

ATENEEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	QMT 11
Course Title	Business Statistics
No. of Units	3 units

Course Description:

The course introduces the students to various methods of statistical analyses as applied in various industries and enterprises. Through the use of primary statistical techniques, the students attain a meaningful understanding of statistical reasoning within the context of management decision-making. Topics essentially focus on statistical description, statistical induction, and analysis of statistical relationship.

Course Objective/s:

The course endeavors to provide students with meaningful understanding and valuable insights on the basic concepts, tools, and techniques of statistical investigation, and their corresponding functions and applications in the managerial decision-making process.

Course Outline:

Topics and Coverage	Reference
Introduction to Business Statistics <ul style="list-style-type: none"> • Management Decisions and Business Research • Statistical Research Process • Overview of Statistical Tools • Data Types and Sources • Survey Questionnaire Design 	Chapter 1
Descriptive Statistics <ul style="list-style-type: none"> • Tabular Methods • Visual and Graphical Methods • Numerical Methods 	Chapter 2-3
Introduction to Probability <ul style="list-style-type: none"> • Concept of Probability • Properties of Sample Spaces and Events • Counting Techniques • Conditional Probability and Bayes' Theorem 	Chapter 4
Introduction to Decision Analysis <ul style="list-style-type: none"> • Decision Trees • Decision Criteria • Perfect and Imperfect Information 	Chapter 19
LONG TEST 1	

Discrete Probability Distributions <ul style="list-style-type: none"> • Properties of Discrete Probability Distributions • Binomial Distribution • Poisson Distribution • Poisson Approximation to Binomial 	Chapter 5
Continuous Probability Distributions <ul style="list-style-type: none"> • Properties of Continuous Probability Distributions • Uniform Distribution • Exponential Distribution • Normal Distribution • Normal Approximation to the Binomial • Triangular Distribution 	Chapter 6
LONG TEST 2	
Sampling Distribution <ul style="list-style-type: none"> • Sampling Distribution of the Sample Mean • Sampling Distribution of the Sample Proportion 	Chapter 7
Confidence Intervals <ul style="list-style-type: none"> • Confidence Intervals for the Population Mean • Confidence Intervals for the Population Proportion • Sample Size Determination 	Chapter 8
Hypothesis Testing <ul style="list-style-type: none"> • Developing the Null and Alternative Hypotheses • Type I and Type II Errors • One-Tailed Tests/Two-Tailed Tests 	Chapter 9
Two-Population Hypothesis Testing (Optional: Excel/MegaStat) <ul style="list-style-type: none"> • Independent Samples • Paired Differences/Matched Samples 	Chapter 10
LONG TEST 3	
Chi-Square Tests <ul style="list-style-type: none"> • Goodness of Fit Tests • Tests for Independence 	Chapter 12
Analysis of Variance <ul style="list-style-type: none"> • Basic Concepts of Experimental Design • One-Way Analysis of Variance (Completely Randomized Design) 	Chapter 11
Simple Linear Regression <ul style="list-style-type: none"> • Simple Linear Regression Model • Model Assumptions • Testing the Significance of the Slope, Intercept and Model 	Chapter 13
LONG TEST 4	

References (optional):

Primary Reference

Bowerman ,O'Connell and Murphree. Business Statistics in Practice. 6th Edition, McGraw-Hill Irwin, 2011.

Suggested Reference

Anderson, David, Sweeney, and Williams. Modern Business Statistics with Microsoft Excel. 1st Edition, Thomson South-Western, 2003.

Myatt, Glenn J. Making Sense of Data: A Practical Guide to Exploratory Data Analysis and Data Mining. Wiley. 2007

ATENEDE DE MANILA UNIVERSITY
 Loyola Schools
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Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	POM 102
Course Title	Fundamentals of Production and Operations Management
No. of Units	3 units

Course Description:

This course aims to provide the student with a rational approach to the economic problems of planning and deploying human resources, materials, plus facilities and equipment to generate goods and/or services for the marketplace. Course emphasis will be on the application of the analytical tools to address critical issues related to strengthening the competitive position of the enterprise, such as: product or service design, process engineering and work systems design, management of technology and innovation, facilities design, supply chain management, quality management, scheduling, and performance management.

Course Objective/s:

By the end of this course, the student should be able to understand and appreciate the basic concepts of Production/Operations Management; know its importance in the success of the business; and learn the major POM concepts, quantitative tools and techniques that are used in tactical and strategic decisions.

Course Outline:

Period/Date	Readings/Activities	Subject
Weeks 1 and 2	Ch. 1: Introduction to Operations Management Form project groups (4-6 members per group) Ch. 2: The Global Environment and Operations Strategy	1. Sound operations management is a key driver of competitiveness a. Introduction to Operations Management b. Relationship to other business functions c. Operations and business strategy

Week 3	Ch. 5: Product Design	2. Operations ensures efficient delivery of quality products and services a. The Product Life Cycle b. Product/Service Design c. New Product and Service Development
Week 4	Ch. 7: Process Design pp. 282-297	3. Operations is the management of business processes a. The Value Chain Model b. Process Modeling – Using Flowcharts c. Process Measurement and Analysis
Week 5	Ch. 7: Process Design pp. 297-302 Ch. 17: Maintenance and Reliability Decisions	4. Core Operations: Machines a. Production Technology b. Maintenance Management c. Reliability
Week 6	Ch. 9: Layout Decisions	5. Core Operations: Layout
Week 7	FIRST LONG TEST	
Week 7	Ch. 10: Job Design and Work Measurement	6. Core Operations: People a. Job Design /Work Methods b. Occupational Health c. Ergonomics / Human Factors Engineering
Week 8	Ch. 6: Quality Management and International Standards Ch. 16: JIT, Lean Operations, and the Toyota Production System	7. Core Operations: Product and Service Quality a. Quality Philosophies b. Quality Standards c. Six Sigma Methods d. Lean Principles e. Statistical Process Control
Weeks 9 and 10	Ch. 12: Managing Inventory Ch. 14: Materials Requirements Planning and ERP Ch. 11: Managing the Supply Chain	8. Core Operations: Inventory a. MRP b. Inventory Models 9. Core Operations: Supply Chain
Week 11	Ch. 4: Forecasting Demand	10. Core Operations: Demand Forecasting a. Long-Term vs. Short-term Demand b. Forecasting Techniques – Qualitative and Quantitative

