

## ABSTRACT

In a communication system especially digital communications, information transmitted from the source to the data received at the destination should ideally be the same. But in reality, this is not an absolute condition occurs because of the influence of noise and other disturbances that occur in transmission channels that can lead to error.

To overcome the problems faced, it is necessary to channel coding. In the process of channel coding, detection and correction of errors that occur during data transmission. Turbo Code and Low Density Parity Check (LDPC) are error control techniques that are Forward Error Correction. The combination of turbo code and Low Density Parity Check is expected to be an ideal choice for small BER. This final project is to analyze the performance of the combination of LDPC and Turbo Code in OFDM systems compared with systems that only use this technique LDPC and turbo code techniques. This final project is also analyzing the effect of the interleaver, the effect of the Mapper, the effect of code rate, and influence of user speed.

The simulation results show that both the AWGN and Rayleigh, combination of LDPC-Turbo Code technique has better performance than techniques that use only the coding technique LDPC or Turbo Code. In AWGN channel, the combination technique of LDPC-Turbo Code provides better performance by 0,7 dB compared to LDPC technique and 2,7 dB better than the Turbo Code technique. Whereas in rayleigh, technique combination LDPC-Turbo Code provides better performance by 2,6 dB compared to LDPC technique and 4,8 dB better than the Turbo Code techniques. The simulation results also show that the use of block interleaver, modulation with small M-Ary and the small value of code rate which can increase system performance. And to the influence of user speed, the simulation results show that the performance of the combination technique for LDPC-Turbo Code user that is still good which moves to speed 120 km / h, the target BER can be achieved at  $E_b / N_0$  7.8 dB