

# **CONCEPTS OF LEAN MANUFACTURING**

## **COURSE SYLLABUS**

Revised 12/01/2011

<b>C</b>	<b>-</b>	<b>L</b>	<b>-</b>	<b>CR</b>
<b>3</b>	<b>-</b>	<b>0</b>	<b>-</b>	<b>3</b>

**COURSE NUMBER:** AMT 220

**PREREQUISITE(S):** None

**CO-REQUISITE(S):** None

**COURSE DESCRIPTIONS** This course provides an understanding of the concepts used in improving the competitiveness of manufacturing and service companies. This course includes JIT, VA/CR and TQM.

**TEXTBOOK(S):** Automation Production Systems and Computer Integrated Manufacturing, Groover, Mikell P. Pearson-Prentice Hall, Upper Saddle River New Jersey, 2007 Third Edition, ISBN 0-13-239321-2

**OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT:** Course Materials as provided in the AMT lecture site: <http://lecture.sccsc.edu/amt>

**INSTRUCTOR ASSISTANCE:** All students are encouraged to contact the instructor as course or advising needs arise. The best way to do this is to see the instructor after class to schedule an appointment and/or look at the office hours schedule posted on the instructor's office door. You may also contact the instructor using email.

**METHOD OF INSTRUCTION:** This is a lecture type course with supporting materials available on the AMT lecture site: <http://lecture.sccsc.edu/amt/amt101>.

The course will be presented through lecture/quiz methods with supporting homework assignments. In addition, videos will be presented for expanded understanding of the course material. Occasional research projects may be assigned for the purpose of accentuating some subject matter.

<b><u>GRADING SYSTEM:</u></b>	90	-	100	=	A
	80	-	89	=	B
	70	-	79	=	C
	60	-	69	=	D
	Below	-	60	=	F

<b><u>GRADE</u></b>	Quizzes	=	40%
<b><u>CALCULATION</u></b>	Homework	=	30%
<b><u>METHOD:</u></b>	Research	=	10%
	Class Participation	=	<u>20%</u>
		=	100%

**ATTENDANCE**  
**POLICY:**

Students are responsible for punctual and regular attendance in all classes, laboratories, field trips, and other class activities. The College does not grant excused absences; therefore, students are urged to reserve their absences for emergencies. When illness or other emergencies occur, the student is responsible for notifying instructors and completing work missed.

Students are tardy if not in class at the time the class is scheduled to begin. Tardy students are admitted to class at the discretion of the instructor.

If you have attended at least one session during the first week of the semester you are responsible for dropping yourself from the class. It is the students' responsibility to withdraw from a course. A student who stops attending class and fails to initiate a withdrawal will remain on the class roster.

If you do not attend a class session during the first week of class you will automatically be dropped by the College. A student who does not complete an assignment, test, or final exam in the course will receive a zero for each missing grade and the final course grade will be calculated accordingly.

**Absences for Religious Holidays:** Students who are absent from class in order to observe religious holidays are responsible for the content of any activities missed and for the completion of assignments occurring during the period of absence. Students who anticipate their observance of religious holidays will cause them to be absent from class and do not wish such absences to penalize their status in class should adhere to the following guidelines:

1. Observance of religious holidays resulting in three or fewer consecutive absences: Discuss the situation with the instructor and provide written notice at least one week prior to the absence(s). Develop (in writing) an instructor-approved plan which outlines the make-up of activities and assignments.
2. Observances of religious holidays resulting in four or more consecutive absences: Discuss the situation with the instructor and provide the instructor with written notice within the first 10 days of the academic term. Develop an instructor-approved plan which outlines the make-up of activities and assignments.

**ACADEMIC  
CONDUCT:**

**ACADEMIC DISHONESTY:** Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

**CELLULAR PHONES AND PAGERS/BEEPERS:** Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to "disruptive behavior."

**CLASSROOM  
PROCEDURES:**

Lecture Modules will be graded with "In Class" quizzes that will measure the students' comprehension of lecture materials as they are delivered. Students are responsible for making up missed quizzes. Arrangements should be made with the instructor to take the missed quizzes in the Testing Center. Class time will not be used for makeup quizzes.

Class Participation is strongly encouraged in this course, therefore students in regularly scheduled classes will be awarded points per class session for timely and complete attendance. (Come on time; stay till done). In this way, class participation can affect the final grade by at least two whole letter grades.

**ACCOMMODATIONS:** Students who need special accommodations in this class because of a documented disability should notify Student Disability Services by calling (864) 592-4818, toll-free 1-800-922-3679; via email through the SCC web site at [www.sccsc.edu/resources/disabilities](http://www.sccsc.edu/resources/disabilities); or by visiting the office located in the East Building Room 30-B on the SCC Central campus. Contacting Student Disability Services early in the semester gives the College an opportunity to provide necessary support services and appropriate accommodations.

**COURSE  
COMPETENCIES &  
OBJECTIVES:**

**Upon satisfactory completion of this course, the student will be able to:**

- I. Describe the characteristics and means of how a customer defines value in a product or service purchased from a supplier.
  1. Explain how a product or service meets the customer's needs.
  2. Identify the types price considerations the customer has for a product or service.
  3. Discuss the several issues of time and delivery requirements a customer may have.
  4. Identify who ultimately specifies value in the design, construction and operation of a supplier' methods of operation.
  
- II. Identify and explain the methods of developing and mapping a value stream.
  1. Identify various types of design considerations in a value stream.
  2. Explain the specification of information collection from a value stream.
  3. Discuss the characteristics to be controlled in the physical alteration of raw materials as they proceed through a value stream.
  
- III. Describe the methods used in implementing value stream improvement to a product or service.
  1. Explain the ways to improve the flow of the product
  2. Discuss the ways of reducing waste in the process.
 Identify and discuss the means of improving the quality of the process or service.
  
- IV. Identify the three primary principles of Lean Mfg.

1. Explain the different types and ways of eliminating “waste”.
  2. Explain the methods used to improve process quality.
  3. Discuss what it means to deliver “quality” to the customer.
- V. Explain the principles and motivations of “Just In Time” manufacturing.
  - VI. Demonstrate an understanding of the Financial Metrics used to measure corporate performance.
  - VII. Demonstrate comprehension of the Closed Loop Model of Control Systems by drawing a model and explaining the function of all the components.
  - VIII. Discuss the use of Pareto Analysis, Taguchi Methods, Fishbone Diagrams, and ISO 9000 quality measures.