ITT Technical Institute

AM441
Manufacturing Operations Management

Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):
Prerequisites: EG381 Statistics or equivalent

Course Description:
Management of material, financial, and human resources in industrial manufacturing operations. The course examines how resources are converted into goods and services, including the use of modeling and behavioral strategies. Contemporary methods of operations management, including statistical techniques, are examined.

Outside Work:

For purposes of defining an academic credit hour for Title IV funding purposes, ITT Technical Institute considers a quarter credit hour to be the equivalent of: (a) at least 10 clock hours of classroom activities and at least 20 clock hours of outside preparation; (b) at least 20 clock hours of laboratory activities; or (c) at least 30 clock hours of externship, practicum or clinical activities. ITT Technical Institute utilizes a "time-based option" for establishing out-of-class activities which would equate to two hours of out-of-class activities for every one hour of classroom time. The procedure for determining credit hours for Title IV funding purposes is to divide the total number of classroom, laboratory, externship, practicum and clinical hours by the conversion ratios specified above. A clock hour is 50 minutes.

A credit hour is an artificial measurement of the amount of learning that can occur in a program course based on a specified amount of time spent on class activities and student preparation during the program course. In conformity with commonly accepted practice in higher education, ITT Technical Institute has institutionally established and determined that credit hours awarded for coursework in this program course (including out-of-class assignments and learning activities described in the "Course Outline" section of this syllabus) are in accordance with the time-based

Syllabus: Manufacturing Operations Management

Instructor:	_____
Office hours:	_____
Class hours:	_____

Major Instructional Areas

1. Resource and supply chain management
2. Production and process layouts
3. Production and service scheduling
4. Project management principles
5. JIT and lean operations
6. Forecasting and inventory control
7. Product design and reliability

Course Objectives

1. Describe operations management.
2. Formulate an operations strategy.
3. Describe the concepts of total quality management (TQM) and their relationship to production costs.
4. Describe the basic principles governing the design of operations systems for the product and service industries.
5. Describe various operational layouts within a facility for the process and service industries.
6. Discuss the concepts and relationships of human resource management in operations.
7. Use basic project management principles and software to determine goals, timelines, and critical paths.

8. Describe basic supply chain management principles and analysis tools.
9. Implement the processes and analysis tools in production or service process planning.
10. Discuss the basic concepts and reasons for materials inventory management.
11. Describe the basic concepts of just-in-time and lean production systems.
12. Describe the reasons, methods, and analysis tools that enable successful resource planning.
13. Describe statistical process control functions.

SCANS Objectives

SCANS is an acronym for Secretary's Commission on Achieving Necessary Skills. The committee, created by the National Secretary of Labor in the early 1990s, created a list of skills and competencies that the committee feels are necessary for employees to function in a high-tech job market.

1. Select relevant, goal-related activities; rank them in order of importance, allocate time to activities, and prepare and follow schedules.
2. Apply and adapt new knowledge and skills in both familiar and changing situations.
3. Demonstrate competence in applying technology to task.
4. Employ computers to acquire, organize, analyze, and communicate information.
5. Select and analyze information and communicate the results using oral, written, pictorial, or multimedia methods.
6. Comprehend and use effective and efficient learning techniques to acquire and apply new knowledge and skills.

Course Outline

Unit	Activities
1– Introduction to OM and Operations Strategy	• Content Covered: *Operations Management*: o Chapter 1, "Operations and Productivity" o Chapter 2, "Operations Strategy in a Global Environment" • Labs: 1.1 • Assignments: 1.1
2– Quality and Process Management	• Read from *Operations Management:* o Chapter 6, "Managing Quality" o Chapter 7, "Process Strategy and Sustainability" • Labs: 2.1 • Assignments: 2.1
3— Location and Layout Strategies	• Read from *Operations Management:* o Chapter 8, "Location Strategies" o Chapter 9, "Layout Strategies" • Labs: 3.1 • Assignments: 3.1 • Quizzes: 3.1
4— Forecasting and the Supply Chain	• Read from *Operations Management:* o Chapter 4, "Forecasting" o Chapter 11, "Supply-Chain Management" • Labs: 4.1 • Assignments: 4.1 • Project: Part 3
5— Inventory Management and Aggregate Planning	• Read from *Operations Management:* o Chapter 12, "Inventory Management" o Chapter 13, "Aggregate Planning" • Labs: 5.1 • Assignments: 5.1

