IME3260
Operations Planning and Control
Spring 2011(MWF 12:30 -1:20p) D-212

Course Instructor: Dr. Tarun Gupta, Professor E-220 Parkview Campus

2008-2010 Catalog Data: Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 216 or MATH 260 or MATH366

Textbook: *Production & Operations Management* by Jay Heizer and Barry Render, Prentice Hall, 2010

Course Coordinator: Dr. David M. Lyth, Professor, Industrial & Manufacturing Engineering Department, Office – E-222; Phone 269.276.3368, FAX 269.276.3353

ABET/TAC Outcomes[2] **ABET Criteria**	**Suggested Activity & Performance** Criteria[1]
a. Demonstrate an appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines,	Quiz, test, homework
b. Apply current knowledge and adapt to emerging applications in mathematics, science, engineering and technology,	Quiz, test, homework, case study **B3**
c. Conduct, analyze and interpret experiments and apply experimental results to improve processes,	Homework, outside activity collecting data and analyzing it (akin to a laboratory experiment)
d. Apply creativity in the design of systems, components or processes appropriate to program objectives,	Online personalized homework **F3**
e. Function effectively on teams	In-class or out-of-class case study or exercises
f. Identify, analyze and solve technical problems	Homework, tests, quizzes
g. Communicate effectively	Oral & written communication **G2**
h. Recognize the need for and possess the ability to pursue lifelong learning	Class discussion
i. Be cognizant of contemporary professional, societal and global issues and be aware of and respect diverse cultures,	Internet search of current topics
j. Have developed a commitment to quality, timeliness and continuous improvement.	Class discussions

[1]**Performance Criteria:** IME performance criteria may be found at http://www .wmich.edu/ime
[2]**ABET/TAC Outcomes:** Outcomes may be found at http://www.abet.org/

Prerequisite by topic:

- Basic electronic communication skills; word processing, electronic spreadsheet, internet access, email
- Working knowledge of descriptive statistics, mean, variance, graphical display methods, probability (MTH216, 260, or 366)
- Working knowledge of inferential statistics; estimation, hypothesis testing, regression (MTH216, 260, or 366)

Course objectives:

- Understand the overall decision making framework associated with the field of Production/Operations Management. (a,b,f,g)
- Be able to apply decision making techniques and to understand the strategic implications of decisions regarding product (a,b,e,f,g)
- Be able to apply basic inventory models, material requirements planning, and scheduling models in an operations environment.(a,b,e,f,g)
- Be able to analyze and present results of variety of situations in a manufacturing environment. (a,b,e,f,g)

Note: letters in parentheses refer to criteria from ABET-TAC

Criteria:

A student should be able to:

- Identify the inputs, outputs, and process involved in both manufacturing and service operations.
- Apply linear programming technique to various opportunities in the operations field
- Forecast demand using time series, causal, and methods. **The outcome of this criteria is tracked with a goal of 75% of participants will score 80% or higher.**
- Apply master production scheduling techniques to plan production
- Identify material and capacity requirements using material requirements planning and capacity requirements planning
- Exhibit mastery over independent inventory models. **The outcome of this criteria is tracked with a goal of 80% of participants will score 80% or higher.**
- Be able to apply dispatching rules in a shop floor control environment

Week #	List of Topics	Readings – Ch #s
Part One		
1.	Operations and Productivity	#1
2.	Operations Strategy in Global Environment	#2
3.	Forecasting	#4
4.	Forecasting Methods	#4
Part Two		
5.	Designing Operations-Design of Goods & Services	#5
	Exam #1 (Ch 1 – 5)	
6.	Managing Quality – Statistical Process Control	#6S
7.	Process Strategy & Sustainability	#7
8.	Capacity & Constraint Management	#7S
9.	Inventory Management	#12
	Exam #2 (Ch 6S, 7, 7S & 12)	
10.	Aggregate Planning	#13
11.	Material Requirements Planning (MRP) & ERP	#14
12.	Short Term Scheduling	#15
13.	JIT & Lean Operations	#16
14.	Decision Making Tools	Module B
15.	Exam Week	

Final Exam (Comprehensive) **Tuesday April 26 12:30 pm-2:30 pm**

This is a very approximate schedule. Actual class Assignments may vary from this as the class proceeds throughout the semester. When deviations occur, they will be announced in class.

Student CD with the Textbook:

The accompanied CD with the textbook contains useful learning tools both, quiz questions (/w solution & associated review section/s) and spreadsheet examples. These resources can be valuable in improving understanding of the underlying concepts.

Library Usage:

There are several books on the subject of Engineering Economy housed in Waldo Library each containing problems numerous solved problems. Two of these books have been identified under References. It is strongly recommended that students use at least these books to study the solved examples. This will greatly enhance his/her ability to analyze and solve any given problem.

Online Computer Assignments:

There will be at least one assignment per week that will be assigned for submission each requiring you to work online using www.myomlab.com. These assignments MUST be completed and submitted by 12:00 noon on Friday of the following week.

Evaluation:

1. Exams (2, Wk 5, 9) 100pts ea	200	40%
2. Final Exam	150	30%
3. Quizzes **(Wk 2, 4, 6, ...)**	50	10%
4**. Computer-based Weekly HW Assignments**	100	20%
5. Total	500	100%

Grading Scale:

92-100	A
87-91	BA
82-86	B
77-81	CB
72-76	C
67-71	DC
62-66	D
<61	E

The following number of points are the APPROXIMATE points required for the corresponding grades.

A ≥	**92**	**BA ≥**	**87**
B ≥	**82**	**CB ≥**	**77**
C ≥	**72**	**DC ≥**	**67**
D ≥	**60**	**E ≤**	**60**

Academic Honesty:

You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate Catalog (pp. 268-270) that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with the instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.