

**ELECTIVE COURSE – V : LEAN MANUFACTURING**

**Objectives:**

The number of new initiatives started by Toyota and adopted by other Japanese Manufacturing companies such as TQM, JIT system, KAIZEN etc; later spread to the entire world. American industries have further honed these approaches and gave structured framework for successful implementation in all types of organisations including service organizations. Lean thinking is both a philosophy and a framework. All the earlier techniques fit in to this framework with appropriate refinements.

This course gives the integrated perspective of Lean thinking apart from covering all the basic tools needed. This course will be relevant for those joining both manufacturing and service organizations

**UNIT I**

Evolution of lean thinking – Craftsman era, Mass Production era and Lean thinking.

**UNIT II**

Lean Principles:

- The value
- Value stream mapping
- Flow
- Pull
- Perfection

**UNIT III**

From thinking to Action: Lean Leap Tool – Kit

1. TQM Concepts and Tools-QFD, FMEA Robust Design concepts; SPC, QC circles and KAIZEN approaches Six-Sigma philosophy and Methodologies.
2. 5S and TPM
3. JIT system and KANBAN concepts
4. Cellular Layouts

**UNIT IV**

Creating Lean Enterprise – Organization and Implementation steps.

- Cases from Manufacturing Industries
- Cases from service Industries; Including Software Industry

**UNIT V**

The Future – Lean Network

**Reference:**

1. Operation Management for competitive advantage by Chase, Aquilano and Jacobs (Tata Mcgraw – Hill Ltd)- 10<sup>th</sup> Edition.
2. The Machine that Changed the World by James P. Womack and Daniel T.Jones (Touch stone Books paper Back Edition)
3. Lean Thinking By James P Womack ..... do...
4. Advanced Operation Managements By R.P. Mohanty and S.G. Deshmuch – Pearson Educaion.
5. World Class Manufacturing by R.J. Shonberger – The Free Press.
6. Just – In – Time Manufacturing by Dr.M.G. Korugonkar – McMillan Press