MOHAWK VALLEY COMMUNITY COLLEGE
UTICA-ROME, NY

LEAN SIX SIGMA

MT 231

I. CATALOG DESCRIPTION:

MT231 Lean Six Sigma C 3, P 2, CR 4

This course covers basic functions and challenges of managers in the manufacturing and business environment, focusing on lean manufacturing, small businesses, and entrepreneurship. Topics include: Total Quality Management, continuous improvement, value-added activities and analysis, waste analysis, Just-In-Time, applications of Statistical Quality Control, and other current management methods and techniques. Lab activities may include off-site projects.
Prerequisite: MT114 Manufacturing Processes or MA121 Fundamentals of College Mathematics I

II. STUDENT LEARNING OUTCOMES:

Upon successful completion of the course, the student will be able to:

1. …describe theories and examples of industry, that is, turning raw resources into valuable goods and services that have been used throughout history and in various cultures, especially East Asian and Western approaches (1)
2. …analyze and give a clear critique of an industrial operation with respect to the concepts of lean manufacturing (2)
3. …apply knowledge of JIT, continuous improvement, and TQM to concrete examples, improving quality and reducing waste (1)
4. …apply statistical quality control to analyze a production system and make judgments and recommendations based on reliable data (1)
5. …recognize relevant human issues and seek win-win solutions to problems commonly encountered in industry (5)
6. …develop a basic business plan for a small manufacturing or service business (3, 5)

() – References ETAC of ABET Program Outcome

III. Course Topics:

Introductions
- Basic practices and functions of manufacturing management

The reality of constant change and the need for continuous improvement

Voice of the Customer
- Desired features
- High quality
- Low cost

- Good service

- Threats & Waste
  - Defect
  - Overproduction
  - Waiting
  - Nonparticipation
  - Travel
  - Inventory
  - Motion
  - Extra processing

- Just-In-Time / Flow
  - Pull system
  - One-piece flow
  - Takt time
  - Standard work
  - Kanban
  - SMED

- Defect Avoidance
  - Poka-Yoke
  - Andon
  - Jidoka

- Kaizen / Continuous
  - Improvement
  - DMAIC
  - 5S
  - Events
  - Planning
  - Problem solving

- Quality tools
  - Cause-effect diagrams
  - Check sheets
  - Pareto charts
  - Histograms
  - Scatter plots

- SQC / Six Sigma
  - Probability
  - Distributions
  - Control charts
  - Sampling plans