

## **ABSTRACT**

With the increasing need in communication, it is important to provide good and efficient services for users by using several techniques. Modulation is an important method in sending information, where modulation is the process of laying down information signals to the carrier signal.

In this Final Project a learning simulator has been designed which explains the blocks of digital communication systems. In designing this simulator, the author used the Frequency Shift Keying (FSK) modulation technique, which used input from audio using Matlab. The steps taken in this simulator include the input process, source code process, channel code process, modulation process, Rayleigh Fading technique, AWGN noise addition process and demodulation process and analyze the Bit Error Rate (BER) to test the performance results of the simulator.

From this final project, a simulator which is in accordance with the theory is obtained. And 87% of respondents stated that this simulator can be used as a learning module for communication systems courses.

**Keyword :** Digital Communication System, Modulation, FSK, BER, Rayleigh.