

## **ABSTRACT**

*Based on the need for wireless network access in every School of Industrial and Engineering (SIE) Telkom University building managed by Pusat Teknologi dan Informasi (PuTI) is still a classic problem that has not been resolved. Current Conditions Knowing the wireless network is very close to the routine of students and lecturers in each SIE building.*

*In accessing wireless networks, it cannot be enjoyed optimally by the SIE community. To get a good connection can only be in a few spots or close to where the access point is located. Seeing the current availability of access points in each SIE building is a major problem, because to be able to produce optimal connectivity, adequate access points are needed as well as good positioning.*

*Based on these problems, wireless network design is needed related to the addition of access points in each SIE building to optimize the coverage area that refers to the 802.11 standard. The analysis results are obtained by implementing a site survey software Netspot Simulation, so that the level of Signal to Interference Ratio (SIR) is seen in each spot. The method used is the Network Development Life Cycle (NDLC) which focuses on three initial phases, namely analysis, design, and simulation prototyping. This research resulted in the design of wireless network optimization in the form of the addition of access points, positioning access points on the spots experiencing interference by using the Ekahau Site Survey (ESS) simulator so that signal strength can be seen at each spot, and configuration of access points such as recommendations for implementing Wireless Distribution System (WDS), recommendations for using the 2.4 GHz frequency on wireless and 5 GHz for backbone networks, recommendations on using a honeycomb channel so that channels do not overlap. So that the results of the design can meet the needs of the Telkom University community, especially every building in the School of Industrial and Engineering.*

*Keywords : Wireless Network, Netspot Simulation, Signal to Interference Ratio, Ekahau Site Survey, Wireless Distribution System, Honeycomb Channel.*