

ABSTRACT

Currently, problems of workload and overtime exist in every organization. This assignment presents a method of assigning optimal jobs to staffs in order to achieve two objectives. The first objective is balancing the workload, while the second objective is minimizing total overtime cost. To solve the assignment problem, Microsoft Excel Solver was selected as its performance is easy to use, and it is cost effective. With the nature of the assignment problem, the decision variable is either "assign" or "not-to-assign" binary integer programming, which is represented by 0 or 1, respectively. This methodology is developed by comparing results of variance of working hours among staffs and the total overtime cost, using Microsoft Excel Solver with the current job allocation.

The results of the study demonstrated that Microsoft Excel Solver is a capable tool for solving the assignment problem. The great benefit of the Microsoft Excel Solver is that no additional license required. In addition, users could configure parameters of the program by themselves. After being studied, the results of workload balancing showed a 99% reduction in total variance, which yields cost-savings around 30% of current total overtime cost, or 82% by the further adjustment in manpower. For the objective of total overtime minimization, the company can enjoy significant cost-savings, of overtime cost around 43% of current total overtime cost (around 200,000 Baht annually), or up to 84% (around 400,000 Baht annually) with the further adjustment in manpower.