

## **ABSTRACT**

Changes in the communication system from analog to digital at this age are already highly developed. This is due to the level of people's needs in the field of communication is very high. In everyday life, people want a faster communication and easier so that they can help the Their activities. The development of these communication systems require students to continue to develop the ideas in the field of communication. To support the development of these ideas, students need to know today's digital communication systems. At the Department of Electrical Engineering and Communication University of Telkom, in particular majors D3, in addition to knowing the theory in a lecture they also have to prove that theory during practicum. So it can be converted into a product. One of the tools that can be realized, namely the manufacture of lab kit 16 QAM modulation at the demodulator.

In this final project is designed Balanced Modulator, LPF, ADC and ADDER on the demodulator 16 QAM. The process of making the 16 QAM demodulator is using Altium Designer software to design the 16 QAM demodulator circuit and Multisim circuit simulation to show the 16 QAM demodulator before the circuit assembled in Altium Designer.

Results of analysis of Balanced Modulator, LPF, ADC and ADDER on the demodulator 16 QAM produce bits that have been arranged in series. These bits consist of 4 bits that are the result of processing the I channel and Q channel at 16 QAM demodulator which has been arranged in series.

**Keywords:** Modulation, QAM demodulator 16, Kit practicum