



Course Syllabus

Course: Introduction to Lean Manufacturing/Advanced Lean Manufacturing

CRN	Subj	Course	Credit	Title	Day	Time	Date	Place
31948	MFG*	K171	3.00	Introduction to Lean Manufacturing	T	03:00 pm-05:45 pm	08/26-12/20	TASM-G Facility, Groton, CT
31955	MFG*	K271	3.00	Advanced Lean Manufacturing	R	03:00 pm-05:45 pm	08/26-12/20	TASM-G Facility, Groton, CT

Instructor: Dan Courtney – dcourtney@trcc.commnet.edu – 860-885-2338

Course Description:

The purpose of this course is to provide the student with the fundamental knowledge of current continuous process improvement methodologies in use today within competitive manufacturing environments. This introductory course will expose the student to the basic concepts of Lean Manufacturing theory and the various tools and techniques involved with a lean implementation. This course will be presented following the lean-six sigma process methodology of DMAIC (Define, Measure, Analyze, Improve, Control) to ensure that at the completion of the course, the student will be competent to participate effectively as a team member in lean implementation projects.

This course covers the benefits and elements needed for implementing supply chain management. Team building and communication skills are shown as crucial factors in supply chain management. Topics emphasized in the course are measuring the velocity of the supply chain, developing partnerships, logistics, software tools, hardware, and continuous improvement. Class activities, group assignments and case studies are emphasized for real-world learning experiences.

Course Topics: Continuous Improvement Overview – Methodologies & Tools; Enterprise Wide Deployment; Project Management – Charter, Execution, Team Concepts, Improvement Events; Process Mapping – Value Stream Maps, Swimlane Maps & Others; Workplace Organization – 5S, Visual Workplace, Focused Workplace; Standard Work – Takt Time, Inventory, Sequence; Material Flow Concepts – Pull Systems; Setup Time Reduction; Total Productive Maintenance; Mistakeproofing; Problem Solving; Six Sigma Concepts

Course Format: Classes will consist of a discussion of concepts followed by the direct application in the workplace whenever feasible. Some concepts will also be demonstrated through simulations. The Tuesday class will consist of a discussion of Lean concepts followed by direct implementation or discussion of specific case studies. The remainder of the allocated time will be devoted to the implementation of improvement activities within the facility.

Course Grading: All participants will identify one or more specific improvement areas within the TASM-G facility. These areas will form the environment for executing specific improvement activities in order to gain competence with Lean Methodology and tools. Grading will be based on participation in class discussions and activities, and the successful execution of a specific improvement activity.

ABET Student Outcomes – Associate Degree Programs - 2011/2012

- a. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities;
- b. an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge;
- c. an ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments;
- d. an ability to function effectively as a member of a technical team;
- e. an ability to identify, analyze, and solve narrowly defined engineering technology problems;
- f. an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature;
- g. an understanding of the need for and an ability to engage in self-directed continuing professional development;
- h. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and
- i. a commitment to quality, timeliness, and continuous improvement.

Course Outcomes:

1. Mastery of Lean concepts as defined in the course syllabus
2. Knowledge of Lean Methodology and Tools and the similarity/differences with other improvement Methodologies
3. Demonstrate an ability to implement specific improvements using Lean concepts
4. Demonstrate an ability to analyze and solve problems relating process improvements
5. Demonstrate professional level oral and written communication skills
6. Demonstrate an ability to engage in self-directed professional development
7. Demonstrate proper professional and ethical behavior
8. Demonstrate a commitment to quality, timeliness and continuous improvement