		Methods
Week 12	SECOND LONG TEST	
Week 12	Supplement 7: Capacity Planning	11. Core Operations: Managing capacity a. Capacity Decisions b. The Outsourcing Alternative
Week 13	Ch. 13: Aggregate Scheduling Ch. 15: Scheduling for the Short-Term	12. Core Operations: Scheduling a. Aggregate Planning b. Job Scheduling
Week 14	Ch. 8: Location Decisions	13. Core Operations: Location Planning and Site Selection
Week 15	Slack weeks either for extensions. These weeks also will also allow for the Mock Defense	
Week 16		
Week 17		
Finals Week	THIRD LONG TEST	

References (optional):

Required Text	<u>Operations Management</u> by Jay Heizer and Barry Render, 10 th ed., 2011
Supplementary Texts	<u>Making Common Sense Common Practice</u> by Ron Moore, 3 rd ed., 2004 <u>Operations Management</u> by William Stevenson, 9 th ed., 2007 <u>OM²</u> by David Collier and James Evans, 2010 <u>Operations Management: Contemporary Concepts and Cases</u> by Roger Schroeder, Susan Meyer Goldstein and M. Johnny Rungtusanatham, 5 th ed., 2011

ATENEEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	QMT 109
Course Title	Business Research and Statistical Methods
No. of Units	3 units

Course Description:

The quality of management decision-making will depend on a proper understanding and definition of the problems to be addressed, the availability of reliable information, and the validity of models or frameworks used for analysis and evaluation of options. Even mathematical optimization techniques depend on the validity of the assumptions underlying the mathematical models used for analysis. This course provides students with the tools and approaches to undertake business research and capture the behavior of observed phenomena or variables using statistical modeling techniques.

Course Objective/s:

- At the end of the course, the student should be able to:
1. Formulate a research problem. Define objectives, methods, and deliverables.
 2. Perform data preparation, visualization and analysis using inferential statistics and multivariate modeling techniques.
 3. Demonstrate proper model building and validation. Deploy results of data analysis.
 4. Be familiar with the use of statistical software as a tool for computation and analysis.

Course Outline:

Course Outline Topics and Coverage	Reference	Timeline
MODULE 1		
Research Methods <input type="checkbox"/> The Research Process <input type="checkbox"/> Problem Definition <input type="checkbox"/> Research Design <input type="checkbox"/> Sampling Design <input type="checkbox"/> Measurement Concepts <input type="checkbox"/> Data Collection and Data Sources	Making Sense of Data I (Chapter 1-2)	4 Meetings
Descriptive Statistics <input type="checkbox"/> Visual and Graphical Methods <input type="checkbox"/> Numerical Methods	Business Statistics in Practice (Chapter 2-3)	4 Meetings

Probability Distributions <input type="checkbox"/> Discrete <input type="checkbox"/> Continuous	Business Statistics in Practice (Chapter 5-6)	6 Meetings
MODULE 2		
Estimation Techniques <input type="checkbox"/> Sampling Distribution	Business Statistics in Practice	6 Meetings

References (optional):

<p>Primary References</p> <p>Bowerman ,O'Connell and Murphree. Business Statistics in Practice. 6th Edition, McGraw-Hill Irwin, 2011.</p> <p>Hair, Jr., Anderson, Tatham. Multivariate Data Analysis with Readings. 2nd Edition. Macmillan. 1987</p> <p>Myatt, Glenn J. Making Sense of Data: A Practical Guide to Exploratory Data Analysis and Data Mining. Wiley. 2007</p> <p>Suggested Readings</p> <p>Anderson, David, Sweeney, and Williams. Modern Business Statistics with Microsoft Excel. 1st Edition, Thomson South-Western, 2003.</p> <p>MacNeal, Edward. Mathsemantics.</p>
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ATENEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	QMT 127
Course Title	Intermediate Operations Research I
No. of Units	3 units

Course Description:

This course is an introduction to the core discipline that distinguishes the M.E. Program from other management programs – the quantitative approach to problem solving in management. It assumes a high level of mathematical preparation and a sufficient exposure to basic management principles. The course starts with an introduction to the general quantitative problem solving methodology. It then proceeds to one of the most widely used techniques, linear programming, covering its formulation, solution methods, other model forms, sensitivity analysis, and other applications.

Course Objective/s:

This course is an introduction to the core discipline that distinguishes the M.E. Program from other management programs – the quantitative approach to problem solving in management. It assumes a high level of mathematical preparation and a sufficient exposure to basic management principles. The course starts with an introduction to the general quantitative problem solving methodology. It then proceeds to one of the most widely used techniques, linear programming, covering its formulation, solution methods, other model forms, sensitivity analysis, and other applications.

Course Outline:

Topic	Long Test
1. Problem Solving Methodology a. Introduction to Operations Research b. The OR Process c. Mathematical Modelling	Long Test 1
2. Introduction to Linear Programming a. Standard Linear Programs b. Formulation of Linear Programs c. Graphical Method d. Standardizing and Linearizing Programs e. Formulation of Pure Integer Programs f. Formulation of Mixed Integer Programs	
3. The Simplex Method a. Review of Matrix Theory b. Foundations of Simplex c. The Simplex Algorithm: Dictionary & Tableau	Long Test 2

4.	Sensitivity Analysis	
a.	Duality	
b.	Game Theory	
c.	Parametric Programming	
5.	The Dual Simplex Method	
6.	Integer Programming	Long Test 3
a.	The Cutting Plane Method	
b.	The Branch and Bound Algorithm	
7.	Transportation Problems	
8.	Assignment Problems	

References (optional):

Main Book:

Operations Research, An Introduction; Taha, Hamdy A.; 7th Edition; Prentice-Hall

Other References to look into:

1. 8th edition, *Introduction to Operations Research*, Hillier, Frederick S.; Lieberman, Gerald J. New York. McGraw-Hill. 1995
2. *Operations Research Applications and Algorithms 4th edition*, Wayne L. Winston, Thomson Brooks/Cole
3. *Optimization in Operations Research*; Rardin, Ronald; Prentice-Hall, 1998
4. *Notes on Linear Programming* by Dr. Mari-Jo P. Ruiz; Ateneo de Manila University, 1989

ATENEEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

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Course No.	POM 104
Course Title	Quantitative Methods & Production/Operations Management
No. of Units	5 units

Course Description:

POM 104 is a 5-unit, combined statistics and operations management course. It covers the relevant concepts of production and operations management as well as the quantitative tools for data analysis and business decision making. By the end of the semester, the student should be able to appreciate the key decision situations that confront the operations manager and apply analytical techniques to arrive at better decisions.

