

# Improvement of Overall Equipment Effectiveness of CNC Machine Shop using Lean Techniques



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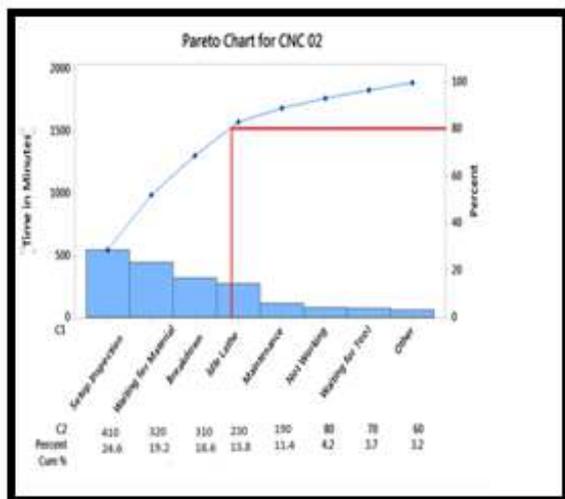
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**Abstract:**

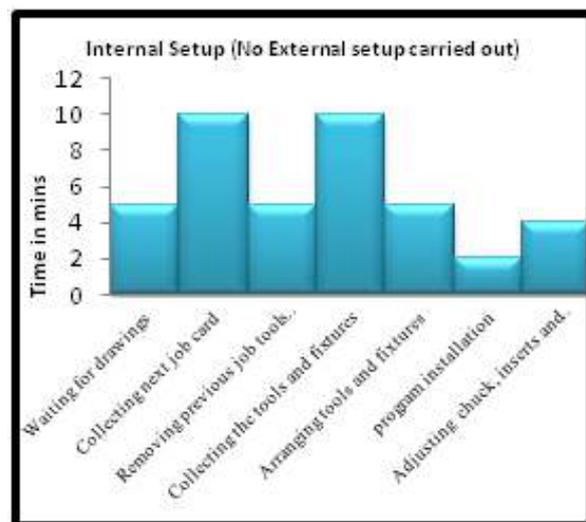
In Present scenario, industries expect to continuously improve their production and quality. There are several ways to optimize the process to improve production. To achieve this challenge Overall Equipment Effectiveness is a technique which is effectively used in modern industries. It helps in controlling not only human resources but also equipment usage. OEE methodology is a proven approach to increase overall performance of equipment. OEE has the potential to improve plant performance, asset utilization and bring in significant improvement.

The project focuses on improving OEE of CNC machine shop by 10% from its current level of 65.3%, lower OEE of CNC Machine shop is due to various factors, which are hindering the availability of resources, such as higher setup time, longer material replenishment time at the machine shop, breakdown etc. Initially OEE was established for CNC machine shop and data was collected using machine utilization sheet. Causes from Pareto analysis were analyzed using cause and effect diagram with the help of CNC shop supervisor. Further the vital few causes for low OEE such as setup time and waiting for material were identified and analyzed using Why-Why analysis to find the main cause and provide solution.

SMED concept used to reduce setup time effectively by separating Internal and External activities. Visual management tool was used to signal for flow of material to reduce time consumed by waiting for materials. After implementation setup time has reduced from 40 min to 10 min in CNC shop and implementation of visual signals for material movement has eliminated time consumed for waiting for material and for breakdown occurred during time of data collection a preventive maintenance schedule has been given for particular component and for all other maintenance activities to be done on daily, weekly and monthly basis. These implementations machine utilization and OEE by 8.3%.



**Pareto analysis**



**Setup time study**