

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		09-48d.	App 4-6-10	App 4/20/10

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

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Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

New Course Course Prefix Change Course Deletion
 Course Revision Course Number and/or Title Change Catalog Description Change

MGMT 330	
<u>Current</u> Course prefix, number and full title	<u>Proposed</u> course prefix, number and full title, if changing

2. Additional Course Designations: check if appropriate

This course is also proposed as a Liberal Studies Course. Other: (e.g., Women's Studies, Pan-African)
 This course is also proposed as an Honors College Course.

3. Program Proposals

New Degree Program Program Title Change Program Revision
 New Minor Program New Track Other
 Catalog Description Change

<u>Current</u> program name	<u>Proposed</u> program name, if changing
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4. Approvals		Date
Department Curriculum Committee Chair(s)	<i>Joette Wisnieski</i>	3-1-10
Department Chair(s)	<i>Prashant Sin</i>	3/1/10
College Curriculum Committee Chair	<i>G. Campbell</i>	3/3/10
College Dean	<i>R. Cannon</i>	3/17/10
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	<i>Gail S. Schuist</i>	4/6/10

* where applicable

Received	Received
MAR 30 2010	MAR 24 2010
Liberal Studies	Liberal Studies

NEW Syllabus of Record Format – MGMT 330
Indiana University of Pennsylvania
The Eberly College of Business and Information Technology
Department of Management

Course # & Title: MGMT 330 Production and Operations Management (3 cr)
Prerequisites: MATH 115 & MATH 214, junior standing, Eberly College of Business and Information Technology or approved major

I. Catalog Course Description:

Study of converting an organization's inputs into outputs whether in goods-producing or service industries. Provides an overview of concepts, tools, and techniques used in management of the production and operations function in organizations.

II. Course Outcomes/Objectives:

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

1. Demonstrate working knowledge and comprehension of the theories and practices pertaining to several subject areas of the production and operations management function in organizations.
2. Analyze issues in a global environment pertaining to operations management. (Eberly Objective 5b)
3. Comprehend, analyze and evaluate the application of spreadsheets for solving Operations problems. (Eberly Objective 7b)
4. Effectively analyze several strategic, design, and day-to-day issues involved in making a product or delivering a service.
5. Evaluate and synthesize the interrelationships between the operations function and other business functions in both manufacturing and service organizations.

III. Suggested Detailed Course Outline:

Hours (50 min =1 hr.)	Topic	Readings/Other material/Assignments	<i>Main Course Objectives Addressed</i>
3	Course outline and introduction <ul style="list-style-type: none"> • Introduction to Operations Management (O.M.) • Importance, History and Scope of O.M. • Productivity; Operations Strategy in a Global Environment 	<ul style="list-style-type: none"> • Chapters 1 & 2 	1,2
4.5	Project Management: AON/AOA modeling; PERT-CPM approaches; Critical activities; Contingency planning. Quiz # 1	<ul style="list-style-type: none"> • Chapter 3 • Assignment 	1,4
3	Demand Forecasting & Demand Management <ul style="list-style-type: none"> • Qualitative and quantitative techniques • Forecast errors and forecast evaluation 	<ul style="list-style-type: none"> • Chapter 4 • Assignment 	1,3
1.5	Test # 1		

3	Aggregate Planning • Strategies, costs, and techniques to absorb demand fluctuations	<ul style="list-style-type: none"> • Chapter 13 • Assignment 	1,3,4
3	Material Requirements Planning (MRP) and ERP • MPS & MRP methodology, inputs, outputs, ERP software	<ul style="list-style-type: none"> • Chapter 14 • Assignment 	1,3,4
1.5	Operations Scheduling • Short term scheduling and personnel scheduling Quiz # 2	<ul style="list-style-type: none"> • Chapter 15 • Assignment 	1,3,4
4.5	Just-in-time (JIT) Systems • Elements of a JIT system, advantages, applicability—Japan, USA, and other countries	<ul style="list-style-type: none"> • Chapter 16 • Case Analysis 	1,4,5
1.5	Test # 2		
3	Inventory Models: Need, concepts, applications, costs; ABC analysis; traditional models; concepts of lead time, safety stock, re-order point.	<ul style="list-style-type: none"> • Chapter 12 (Only EOQ model) • Assignment 	1,4
3	Supply Chain Management: Strategies for design and management, E-commerce and Operations Management Facility Location: Definition, complexities; information management for supply-chain; sourcing and procurement; location of facilities to enhance supply-chain function. Quiz # 3	<ul style="list-style-type: none"> • Chapter 8 & 11 • Supplement 11 • Case Analysis 	1,2,5
1.5	Facility layout • Design of different types of layout, assembly line balancing	<ul style="list-style-type: none"> • Chapters 9 • Assignment 	1,2,4
4.5	Quality Management • Total Quality Management, Costs of Quality • Philosophies of the Quality "Gurus" • ISO 9000 and Malcolm Baldrige Award Criteria	<ul style="list-style-type: none"> • Chapter 6 • Readings/Writing Assignment • Case Analysis 	1,2,5
1.5	Waiting Line Models • Queuing models for service improvement • Computer Simulation and Systems Modeling for Operations	<ul style="list-style-type: none"> • Quant. Models D • Assignment 	1,3,4
3	Process Strategy, Capacity Planning, Technology Management	<ul style="list-style-type: none"> • Chapter 5, 7, 7S 	1,2,4,5
	Test # 3 (Finals week)—Culminating activity		