Course Objective/s:

By the end of this course, the student should be able to understand and appreciate the basic concepts of Production/Operations Management; know its importance in the success of the business; and learn the major POM concepts, quantitative tools and techniques that are used in tactical and strategic decisions. Other main objectives will include:

- To understand the role and contribution of operations towards achieving competitive advantage in the marketplace.
- To understand the relationship between operations and other business functions, such as Marketing, Finance, Accounting, and Human Resources.
- To understand and apply systematic approaches (qualitative and quantitative) in designing and managing operations

Course Outline

Module 1: Business Statistics

- I. Introduction to Statistics
- I. Descriptive Statistics
 - A. Presenting Data in Graphs and Tables
 - B. Descriptive Measures for Ungrouped Data
 - C. Descriptive measures for Ungrouped Data
- II. Introduction to Probability
 - A. Elementary Rules of Probability
 - B. Discrete Probability Distributions
 - C. Continuous Probability Distributions
- III. Sampling Theory and the Central Limit Theorem
- IV. Confidence Intervals
 - A. Single Populations (Mean, Proportion)

- B. Two Populations (Two Means, Proportions)
- V. Hypothesis Testing
 - A. Single Population (Mean, Proportion, Variance)
 - B. Two Populations (Two Means, Matched Pair, Proportions)
- VI. Linear Regression and Correlation
- VII. Other Statistical Tests
 - A. Analysis of Variance
 - B. Chi-Squared Tests

Module 2: Principles of Production/ Operations Management

Qualitative Topics	Quantitative Topics
Chapter 1: Operations and Productivity	
Chapter 2: Operations Strategy in a Global Environment	
Chapter 4: Forecasting	Forecasting Methods
Chapter 5: Design of Goods and Services	Reliability
Chapter 7: Process Strategy	Decision Trees & Tables
Supplement 7: Capacity Planning	Linear Programming
Chapter 8: Location Strategies	Factor Rating, Center of Gravity
Chapter 9: Layout Strategy	Line Balancing, Process Layouts
Chapter 10: Human Resources and Job Design	
Chapter 6: Managing Quality	Statistical Process Control
Chapter 11: Supply-Chain Management	
Chapter 12: Inventory Management	Inventory Models
Chapter 13: Aggregate Planning	Aggregate Planning Strategies
Chapter 14: Material Requirements Planning (MRP)	MRP Algorithm
Chapter 15: Short-Term Scheduling	Scheduling Algorithm
Chapter 16: Just-in-Time and Lean Production Systems	
Chapter 3: Project Management	PERT – CPM Models
Chapter on Waiting Lines	Waiting Line Models

References (optional):

Required Readings	<u>Operations Management</u> Jay Heizer and Barry Render, 9 th ed., 2008
Supplementary Readings	a.) <u>Operations Management</u> William Stevenson, 10 th ed. b.) <u>Business Statistics in Practice</u> Bowerman, C'Onnell, Murphree, 5 th Edition, 2009
Online Resources (Statistics)	http://www.statsoft.com/textbook/stathome.html http://davidmlane.com/hyperstat http://www.robertniles.com/stats/ http://www2.chass.ncsu.edu/garson/pa765/statnote.htm http://www.stat.berkeley.edu/users/stark/SticiGui/Text/index.htm http://www.itl.nist.gov/div898/handbook/index.htm http://www.sportci.org/resource/stats/index.html http://www.psychstat.missouristate.edu/sbk00.htm

ATENEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	QMT 128
Course Title	Advanced Operations Research
No. of Units	3 units

Course Description:

Advance Operations Research is the continuation of Intermediate Operations Research (QMT 127) focusing on standard Operations Research Models other than Linear Programming models and their extensions. QMT 128 will cover Network Optimization, Dynamic Programming, Inventory, and Queuing models.

Course Objective/s:

1. To introduce standard Operations Research models and their applications.
2. To further develop students' analytical and problem solving skills.

Course Outline

1. Network Models <ol style="list-style-type: none"> a. Basic Definition b. Minimum Spanning Tree c. Shortest-Path Problems d. Maximum-Flow Problems e. PERT-CPM
2. Dynamic Programming <ol style="list-style-type: none"> a. Deterministic DP b. Formulating Dynamic Programming Recursions c. Probabilistic DP
3. Inventory Models <ol style="list-style-type: none"> a. Introduction to Basic Inventory Model b. The Basic EOQ Model c. The Continuous Rate EOQ Model d. Quantity Discounts e. The EOQ Models with Back Orders f. Single-Period Decision Models g. Discrete Demand Models h. Continuous Demand Models i. The EOQ with Uncertain Demand: The (r, q) and (s, S) model j. Other EOQ Models
4. Queuing Theory <ol style="list-style-type: none"> a. Queuing Terminologies b. Modelling Arrival and Service Processes c. Birth-Death Processes

- d. The M/M/1 Model
- e. The M/M/s Model
- f. The M/M/1/k Model, M/M/s/k Model
- g. Finite Source Models

References (optional):

Textbook:

H. Taha, *Operations Research: An Introduction*, 8th Edition, Prentice-Hall, Upper Saddle River, N.J., 2007.

Additional References:

F. Hillier and G. Lieberman, *Introduction to Operations Research*, 7th Edition, McGraw Hill, New York, 2005.

R. Rardin, *Optimization in Operations Research*, Prentice-Hall International, 1998.

W. Winston, *Operations Research Applications and Algorithms*, 4th Edition, Brooks/Cole, Toronto, 2004.

ATENEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

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Course No.	ITM 116/MIS 151
Course Title	Information Technology Management
No. of Units	3 units

Course Description:

This course aims to provide an advanced discussion of information systems planning, development and deployment in business organizations. It touches on the relevant and important management issues affecting the Information Technology function. It is intended as the capstone course for BS MIS students and will therefore provide opportunities for integration and application of the other MIS courses.

Course Objective/s:

The most important objective of this subject is to show to the student the impact of introducing technology in an organization. At the end of this course, the student should be able to

1. Discuss the importance of the strategic role of Information Technology and analyze the impact of Information Systems on an organization.
2. Plan, design and evaluate a IS plan and a Change Management Plan for an organization
3. Assess and address the issues that arise during the introduction of a new technology vis-à-vis different organizational components.

Course Outline

IT Strategy

- The Importance of Managing Technology
- Strategic Role of IT and its Impact on the Organization
- IS Planning
- The Economics of IT
- Change Management

IT Organization

- The CIO
- Staffing and Governance

IT Solution Sets

- Business Process Management
- Customer Relationship Management
- Enterprise Resource Planning
- Knowledge Management
- E-Commerce

References (optional):

A. REQUIRED READING

- Harvard Business Case Readings to be given in Class

B. SUGGESTED READINGS

- Turban, McLean, & Wetherbee. (2008). Information Technology for Management: Transforming Organizations in the Digital Economy, 6th ed. England.
- White, M., & Bruton, G. (2007). The Management of technology and Innovation: A Strategic Approach. Canada: Thompson.
- McNurlin, B., & Sprague, R. (2006). Information Systems Management in Practice, 7th ed. USA: Pearson.

ATENEEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	QMT 129
Course Title	Operations Research Modeling Applications
No. of Units	3 units

Course Description:

The art of modeling is at the core of Operations Research (OR). Aspects of modeling include problem formulation, solution, sensitivity analysis, and use of modeling heuristics. Modeling puts many of the specific analytic tools learned in the first two semesters of OR to use.

The course is roughly divided into three parts. The first part consists in the study of additional prototype models and an introduction to heuristic approaches to problem solving. The second consists in a study of model formulation through a discussion of selected papers from OR journals. The third involves the formulation and solution of real-life problems in business and industry.

Course Objective/s:

1. To develop basic operations research modeling skills.
2. To sharpen analytic and problem solving skills.

Course Outline

1. Monte-Carlo Simulation
 - 1.1 Sampling from discrete distributions
 - 1.2 Sampling from continuous distributions
 - 1.3 Simulation modeling
2. Graph Theory Techniques
 - 2.1 Euler tours
 - 2.2 Chinese Postman Problem
 - 2.3 Hamilton cycles
3. Heuristic Problem Solving
 - 3.1 Traveling Salesman Problem (TSP)
 - 3.2 Vehicle Routing Problem (VRP)
4. Markov Analysis
 - 4.1 Markov chains
 - 4.2 Markov decision processes
5. Nonlinear Programming

- 5.1 Convex and concave functions
- 5.2 Necessary conditions for optimality for special types of NLPs
- 5.3 Gradient search procedure for unconstrained optimization
- 5.4 Lagrangean function
- 5.5 Karush-Kuhn-Tucker (KKT) conditions for constrained optimization

6. Computational Complexity

- 6.1 Decision problem vs. optimization problem
- 6.2 Order of magnitude and big O notation
- 6.3 Algorithm complexity and problem complexity
- 6.4 P, NP, NP-hard, NP-complete
- 6.5 Selected NP-complete problems and proof of complexity

References (optional):

Simulation, Markov Analysis, Nonlinear Programming

F. Hillier and G. Lieberman, *Introduction to Operations Research*, 7th Edition, McGraw Hill, New York, 2005.

H. Taha, *Operations Research: An Introduction*, 7th Edition, Prentice-Hall, Upper Saddle River, N.J., 2003.

W. Winston, *Operations Research Applications and Algorithms*, 4th Edition, Brooks/Cole, Toronto, 2004.

Graph Theory

M. Aigner and G.M. Ziegler, *Proofs from the Book*, Springer, Berlin 2001

J.A. Bondy and U.S. R Murty, *Graph Theory* (GTM 244), Springer, Berlin, 2008.

J. Clark and D.A. Holton, *A First Look at Graph Theory*, World Scientific, Singapore, 1991.

J. O'Rourke, *Art Gallery Theorems and Algorithms*, Oxford University Press 1987.

D. West, *Introduction to Graph Theory*, 2nd Edition, Prentice Hall, Upper Saddle River, N.J., 2001.

Heuristics

J. Bartheoldi, R. Collins et.al., A minimal technology routing system for Meals on Wheels, *Interfaces*, 13 (3) 1-8.

H. Daellenbach, J. George, D. McNickle, *Introduction to Operations Research Techniques* (2nd Ed.), Allyn and Bacon, 1983.

L.R. Foulds, *Combinatorial Optimization for Undergraduates*, Springer-Verlag, New York, 1984.

Computational Complexity

Garey & Johnson, *Computers and Intractability: A Guide to the Theory of NP-Completeness*, Bell Telephone Laboratories, Inc. 1979

G. Parker and R. Rardin, *Discrete Optimization*, Academic Press, 1988

H. Wilf, *Algorithms and Complexity*, 1994

ATENEIO DE MANILA UNIVERSITY
Loyola Schools
Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	POM 105
Course Title	Intermediate Production / Operations Management
No. of Units	3 units

Course Description:

Local business organizations are confronted with increasing global competition. To face up to these challenges, managers and decision makers need to fully understand the role of the operations function and its impact on competitiveness. Students will learn how enterprises can organize and manage resources (manpower, technology, facilities, and materials) efficiently to create and deliver products and/or services that respond effectively to customer requirements and expectations. The course covers concepts, procedures, and technologies used in designing and managing operational processes in both manufacturing and service-oriented organizations, with emphasis on informed decisionmaking and the use of analytical tools.

Course Objective/s:

- At the end of the course, students are expected:
1. To grasp the challenges and constraints confronting Philippine companies competing in a global business environment
 2. To fully appreciate the role and contribution of Operations Management in achieving organizational competitiveness
 3. To understand and apply systematic approaches (both quantitative and qualitative) in the design and implementation of operating systems

Course Outline

I. Introduction to Operations and Competitiveness

- A. The Competitiveness Challenge
- B. Operations as a Tool for Competitiveness

II. Business Strategy and Operations

- A. Competitive Strategy
- B. Operations Strategy
- C. Balanced Scorecard (BSC)

III. Business Process Management

- A. Operations as Business Process
- B. Process Reengineering
- C. Technology and Innovation

IV. Products and Services Development

- A. Quality Function Deployment (QFD)
- B. Kano model
- C. Service Blueprinting

V. Quality Management

- A. The Philosophy of Quality
- B. Introduction to Statistical Process Control / “Six Sigma”
- C. Lean Operations

EXAM 1 VI. Demand Forecasting

- A. Introduction: The Need for Accurate Demand Forecasting
- B. Quantitative Forecasting Techniques
- C. Measuring Forecast Accuracy
- D. Qualitative Forecasting Methods

VII. Capacity Management

- A. Defining and Measuring Capacity
- B. Right-sizing Decisions
- C. Theory of Constraints

VIII. Facilities Planning

- A. Location Analysis and Site Selection
- B. Facility Layout
- C. Workplace Design

IX. Human Resources in Operations Management

- A. Job Design
- B. Ergonomics

EXAM 2

X. Supply Chain Management

- A. Managing Suppliers

- B. Materials Management
- C. Distribution and Logistics Management

XI. Planning and Coordination

- A. Aggregate Planning
- B. Materials Resource Planning (MRP)
- C. Enterprise Resource Planning (ERP)

EXAM 3

References (optional):

Required Reading

Operations Management: Contemporary Concepts and Cases by
Roger Schroeder, Susan Goldstein and M. Johnny Rungtusanatham,
5th ed., 2011

Supplementary Readings

Operations Strategy: Competing in the 21st Century by Sarah Beckman and Donald Rosenfield,
2008.

