

## **ABSTRACT**

WiMAX technologies require a wide frequency bandwidth to meet the needs of service of users, while the bandwidth provided for WiMAX services is very limited. With OFDMA techniques, frequency can be separated orthogonally so that with a not full frequency, the service can still be executed. The conventional technique of FFR has a weakness that is not adaptive to the capacity of the cell (cell load). With dynamic FFR technique, then the system will adaptively adjust FFR towards load cell.

In this final project, is analyzed the application of graph approach as a technique with Dynamic FFR Brelaz coloring algorithm that overcomes differences in the conditions of load cell OFDMA network. Interferences among users is modeled by an interference graph, and then is processed modified Brelaz algorithm to find frequency that can be accessed by those users.

The addition of the user has been used to test the resilience of Brelaz modified algorithm. From the simulation results of throughput and delay, Dynamic FFR scheme is more appropriate to use for users with a speed of 210 km / h or over and with the number of 11 users or over for one cell. In this condition, Dynamic FFR scheme can achieve 5.14 Mbps of throughput, while Fix FFR scheme can just achieve 4.9 Mbps.

Keywords : OFDMA, FFR, Dynamic FFR, cell load, throughput, delay