IV. Evaluation Methods:

The following evaluation system and weights will be used to determine the final grades:

Evaluative Tool	Weight	Course Objectives Measured (predominantly)
Exams (3 exams--25% each) <ul style="list-style-type: none">• Objective Questions• Short Answers (one to two paragraphs)• Numerical Problems	75%	<ul style="list-style-type: none">• Obj. 1• Obj. 5• Obj. 4
Quizzes	10%	<ul style="list-style-type: none">• Obj. 1
Mini Case Analyses	5%	<ul style="list-style-type: none">• Obj. 2 (Eberly Goal 5 Objective B)
Assignments <ul style="list-style-type: none">• Take home assignment	5%	<ul style="list-style-type: none">• Obj. 3 (Eberly Goal 7 Objective B)
Classroom participation	5%	

Exams

Each of the three exams will be a blend of objective-type questions, short essay questions, and numerical problems. Objective-type questions (multiple-choice and matching) constitute about 40% of the tests. Short essay-type questions that are based on the evaluation and synthesis of the discussed topics will constitute about 20% of the tests. Numerical problems, similar to the ones solved in the class and/or the ones assigned for homework, constitute the remaining 40% of the tests. *All required formulae will be provided during each exam.*

The exams will *not* be cumulative but some topics may naturally require the knowledge of topics covered earlier in the semester. The tentative exam dates are shown in the syllabus and the exact dates will be established at least 1 week in advance.

Quizzes, Mini Cases, and Homework

Each quiz will be announced at least one class in advance (approximate times are provided) and will comprise of about ten multiple choice and matching questions. Each quiz will be administered during the first 10 minutes of the designated day and if you arrive late to class, you will be at a disadvantage. Cases and/or homework problems will be assigned after the completion of each chapter. Some of them will be graded and their due dates will be assigned. It is also important to understand and solve the homework problems that are not graded.

Class Participation

It is important to attend and voluntarily participate in every class. Although only 5% of the points are assigned for class participation, quality and meaningful participation may be viewed positively and weighted more heavily (extra credit!). Attendance will not solely guarantee maximum points while poor attendance will automatically minimize the score and can even result in negative points. Specifically, for each missed class (beyond the first 2) can result in 10% reduction in the total participation grade; e.g., if you miss 4 classes, the maximum you can get for participation is 4%, if you have participated well in all the classes that you attended.

V. Example Grading Scale

The final grades will be based on the following distribution:

90% and above	A	80% - 89.9%	B
70% - 79.9%	C	60% - 69.9%	D
Less than 60%	F		

VI. Course Attendance Policy

Will be developed by individual faculty in accordance with the policy in the undergraduate catalog.

VII.

Text: Heizer, J and Render, B. (2008). Operations Management, Ninth Edition, Prentice Hall

Required Reading: Wall Street Journal

VIII.

There are no special requirements for this course.

IX. Bibliography

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Chapmas, Stephen. *Fundamentals of Production Planning and Control*. Upper Saddle River, NJ: Prentice Hall (2006).