Operations Management by Jay Heizer and Barry Render, 9th ed., 2008

Operations Management by William Stevenson, 9th ed., 2007

Operations Management for Competitive Advantage by Richard
Chase, F. Robert Jacobs, and Nicholas Aquilano, 11th ed., 2006

ATENEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

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Course No.	DEC 100
Course Title	Decision Analysis
No. of Units	3 units

Course Description:

A study of real world decision-making, combining quantitative and qualitative approaches. Decision making is viewed not solely as a rational, unambiguous process, but as filled with uncertainty, assumptions, perceptions, and personal interests. By working with real-world problems, students may gain understanding not only of the rational processes involved in decision-making but also non-rational human approaches to problem solving.

The course looks into the dynamics of decision making, taking into account formal approaches involving both qualitative methods and quantitative methods. The course will focus on understanding how decision-makers identify and define problems, assemble and process information, generate and choose alternative solutions, and implement the selected course(s) of action. Topics to be covered include: critical thinking and problem solving, creativity, decisions under risk/uncertainty, multi-attribute/multi-objective decisions, and group decision making processes.

Course Objective/s:

At the end of the course, students are expected to be able to:

- Understand how individuals make decisions
- Develop/enhance personal skills in problem solving and decision making
- Understand and participate more effectively in group decision making processes

Course Outline

Week	Topic	Discussion Points
<i>Module 1</i>		
1	Introduction Course Requirements / Overview	Improving Decision Making Effectiveness
2-3	Decision Making Approaches	Limits to Rationality Pitfalls and Fallacies Critical Thinking Logic and Reason Intuition and Emotion
4-5	Creativity in Decision Making	The Creative Process Barriers to Creativity and Overcoming Them Tools to Improve Creativity

<i>Module 2</i>		
6	Structured Problem Solving	Structure of Decisions Problem Definition Selection Criteria Generating Alternatives Making Choices
7	Analyzing Decisions	The Analytic Process Using Everyday Statistics Using Tools to Improve Analysis
<i>Module 3</i>		
8	Complexity in Decision Making	Risk Management Dealing with Multiple Objectives
9	Implementing Decisions	Working with Groups Communicating Decisions
<i>Module 4</i>		
10	Strategic Decisions	
Finals		
11+	Buffer week(s)	

ATENEIO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	DEC 140
Course Title	SEMINAR ON CORPORATE MODELS AND DECISION SUPPORT SYSTEMS (with SYSTEMS DYNAMICS)
No. of Units	3 units

Course Description & Course Objective/s:

This course serves as an integrative course for students majoring in the Management programs. The course will enable the students to build computer models of business and financial systems, and simulate them using add-in tools like @RISK and EVOLVER and @RISKOPTIMIZER. The models will be built primarily using EXCEL spreadsheets. The (first) second part of the course will deal primarily with building models using systems dynamics, a technique popularized by Prof. Jay Forrester of the Massachusetts Institute of Technology. Systems dynamics allows the modeler to build more realistic models of business, financial and social environments using object modeling, and incorporating feedback systems into the model. The I-THINK and/or STELLA software will be used to build these dynamic models, which outputs to EXCEL for further risk simulation.

Course Outline

COURSE OUTLINE

I. What are Corporate Models/Simulation

- Actual applications of simulation
- What's ahead?
- Simulation models vs. analytic models

II. Systems Dynamics

- Not everything is linear, modeling dynamics
- Building blocks (Stocks, flows, rates, conveyors, connectors)
- Feedback systems (negative and positive feedback)
- Population models (birth and death processes)
- Hiring and firing model (a problem of HR)
- Inventory models (the MIT Beer game)
- Modeling the product life cycle
- A simple urban planning model
- Forrester's World dynamics model

III. Using spreadsheets to perform simulations

- Finding a confidence interval for expected profit
- How many trials do we need?
- Determination of optimal order quantity
- Performing the newsvendor problem using simulation

IV. An Introduction to @Risk

- Simulating the newsvendor problem using @Risk
- Explanation of statistical results
- Conclusions

V. Application of simulation to corporate financial planning

- Using triangular distribution to model sales
- Sensitivity analysis with Tornado graphs
- Sensitivity analysis with scenario planning
- Alternative modeling strategies
- Simulating a Cash Budget
- Modeling market share
- Is advertising worthwhile
- To coupon or not to coupon (promotions?)
- Decision support systems

ATENEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
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Course No.	ITM 110
Course Title	INFORMATION ENGINEERING
No. of Units	3 units

Course Description:

This course in Information Engineering aims to discuss the information-enabling of an enterprise. This is attained by covering four key areas, namely: 1) General Systems Concepts, 2) Business Management Systems, 3) Information Technology Systems and 4) Information Engineering Methodology. A central theme that guides this course is that a match or fit among the four areas must be attained to define successful computing intervention.

As a framework of course delivery, this course will adopt the O'Brien Five Area Information Systems Framework. Modules Foundation Concepts and Business Applications will be considered in Topics No I and II. Topic III will cover Module Information Technologies and Development Processes. Topic IV will cover Information Engineering Methodology. In addition, the OBrien Framework could be reduced into the following IS Triad = Mgmt + Technology + Software Solutions. Mgmt handles Modules 1, 4, and 5. Technology covers Module 2 while Software Solutions covers Modules 3.

Course Objective/s:

- At the end of this course, the students can expect to have
1. Familiarity with different types of business applications
 2. An understanding of Systems Analysis and Design
 3. Appreciation of various Information Technology Systems

Course Outline

Topics		References
I	Foundation Concepts	Chp 1,2
	1 Course Introduction: The O'Brien Framework	
	2 Information Systems in Business	
	3 The Components of Info Systems	
	4 Competing with Info Systems	
	5 Info Systems for Strategic Advantage	
II	Business Management Systems	Chp 7, 8,9,10
	1 Sales and Marketing Systems	
	2 Manufacturing and Production Systems	
	3 Finance and Accounting Systems	
	4 Human Resources Systems	
	5 Customer Relationship Management	
	6 Supply Chain Management	
	7 Enterprise Resource Planning	

