

## **ABSTRACT**

### **IMPLEMENTATION OF GRAPH COLORING WITH WELCH POWELL ALGORITHM IN SCHEDULING LAB COURSES**

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*Creating a schedule in a college is not an easy task, especially for laboratorium courses. The problems at hand is the amount of time needed to create the schedule which is still done manually. Besides, there are still many factor needed to be addressed in creating the schedule, such as the lecturer, the amount of computer lab room available and the available time for every lecturer. To solve this problem, this research was carried to develop a system that implementing Welch Powell algorithm.*

*This research used waterfall methodology. The system design is done using Unified Modelling Language (UML) and implemented in Java programming language using Netbeans. Data that are used in research are laboratorium courses and lecturer data from Architecture Engineering, Industrial Engineering, Computer Science, and Information System Major in Sekolah Tinggi Teknik Musi.*

*The resulting system works by representing scheduling problem into a graph which then colored using Welch Powell algorithm. The colors then are used to determined the time slot for each courses. Based on the whitebox and blackbox test results, the system works well and able to create a schedule that fullfil all the available criteria and limitation.*

*Keywords: scheduling, laboratorium courses, welch powell, graph*