Gilliland, M., and M. Leonard. "Forecasting Software – The past and the future." *The journal of Business Forecasting* 25, no. 1 (Spring 2006): 33-36

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Kerzner, H. *Using the Project Management Maturity Model*, 2nd ed. New York: Wiley (2005)

- Krupp, James A.G. "Integrating Kanban and MRP to Reduce Lead Time." *Production and Inventory Management Journal* 43, nos. 3-4 (3rd/4th quarter 2002): 78-82.
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- Metters, R., K. King – Metters, M. Pullman, and S. Walton. *Successful Service Operation Management*. 2nd ed. Mason, OH: Thompson – South – Western (2006).
- Render, B., R.M. Stair and M. Hanna. *Quantitative Analysis for Management*, 10th ed. Upper Saddle River, NJ: Prentice Hall (2009)
- Sutherland, Joel, and Bob Bennett "The Seven Deadly Supply Chain Wastes," *Supply Chain Management Review*, July 1, 2008.
- Summwer, M. *Enterprise Resource Planning*. Upper Saddle River, NJ: Prentice Hall (2005).
- Vollmann, T.E., W.L. Berry, D.C. Whybark, and F.R. Jacobs. *Manufacturing Planning and Control for Supply Chain Management*, 5th ed. Burr Ridge, IL: Irwin (2005).
- Womack, James P., and Daniel T. Jones. *Lean Solutions: How Companies and Customers Can Create Value and Wealth Together*. New York: The Free Press, 2005.
- Yourdon, Edward. *Outsource: Competing in the Global Productivity Race*. Upper Saddle River, NJ: Prentice Hall (2005).

Justification

In an effort to bring our courses and undergraduate programs into compliance with the AACSB's Assurance of Learning Standards, the Management Department has undergone a review of our course goals and objectives. To be in compliance with the AACSB requirements, we have added one or two course objectives to each of our core courses. These objectives are not really "new" per se as they were always implied or worded differently. However, for the accreditation purposes we are now clearly rewording them or identifying them as separate objectives. The course contents really have not changed at all.

Course Syllabus

I. CATALOG DESCRIPTION:

MGMT 330 Production and Operations Management

3 Lecture hours
0 Lab hours
3 Credits
(3c-01-3sh)

Prerequisites: MATH 115, MATH 214, and Junior status, Eberly College of Business and Information Technology or approved major

Study of the process of converting an organization's inputs into outputs whether in goods-producing or service industries. Provides an overview of concepts, tools, and techniques used in management of production and operations function in organizations.

II. COURSE OBJECTIVE

Students will learn what every manager should know about the management of production and operations in organizations. More specifically, after taking this course successfully, the student will be able to:

- (1) Exhibit working knowledge of the theories and practices pertaining to management of operations needed to create goods/services efficiently and effectively.
- (2) Realize the importance of the interrelation between the production/operations management (POM) function and other functional areas including Marketing, MIS, Accounting, Design, etc.
- (3) Effectively address several strategic, design, and day-to-day issues involved in making a product or delivering a service.
- (4) Apply quantitative models of Operations Management to work situations.

III. COURSE OUTLINE

A. Introduction (2 hours)

Overview of POM techniques and applications in manufacturing and services; systems approach to OM; Interactions and integration of OM with other functional areas; Strategic importance of OM.

B. Quality Management (3 hours)

What is quality? Customer vs. producer orientation; Cost of poor quality; Quality as competitive advantage; Preventing quality problems; How to achieve excellence in quality-- Deming, Juran, etc; How the Japanese do it? Quality circles; Total quality control.

C. Product Design and Process Selection (3 hours)

Manufacturing and Service sectors; Team approach to product design; Quality and product liability considerations; Product design & development sequence; Process selection and process flow analysis; Operational classification of services; Trade off presented by service-system design matrix.

D. Managing Technology (2 hours)

Manufacturing technologies-- Automation, Flexible manufacturing; Service sector technologies-- Electronic fund transfer, On-line data bases, Electronic mail, Integrated communication and information systems, Bar codes; Computer Aided Design and Manufacturing; Managing Technological Change.

E. Capacity and Forecasting (3 hours)

Definition of capacity; Estimating capacity for manufacturing and services; Systems approach to capacity determination; Dependence of capacity planning on accurate forecasting; Qualitative and quantitative forecasting techniques; Capacity decisions--when, where, and how much.

F. Supply Chain Management and Facility Location (3 hours)

Technical and Strategic issues in Supply Chain Management; Current trends in location; Qualitative and quantitative factors in location decisions; Quantitative techniques for location decision including heuristic approaches for service location decisions.