	8	Decision Support Systems	
	9	Databases, Data Warehousing and Data Mining	
	10	Knowledge Management, Document Management	
	11	Artificial Intelligence	
	12	Multimedia Systems	
		First Long Test	
III		Information Technology Systems	Chp 3,4,5,6
	1	Computer Hardware	
	2	Computer Software	
	3	Data Resource Mgmt	
	4	Telecommunications Network	
		Second Long Test	
IV		Information Engineering Methodology	Chp 11-14
	1	Overview of Information Engineering	Finklestein
	2	Stages of Information Engineering	
	3	Data Modeling	
	4	Cases	
	5	Management - ITIL	
V		Course Wrap Up	
		Third Long Test	
		Panel Defense	

References (optional):

Primary References

- 1 O'Brien, James. Management Information Systems; 8th Edition. McGraw-Hill, 2008
- 2 Laudon, Kenneth, and Laudon, Jane. Management Information Systems; 8th edition. Prentice Hall, 2004

Additional References

- 1 Finklestein, Clive. Information Engineering: Strategic Systems Development. Addison-Wesley, 1992
- 2 Oz, Effy. Management Information Systems. Course Technology, 2nd Edition, 2000
- 3 McLeod, Raymond, Jr. Management Information Systems

ATENEIO DE MANILA UNIVERSITY
Loyola Schools
Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
------------	---	--------	-------------------------------------

Course No.	ITM 189
Course Title	Seminar of Information Technology Trends
No. of Units	3 units

Course Description:

This course serves as the capstone course for students majoring in the Management programs with an IT minor. It presents IT current trends, developments and innovations while also discussing key IT concerns at an advanced and integrated level. Students will be required to make technology assessment of current technology products and will be required to present these in class.

Course Objective/s:

Development of a technology business plan will also be required. This will train the students in writing and presenting business plans where technology plays a vital role in the business.

Course Outline

References will be a series of papers, audio and video pod-casts, and webinars which will form part of the content of this course. These materials can be found in the following websites:

Tech Republic/ZDNET Website:

<http://www.techrepublic.com.com> and www.zdnet.com

CNET Website: <http://www.cnet.com>

This Week in TECH: <http://www.twit.tv/>

Tech Crunch: www.techcrunch.com

Revision 3: www.revision3.com

Majority of all reading assignments and audio/video materials in this course will come from these websites. To manage these materials, this class will use the class Yahoo Groups as a course management system to distribute the materials, power point presentations that will be taken up in class. The yahoo group system will also be used for the detailed week-by-week outline of this course.

ATENEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
------------	---	--------	-------------------------------------

Course No.	POM 199.4
Course Title	Managing Project Teams
No. of Units	3 units

Course Description:

Learning how to build and sustain an environment in which people, teams, and projects flourish is the focus of this course. To deliver project results successfully, people management competencies, more than technical and process know-how, are crucial. This course aims to build in the student these competencies, as needed along the various stages of the project life cycle, and seen as vital in making them truly successful project managers. Moreover, project managers must be able to do more than manage, organize, and control. They must be able to lead the project team and its stakeholders through change. The student will have the opportunity in this course to assess his/her level of managerial skills and his/her leadership profile, participate in case discussions, and gain insights and skills from exercises as he/she is taken through the topics of building teams, team communications, problem solving and decision making, negotiating, change and conflict management, and leading projects in the context of corporate culture.

A special topic on the study of diverse cultures is covered to promote understanding of cross-cultural teams in global projects and in multi-national organizations.

Course Objective/s:

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

- Understand the underlying concepts of what a team is, why change plays an important role in team existence, and how teamwork is applied to manage change;
- Learn and apply the techniques in managing and developing a team using different leadership models, theories and behaviors;
- Learn about their own unique capabilities, preferences, and strengths;
- Learn what are the considerations in organizing work according to the strengths of team members;
- Appreciate the impact of positive emotions on productivity, creativity, communication, and teamwork
- Learn effective ways to manage communication and conflict to maintain team effectiveness;
- Adopt negotiation techniques
- Learn effective problem solving and decision making approaches
- Know how to manage and lead in the different stages of team formation and how to establish team synergy;
- Understand conditions that lead to high levels of employee engagement, motivation, and

productivity;

- Learn to lead teams within corporate and global cultures and to recognize unwritten ground rules

Course Outline

Topics

Day 1	<ul style="list-style-type: none">- Course Overview- Administrative Matters- Review of relevant PM concepts<ul style="list-style-type: none">* PM Organizations* PM Project Life Cycle
Day 2 & 3	<p>Managing Teams: Overview</p> <ul style="list-style-type: none">- Self-Assessment: Attitude Towards Teams- Teams in the Workplace- Building Effective Teams/Stages of Group Development- Dealing with Problem Team Members- Running Team Meetings- Self-Managing Teams- Using Special-Purpose Group Techniques- Case or Exercise; Skills Practice
Day 4 Differences	<p>Know Yourself, Know Others: Understanding and Valuing</p> <ul style="list-style-type: none">-Self-Assessment: Attitudes Towards Diversity- MBTI Administration- Emotional Intelligence: Self-Assessment- Personality Theories- Important Personality Dimensions-Attitudes- Case and/or Exercise; Skills Practice
Day 5	<p>Communicating Effectively</p> <ul style="list-style-type: none">- Self-Assessment: Your Personal Communication Style- Functions of Communication and the Communication Process- Communication Channels- Communication Networks- Understanding and Overcoming Communication Barriers- Mastering Active Listening- Using and Reading Non-verbal Communication

- Electronic Communication
- Case and/or Exercise; Skills Practice

Day 7/8

Problem Solving and Decision Making

- Self-Assessment: Attitudes Toward Problem Solving
- The Problem Solving Process
- The PDCA Cycle
- Influences on Problem Solving
- Creativity in the Organization
- Negotiating and Bargaining
- Negotiation Exercise

Day 9

Managing Conflict

- Self-Assessment: Attitudes Toward Managing Conflict
- Conflict Premises
- Causes of Conflict
- Approaches to Conflict Resolution
- Case and/or Exercise; Skills Practice

Day 10/11

Managing Change

- Self-Assessment: Attitudes Toward Managing Change
- Planned versus Reactive Change
- The Change Process
- Targets of Change
- Overcoming Resistance to Change
- Managing Difficult Transitions
- Organization Development
- Case and/or Exercise; Skills Practice

Day 12

The Project Manager as Leader

- Self-Assessment: Attitudes Toward Leadership
- Self-Assessment: Thinking About Yourself as a Leader
- Emerging Perspectives on Leadership
- Key Leader Behaviors and Skills
- Path-Goal Theory of Leadership
- Transformational Leadership
- Case and/or Exercise; Skills Practice

Day 13

The Project Manager as Coach

- Coaching as a Leadership Philosophy
- The Coaching Steps
- Coaching Skills Practice Exercise

Day 14 Managing Global Teams (Resource Speaker)

Day 15 Project Presentations

References (optional):

Ramon J. Aldag and Loren W. Kuzuhara (2005). *Mastering Management Skills*. Thomson-South Western.

