

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (QPM)
Semester: II
Syllabus with effect from: December - 2014

Paper Code: QP - 202	Total Credit:
Title Of Paper: Lean Six Sigma Methodology	

Unit	Description in Detail	Weightage (%)
I	Overview of Lean and Six Sigma with principles. Methodologies – Introduction to SCORE, DMAIC, DMADV. The nine Wastes in the process Industries, Voice of the customer, SIPOC. Value- Importance, value-adding and non-value-adding activities. Value Stream Mapping(VSM): Objective, Concept of flow- lead time, takt time, cycle time, throughput time, generating the map, Analyzing the current state map. Generating Potential Solutions for the Future State- Brainwriting, Escapism, Random Stimulus, Analogies, SCAMPER. Future state VSM.	[10]
II	Total Productive Maintenance- availability, performance and quality, Overall Equipment Effectiveness (OEE) and Uptime. Single Minute Exchange of Dies (SMED), Visual Management- Importance, visual work area, visual displays and scheduling. Kaizen, Pull-Push systems and perfection. Bottleneck- Finding, managing and improving it. Poka-Yoke, tools used to get to root cause, Kanban, finished goods, buffer and safety stocks calculations. Resource Reliability Enhancement.	[10]
III	Six Sigma Roles and Responsibilities. Tools used in Define Phase. Tools used in Measure Phase. Spaghetti diagram.	[10]
IV	Tools used in Analyze Phase. Various Statistical Techniques used in analyze Phase (Revision), Tools used in Improve/Design Phase. Tools used in Control/Verify Phase.	[10]

Basic Text & Reference Books:-

- Peter L. King (2009) Lean for the Process Industries, Dealing with Complexity, First Ed. (CRC Press).
- Lonnie Wilson (2010) How to Implement Lean Manufacturing, First Ed. (McGraw Hill).
- Issa Bass and Barbara Lawton (2010) Lean Six Sigma using SigmaXL and Minitab, First Ed.(McGraw Hill).
- R. A. Munro, M. J. Maio, M. B. Nawaz, G. Ramu, D. J. Zrymiak (2009) The Certified Six sigma Green belt, Handbook First Ed. (Pearson).
- T. M. Kubiak and D. W. Benbow (2010) The Certified Six sigma Black belt, Handbook Second Ed. (Pearson).
- Thomas P. and Paul K. (2010) The Six sigma Handbook, A complete guide for green belts, black belts and managers at all levels, Third Ed. (McGraw Hill).