G. Facility Layout (3 hours)

Facility layout considerations such as machine interference, bottlenecks, safety, flexibility, etc.; Types of layout including process layout, product layout, fixed layout, cellular manufacturing layout, and hybrid layout; Assembly line design and balancing; Material handling systems.

H. Waiting Line Models (2 hours)

Discussion of various simple waiting line models and their applications in the areas such as capacity and resource planning, facility layout, service facility design.

I. Job Design and Work Measurement (2 hours)

Human-machine interaction and its effects on product and process design; Job design strategies; Ergonomics and human factors considerations; Work measurement and time studies; Predetermined time standards (PMTS); Work sampling; How the Japanese do it? Emphasis on group vs. emphasis on individual.

J. Project Management (3 hours)

Application of network models to project management; Critical Path Method; Program Evaluation and Review Technique; Time estimates and practical problems; Computer solutions to network problems.

K. Aggregate Planning (2 hours)

Overview of medium-range aggregate planning; Parameters for the planning process; Planning strategies; Criteria for selecting aggregate plans; Mathematical models for aggregate plans--linear programming, linear decision rule (LDR), etc.

L. Inventory Management (3 hours)

Concept of lot-sizing; Cost of ordering and holding inventory, and cost of shortage; Basic economic order

quantity (EOQ) model and its variations; Probabilistic inventory models; Safety stock determination; Periodic review systems.

M. Material Requirement Planning (MRP) (3 hours)

Purpose and philosophy of MRP; Components of MRP including bill of material (BOM), master production schedule (MPS), inventory status file; Computerized MRP.

N. JIT System (3 hours)

What is JIT? "Kanban"; Comparison of JIT (Pull System) with MRP (Push System); Enforced problem solving; JIT as manufacturing philosophy.

O. Emerging Issues in Operations (2 hours)

Current and emerging issues in operations management.

(The remaining 3 hours are for exams and review)

IV. EVALUATION METHODS

Exams (3)	25% each
Homework/quizzes (8-12 spread throughout)	20%
Class Participation/Group Activities	5%

The final grades will be based on the following distribution:

90% and above—A; 80% - 89.9%—B; 70% - 79.9%—C; 60% - 69.9%—D; >60%—F.

Exams will be cumulative. A comprehensive makeup examination (students find it to be very hard) will be scheduled toward the end of the semester; it can replace a maximum of one missed exam. Don't miss exams for trivial reasons. If you must miss because of emergencies, I may provide a make up opportunity at a mutually convenient time within 10 days of the original exam. However, those emergencies must be substantiated (examples of acceptable proof: Obituary Notice from a newspaper; record of doctor visit; etc.)

Exams will comprise of two parts: Part 1 will include a set of objective questions (emphasis on conceptual understanding rather than fact memorization); and Part 2 will include one or more of the following type of questions—numerical problems, short written answers, mini-cases, etc.

V. REQUIRED TEXTBOOKS SUPPLEMENTAL BOOKS AND READINGS

Textbook: Davis, M. M, Aquilano, N.J., and Chase, Richard, Fundamental of Operations Management, 3rd Edition, Irwin McGraw-Hill. 1999.

Readings: Other readings may be assigned.

VI. SPECIAL RESOURCE REQUIREMENTS

Computer hardware and software needed for analysis will be provided through the PC lab.

VII. BIBLIOGRAPHY (Brief)

W.C. Benton, and S. Hojung "Shin Manufacturing planning and control: the evolution of MRP and JIT integration" European Journal of Operational Research, Nov 1, 1998 v110 (3), p411-440.

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Fuller, F.T. "Eliminating Complexity from Work: Improving Productivity by Enhancing Quality," National Productivity Review, Autumn, 1985.

Goldratt, Eliyahu M., and Jeff Cox. The Goal: A Process of Ongoing Improvement. (2nd edition. Croton-on-Hudson, NY: North River Press, 1993.

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Lembrecht, M.R., and L. Decaluwe. "JIT and Constraint Theory; The issue of Bottleneck Management," Production and Inventory Management Journal, 3rd Quarter, 1988.

Shin, D, and H. Min, "Flexible Line Balancing Practices in Just-in-time environment," Production and Inventory Management Journal, 2nd Quarter, 1991.

Spedding, P. E. "Revisiting time-phased order points in the health care industry." IIE Solutions, Feb 1998, v30(2), p22-24.

Zinn, W. "Should You Assemble Products Before an Order is Received?" Business Horizons, March-April, 1990.