Harold Kerzner, PhD (2006). *Project Management A Systems Approach to Planning, Scheduling, and Controlling*. Ninth Edition. John Wiley & Sons, Inc., New Jersey.

Clifford F. Gray and Erik W. Larson (2006). *Project Management The Managerial Process*, McGraw-Hill, New York.

ATENEIO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
------------	---	--------	-------------------------------------

Course No.	POM 199.5
Course Title	STRATEGIC PROJECT MANAGEMENT
No. of Units	3 units

Course Description:

In This Course You Will Learn How To

- Develop and use a Strategic Design and Management Framework that starts with situation and stakeholder analysis, incorporates change management, and ends with critical evaluation of project results
- Initiate and sustain key stakeholder participation
- Gather, analyze, and incorporate project stakeholders' needs
- Transform stakeholders' needs into project objectives
- Identify strategic alternatives for achieving project objectives
- Determine business benefits and feasibility of alternatives
- Transform chosen alternatives into a project design specifying project results and their strategic impacts
- Align projects with organizational strategy
- Ensure commitment of key stakeholders to ensure project success
- Manage and report on project progress using the Strategic Design and Management Framework
- Manage the required change process in the organization
- Evaluate project results, including longer term impact
- Become a strategic project manager

Course Objective/s:

The objective of this course is to make the project management process more complete and strategic by *extending the design and management framework* to include (i) *early on*, the preparatory steps leading to hard decisions on project design, and (ii) *beyond immediate project outputs*, the project's medium-to-long term results and sustainability. Essential in this extended design and management process are: (a) active participation of key project stakeholders throughout the process; (b) measurable project performance targets; and (c) explicit consideration of assumptions and risks.

Course Outline

Strategic Project Design and Management Framework

- Preparing the Framework
 - Situation Analysis
 - Stakeholder Analysis
 - Problem Analysis
 - Solution Development
 - Objectives Analysis
 - Alternatives Analysis
 - Assessing Viability
 - Navigating Organizational Structures
 - Project Identification
 - Setting the Framework
 - Design Summary
 - Performance Targets and Indicators
 - Data Sources and Reporting Mechanisms
 - Assumptions and Risks
 - Process of Completing the DMF

Managing Project Change

- Implementing change management
 - Identifying sources of change
 - Crafting a change management process

Putting It All Together

- Becoming a strategic project manager
- Championing professionalism and ethics
- Closing and evaluating the project

ATENEEO DE MANILA UNIVERSITY
Loyola Schools
Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
------------	---	--------	-------------------------------------

Course No.	POM 150
Course Title	Introduction to Six-Sigma for Process Improvement
No. of Units	3 units

Course Description:

Six Sigma is a Quality and Process Improvement methodology designed to reduce product or service failure rates to a minimum. Six Sigma leads business culture and requires a nearly flawless execution of business processes making it a high standard for companies to achieve. The Six Sigma process encompasses all aspects of a business, from management, production, service delivery to customer satisfaction.

Course Objective/s:

By the end of the semester, the student should be able to understand the Six Sigma methodology and its applications. This course may also serve as initial preparation for a Six Sigma certification.

Course Outline

- I. Introduction to Six Sigma
 - a. Definition and History
 - b. Levels of Six Sigma
 - c. Business Applications and Current Trends
- II. DMAIC Overview
- III. Project Management, Documentation and Presentations

Chapters 1,2,11

- IV. Phase 1: Define
 - a. Project Charter
 - b. Voice of Customer

Chapter 12

- V. Phase 2: Measure
 - a. Data Definition
 - b. Data Collection Process
 - c. Data Analysis

- i. Patterns Related to Time (Run Plots and SPC)
- ii. Patterns Not Related to Time (Histograms/ Multi-Variation Charts/ Pareto)
- iii. Use of Minitab
- d. Process Sigma and Analysis

Chapter 13

Mini- Project: Paper Helicopters (I)
Midterm Test

- VI. Phase 3: Analyze
 - a. Identification of Potential Causes
 - b. Verification of Potential Causes

Chapter 14

- VII. Phase 4: Improve
 - a. Generation and Selection of Solutions
 - b. Planning and Implementing Solutions
 - c. Evaluating Results

Chapter 15

Mini- Project: Paper Helicopters (II)

- VIII. Phase 5: Control
 - a. Methods and Training
 - b. Monitoring and Control
 - c. Communication and Future Plans

Chapter 16

Finals Test
Major Project and Presentation: Six Sigma Implementation for a Company

References (optional):

Required Reading

The Six Sigma Black Belt Handbook by Thomas McCarty, Lorraine Daniels, Michael Bremer and Praveen Gupta, 2005

Supplementary Reading

Six Sigma Quality Improvement with MINITAB by Robin Henderson, 2006

ATENEEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
------------	---	--------	-------------------------------------

Course No.	QMT 120
Course Title	Basic Operations Research
No. of Units	3 units

Course Description:

This course aims to develop in the student of any course an appreciation of Operations Research and its benefits. The student is expected to recognize situations in which Operations Research is useful. The student will be exposed to the more commonly used models/techniques to serve as a guideline in the application of OR in actual practice.

Course Outline

<p>Course Outline</p> <p>Topic</p> <p>Long Test</p> <p>1. Introduction to Operations Research</p> <p> A. Definition and History</p> <p> B. The OR Process</p> <p> C. Introduction to Mathematical Programming</p> <p>2. Linear Programming Basics</p> <p> A. Introduction</p> <p> B. Standard Linear Programs</p> <p> C. Linear Programming Formulation</p> <p> D. Goal Programming</p> <p> E. Graphical Solution</p> <p>LT 1</p> <p>3. Linear Programming: The Simplex Method</p> <p> A. Introduction to Basic Linear Algebra (Matrices and EROs)</p> <p> B. The Simplex Method (Dictionary and Tableau Form)</p> <p> C. Duality Theory</p> <p> D. Sensitivity Analysis (Parametric Programming)</p> <p> E. Computer Software (MS Excel Solver Plug-in)</p> <p>LT 2</p> <p>4. Network Models</p> <p> A. Networks</p>

- a. Minimum Spanning Tree
- b. Shortest Path
- c. Project Evaluation and Review Technique and the Critical Path Method