Unit	Activities
	• Quizzes: 5.1 • Project: Part 4
6— Materials Requirements Planning and ERP	• Read from *Operations Management:* o Chapter 14, "Materials Requirements Planning (MRP) and ERP" • Labs: 6.1 • Assignments: 6.1 • Project: Part 5
7— JIT and Lean Production	• Read from *Operations Management:* o Chapter 16, "JIT and Lean Operations" o "Quantitative Module B, Linear Programming," pp. 689-709 • Labs: 7.1 • Assignments: 7.1 • Quizzes: 7.1 • Project: Part 6
8– Project Management	• Read from *Operations Management:* o Chapter 3, "Project Management" • Labs: 8.1 • Assignments: 8.1 • Project: Part 7
9– Product Design and Reliability	• Read from *Operations Management:* o Chapter 5, "Design of Goods and Services" o Chapter 7, "Process Strategy and Sustainability " o Supplement 7, "Capacity and Constraint Management," pp. 282-298 • Labs: 9.1 • Assignments: 9.1

Unit	Activities
	• Quizzes: 9.1 • Project: Part 8
10– Human Resources in Operations Management	• Read from *Operations Management:* o Chapter 10, "Human Resources, Job Design, and Work Measurement" • Labs: 10.1
11– Course Review and Final Exam	• Course Review • Project: Part 9 • Final Exam

Instructional Methods

In this course, you will learn about managing material, financial, and human resources in industrial manufacturing operations. How resources are converted into goods and services will be examined, including the use of modeling and behavioral strategies. You will implement contemporary methods of operations management. This survey course will use a mixture of theory, problems, and case studies to give you a basic understanding of each area of operations management. The concept of "quality" in the production and service industries is the overriding theme. Microsoft Project software will be introduced in the basic format. The use of simple Gantt charts as they relate to the AMT capstone project will be another focus.

In addition to four quizzes, there is one final exam to assess your understanding of the concepts presented.

Instructional Materials and References

Student Textbook Package

Heizer, Jay, and Barry Render. *Operations Management. 10th ed. Upper Saddle River, NJ: Prentice-Hall, 2011.*

Other Required Resources

In addition to the student textbook package, the following are also required in this course:

- Microsoft Office including Project and Visio
- MS Excel Solver add-on

References

ITT Tech Virtual Library

Log on to the ITT Tech Virtual Library at http://library.itt-tech.edu/ to access online books, journals, and other reference resources selected to support ITT Tech curricula.

Books

You may click “Books” or use the Library Catalog on the home page to find the following books.

ITT Tech Virtual Library> Main Menu> Books> Books24x7

- Hugos, Michael. *Essentials of Supply Chain Management. Hoboken, NJ:* John Wiley & Sons, 2003.
- Thomsett, Michael C. *The Little Black Book of Project Management. 3rd ed.* New York: AMACOM, 2010.
- Wilson, Lonnie. *How to Implement Lean Manufacturing. New York: McGraw-*Hill, 2010.

Other References

Web sites

- Practical Project Management

  http://www.projectmagazine.com/ (accessed 4/8/2010)

This site provides articles on project management as well as downloadable templates, reviews, and recommended links.

- Projects@Work

  http://www.projectsatwork.com/ (accessed 4/8/2010)
  This is the online version of Projects@Work magazine, offering project management resources, tools, and training for PM professionals.

- Open Directory: Business: Management: Project and Program Management

  http://www.dmoz.org/business/management/project_and_program_management/ (accessed 4/8/2010)
  The Open Directory Project is a human-edited directory of Web content. This page provides links to more than 100 sites concerning project management.

- Project Management Institute

  www.pmi.org (accessed 4/8/2010)
  PMI is a professional organization for project managers.

All links to Web references outside of the ITT Tech Virtual Library are always subject to change without prior notice.

Course Evaluation and Grading

Evaluation Criteria Table

The final grades will be based on the following categories:

CATEGORY	WEIGHT
Assignments	20%
Lab Activities	30%
Quizzes	10%
Project	20%
Final Exam	20%
Total	**100%**

Note: Students are responsible for abiding by the Plagiarism Policy.

Grade Conversion Table

The final grades will be calculated from the percentages earned in the course, as follows:

A	90-100%	4.0
B+	85-89%	3.5
B	80-84%	3.0
C+	75-79%	2.5
C	70-74%	2.0

D+	65-69%	1.5
D	60-64%	1.0
F	<60%	0.0

(End of Syllabus)