

ABSTRACT

One cause of data damage is the state of the transmission media itself or the effect of noise. Noise can cause errors in the data sent. Therefore it is necessary to make efforts to protect data against errors that might occur. Damage to the data can be detected and corrected by applying Channel Coding. Channel Coding serves to detect errors (Error Detection Coding) and correct errors (Error Correction Coding).

Channel Coding has many coding techniques, one of which is the Cyclic Block Code. Cyclic Block Code learning simulators for learning media in the Communication Systems course do not currently exist, even though this can support the learning process. In this Final Project, a simulator is designed to help learn Cyclic Block Code coding techniques using Matlab 2018b software. In designing this simulator, the Cyclic Block Code coding technique uses different n -bit and k -bit values by passing through the ideal channel, AWGN, and Rayleigh. The resulting simulator can later carry out the encoding and decoding process as well as the output to be measured in the form of BER and SNR.

The result of making this learning simulator is to increase the understanding of each student in the Cyclic Block Code material. Cyclic Block Code Simulator that has been made from the results of tests conducted shows that the simulator is functionally running 100% as it should. Based on the questionnaire, the display of the learning simulator received an average of 4 on a scale of 1-5, which means that the display of learning media was classified as good.

keywords: Channel Coding, Cyclic Block Code, Encoder, Decoder, Matlab