

## LEAN MANUFACTURING SYSTEM

Objectives of lean manufacturing-key principles and implications of lean manufacturing- traditional Vs lean manufacturing. Value creation and waste elimination- main kinds of waste- pull production- different models of pull production-continuous flow-continuous improvement/Kaizen- worker involvement -cellular layout- administrative lean.

Standard work -communication of standard work to employees -standard work and flexibility -visual controls-quality at the source- 5S principles -preventative maintenance-total quality management- total productive maintenance -changeover/setup time -batch size reduction -production leveling.

Value Stream Mapping- The as-is diagram-the future state map-application to the factory simulation scenario-line balancing -Poke Yoke - overall equipment effectiveness. One Piece Flow- Process razing techniques - cells for assembly line - case studies

Introduction - elements of JIT - uniform production rate - pull versus push method- Kanban system - small lot size - quick, inexpensive set-up - continuous improvement. Optimised production technology.

Team establishment, transformation process, Project Management, Lean implementation, Reconciling lean with other systems- lean six sigma-lean and ERP-lean with ISO 9001:2000.

### TEXTBOOK

1. Askin R G and Goldberg J B, "Design and Analysis of Lean Production Systems", John Wiley and Sons Inc., 2003.
2. Hobbs, D.P. "Lean Manufacturing implementation", Narosa Publisher, 2004.

**REFERENCES** 1. Micheal Wader, "Lean Tools: A Pocket Guide to Implementing Lean Practices", Productivity and Quality Publishing Pvt Ltd, 2002. 2. Michael L George, David T Rowlands, Bill Kastle, "What is Lean Six Sigma", McGraw Hill, New York, 2004.

3. Kenichi Sekine, "One-Piece Flow", Productivity Press, Portland, Oregon, 1992.

4. Alan Robinson "Continuous Improvement in Operations", Productivity Press, Portland, Oregon, 1991. 5. Poke - Yoke, "Improving Product Quality by Preventing Defects", Productivity Press, 1992.

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