ABSTRACT

This project concentrates on how to increase labor efficiency and utilization of machine production capacity by using the line balancing technique. For effectiveness and efficiency, line balancing, motion and time study methods are fundamental to improving work methods, finding out the critical operations for reducing the bottleneck operations and optimizing on resources management.

We apply the line balancing technique and principle of motion and time study, to increase the production capacity. We reduce the time consumption of a job by the added number of operators and applied basic motion and time study by eliminating unnecessary jobs; combining operations and changing process flow for solving bottleneck of work. With the benefits of a standard time reduction acquired from the improved line and work force balancing among other process. We could be successful in obtaining higher labor productivity with an existing number of direct operators and also correcting its bottleneck and waiting time among process.

After applying the line balancing and motion and time study in surface mount technology, overall line balancing had improved from 40.14% up to 67.32%, overall machine utilization had improved from 79.24% up to 93.61%, and total direct labor cost had reduced from 0.53852 hour to 0.40166 hour. In top-level assembly, overall line balancing had improved from 55.26% up to 90.57% and total direct labor cost had reduced from 0.22786 hour to 0.18058 hour.

Therefore, an idea of improving the productivity in this study was believed to be helpful and could be applied for other manufacturers.