

Abstract

University timetabling is one of the problems that have different complexity in every institutions depends on several factors including the number of lecturers who teach, the number of classes, number of rooms, lecturers teaching schedule preferences and other constraints that are used. In general, qualified schedule is no timetable clashes in certain lecturers where lecturers teach only one subject at a time, otherwise there was no timetable clashes where a particular class only following a course at a time, also the room placement at a certain time which is only filled by a meeting.

At this final project, sub-population Genetic Algorithm with Directed Mutation is used to solve scheduling problems in college. Directed Mutation can guarantee the fitness values that mutates chromosomes tend to be better and will never deteriorate. In addition, there is a transfer of a number of chromosomes in a certain generation intervals to keep the variation of the solution space where it influences the changes in the value of fitness.

Dataset used for testing is data academic semester 1 and semester 2 IT Telkom Bandung Indonesia was tested with several parameter such as Interval Migration, Migration Size and Probability of Crossover. Based on the observations that have been made can be seen that the magnitude of the probability of crossover makes fitness tends to deteriorate. Number of Migration Size that close to the number of chromosomes per subpopulation also make the fitness values worse. So is the Migration Interval parameter which, if the greater value of Interval Migration then the fitness values will get worse.

Keywords : university timetabling , Genetic Algorithm , *Island Model Genetic Algorithm* , *Migration Interval* , *Migration Size* , *crossover probabilistic*