

## Abstract

The university timetabling problem is a scheduling problem that many educational institutions need to solve in order to plan their courses and/or exams by allocating these events to specific timeslots, rooms, lecturers...etc. There are also a number of constraints that must be observed while solving this problem. The existence of these constraints make scheduling at a university has a different complexity with other universities.

This final project will try to resolve the scheduling problem by applying Genetic Algorithm with Local Search. Genetic algorithm is an algorithm that has been popular and effective enough to be applied to many combinatorial optimization problems including scheduling problem. Genetic algorithms are used to implement directed mutation in which the results of each generation are the same or better quality than previous generations.

Beside directed mutation, which is used Genetic Algorithm with Local Search will be integrated so that the results obtained can quickly reach maximum fitness. Datasets being used for testing the system are Academic data from odd semester and from even semester of ITTelkom Bandung. The analysis carried out will be testing how the influence of population size and the Local Search algorithm on the quality of the resulting chromosomes in the data tested. Quality is measured by the fitness of chromosomes generated per chromosome in a population.

**Keywords:** university timetabling, genetic algorithm, directed mutation, local search algorithm, population size, fitness value