video, which is following from the theory. It also results in learning modules for Digital Communication System Blocks with information in the form of videos.

Keywords: *Source coding, channel coding, modulation, AWGN, rayleigh, and BER.*