

PROSPECTUS FOR EMP/MBA STUDENT/FACULTY PROJECT

Faculty Member Developing this Prospectus

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The Applied Research Problem

The concepts of lean manufacturing and lean thinking have become a prevalent management approach in U.S. factories over the past decade. Lean manufacturing principles (LMP) are aimed at eliminating all forms of waste or non-value added activities, and to improve production cost, quality, and delivery. The adoption of lean production involves the utilization of one or more lean principles (practices) including pull production, cellular flow, employee involvement in problem solving, total productive maintenance, standardized work, statistical process control, etc.

Most published articles discuss the application of lean manufacturing principles in mass production systems such as auto industry. There are little studies about such application in small shop manufacturing where there is a mixture of job orders in small to medium size batches.

The objective of this research project is to explore how the application of one or more lean manufacturing principles can benefit the small shop production system.

Suggested Title of Research

Application of lean manufacturing principles in small shops with mixed product demand

Prospective Research Design/Approach

The research may entail the following components:

1. Literature review on implementation lean manufacturing in small shops and mixed model shops.
2. Identify all lean manufacturing principles for reducing waste and/or lead time for a small shops.
3. Examine/document the current material flow.
4. Examine/document current plant layout.
5. Develop a value stream map for current system.
6. Identify sources of waste.
7. Proposing alternative solutions for minimizing/eliminating waste.
8. Develop a value stream map for improved system.
9. Use lean manufacturing matrices to measure the potential improvement in performances before and after adopting a new system.
10. Estimate the cost/benefit of implementing the new system.

We are looking for a student who is interested in spending a significant amount of time in a local metal production shop in SLO to collect data for the above tasks.

Prospective Role of the Faculty Technical Advisor

Dr. Djassemi has been involved in research in the area of manufacturing systems and there has been previous cooperation between this faculty and companies in this area of research for senior projects.

We expect the results of this project to be used as foundation for a research paper for publication in an academic journal. Participating in this research is a salable resume item for a graduate student.

References:

- Conner, G. (2003). "Lean Manufacturing for the Small Shop," Dearborn, M.I., Society of Manufacturing Engineers
- Duggan, K.J. (2002). "Creating Mixed Model Value Streams: Practical Lean Techniques for Building to Demand," New York, N.Y., Productivity Press