# FINANCE-BASED SCHEDULING OF LINEAR REPITITIVE PROJECTS USING GENETIC ALGORITHMS

## 1. ABSTRACT

Construction Scheduling is the process of devising schemes for sequencing activities. Linear Repetitive Projects (LRPs) represent a category of construction projects that are more conveniently scheduled using techniques rather than the Critical Path Method (CPM) including Line Of Balance (LOB) and Linear Scheduling Method (LSM). Generally, a realistic schedule fulfills the real concerns of users, thus minimizes the chances of schedule failure. Financing construction activities throughout the course of the project is another crucial concern that must be properly treated otherwise, non-realistic schedules are possibly rendered. Unless contractors manage to procure adequate cash to keep construction work run according to schedule, the pace of work will definitely be relaxed. Therefore, making the expenditures of the scheduled activities always in balance with the available cash has a potential contribution to producing realistic schedules. Contractors procure cash through establishing credit-line accounts with bankers who allow contractors to withdraw cash up to certain credit limits. This proposal introduces Genetic Algorithms (GAs) technique to produce financially feasible schedules for linear repetitive projects that balance the expenditures of activities at any period with the credit limit. The proposed methods offers twofold benefits of minimizing total project duration and fulfilling finance availability constraints.