B. Transportation and Assignment Models

LT 3

- 5. Queueing Theory (Waiting Lines)
 - A. Definitions and Terminologies
 - B. The M/M/1 and M/M/s model
 - C. The M/M/1/k and M/M/s/k model
 - D. The Self-Service Model
- 6. Other Topics (Depending on Time)

LT 4

References (optional):

Main Reference:

Operations Research: An Introduction, Taha, Hamdy A.; Upper Saddle River, N.J. . Prentice-Hall International. c1997

References:

1. *Introduction to Operations Research*, Hillier, Frederick S.; Lieberman, Gerald J. New York. McGraw-Hill. 1995
2. *A First Course in Linear Programming*, Ruiz, Mari-Jo P. Ateneo de Manila University. 1989.
3. *Operations Research: Applications and Algorithms*, Winston, Wayne L.; Boston. PWS-Kent. c1991

ATENEO DE MANILA UNIVERSITY
Loyola Schools
Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
------------	---	--------	-------------------------------------

Course No.	POM 125
Course Title	Business Process Re-Engineering
No. of Units	3 units

Course Description:

In order for companies to gain a competitive advantage in today's fast changing business environment, they have to be "agile." An "agile" company should be able to quickly adopt its internal processes to respond to any external threats, opportunities or demands by the customer. More and more companies are realizing that by effectively managing their business process with the use of appropriate technology is one of the ways they can become "agile."

"Business Process Management therefore involves the practice of improving the efficiency and effectiveness of organizations by focusing on and automating business processes, thereby creating agile processes to consistently achieve competitive advantage."¹

The course is the management dimension to the Enterprise Systems specialization offered by the Department of Information Systems and Computer Science. Taken by third year Management Information Systems students and Computer Science students with a basic background in I.T. and management, the course discusses the frameworks, approaches, methods and software for achieving and maintaining business process excellence with or without the use of an information system. It will also expose the students to SAP Business One, an enterprise system software being used by small to medium scale companies.


Course Objective/s:

After this course, the student should ...

- Identify the core business processes of a firm, and assess the role that these play in business value creation
- Recognize that technology in itself does not drive, but rather supports and enables, an effective and efficient business process. As such, they should be able to propose an I.T. solution that is appropriate to the current situation of the business.
- Identify and discuss the basic concepts and issues of Business Process Management
- Identify and use the methodology, tools (whether IT-based or not) and techniques used for business process analysis.
- Design and recommend a business process improvement plan for an identified organization
- Be able to use the basic features of SAP Business One on one major business process.

¹ <http://www.muse.widener.edu/~yantonic/courses/BPI600/bpi600gen.html>

Course Outline

Topic	
<p>Business Fundamentals & The Necessity for Process Management and Improvement</p> <ul style="list-style-type: none"> • Businesses and Value Creation • Business Models • Business Metrics • Emergence of the Bureaucracy • 3Cs – Customer, Competition, Change 	
<p>An Overview of Business Process Management</p> <ul style="list-style-type: none"> • The Basics (Who, What, Why and How) of BPM • The BPM Life Cycle² • The BPM Maturity Model 	
<p>BPM: Design & Modeling</p> <ul style="list-style-type: none"> • Understanding Processes • Representing Processes and Creating Business Process Blueprints <ul style="list-style-type: none"> ○ Learning about BPMN ○ Using Savvion 	
<p>BPM: Execution</p> <ul style="list-style-type: none"> • A Technology Survey (e.g. Workflows, ERP, SCM, CRM, etc.) 	
Midterm Exam	
<p>BPM: Monitoring & Optimization</p> <ul style="list-style-type: none"> • Statistical and Analytical Tools for Process Monitoring (<i>such as the Time in Motion, Pareto Chart, Opportunity Flow Diagram, Fishbone Diagram, Statistical Process Control Charts and FMEA</i>) • Process Improvement Techniques and Approaches, An Overview <ul style="list-style-type: none"> ▪ Business Process Reengineering, Total Quality Management, Benchmarking and Six Sigma • Process Improvement Guidelines – based on Hammer’s article “Obliterate, Don’t Automate” 	
<p>An Overview of Change Management</p>	
<p>Using SAP Business One (if time permits)</p>	
Final Exam	

References (optional):

² http://en.wikipedia.org/wiki/Business_process_management

This is meant to provide an overview of the readings applicable to the course. Additional references may be used, as appropriate. You are not expected to read all cited references; the instructor will share those that are required. Readings, cases, assignment questionnaires and miscellaneous articles not distributed in class can be found in either the class website/Moodle or will be given in class.

References
Harmon, P. <i>Business Process Change: A Manager's Guide to Improving, Redesigning, and Automating Processes</i> . Morgan Kaufmann Publishers, 2003.
Zeleny, Milan, ed. <i>The IEEM Handbook of Information Technology in Business</i> . Thomson Learning, 2000.
Pearlson, Keri. <i>Managing and Using Information Systems: A Strategic Approach</i> . John Wiley & Sons, 2001.
Russell, Roberta and Taylor III, Bernard. <i>Operations Management, 4th edition</i> . Prentice Hall, 2003.
Davenport, Thomas. <i>Process Innovation</i> . Harvard Business School Press, 1993.
Hammer, M. H. and Champy, J. <i>Reengineering the Corporation: A Manifesto for Business Revolution</i> . Harper Business, 2001.
Thompson, A., and A. Strickland. <i>Strategic Management: Concepts and Cases</i> . McGraw Hill, 2003.

ATENEEO DE MANILA UNIVERSITY
 Loyola Schools
 Generic Course Syllabus for 2nd Semester, School Year 2012-2013

Department	Quantitative Methods and Information Technology	School	John Gokongwei School of Management
------------	---	--------	-------------------------------------

Course No.	ITM 124
Course Title	Information Technology and Business Strategy
No. of Units	3 units

Course Description:

- A generation ago computers were first introduced into businesses and organizations to automate clerical functions and routine transactions. Today, information and communications technology (ICT) is an integral part of organizations and forms the backbone for every managerial function of the modern organization. Whether it be integrated ERP systems for operational control, improving customer relationship management using data mining, launching a comprehensive Web-based human resource management system, or executing financial transactions in electronic markets, modern information systems (IS) are the life blood of the organization – linking all the different functions together in an integrated way and getting information to decision makers at the right time and in the right format. Indeed, nearly half of all new capital investment in U.S. businesses today is for information technology and systems. The Internet, cloud, and mobile computing have also made strategic impacts on businesses.
- Innovative usage of information technology has allowed certain industry players to enter, create, or restructure entire industries. Successfully competing in the information economy requires an understanding of how ICT relates to the overall business strategy of the firm. This course examines how ICT can be used for strategic gain, the evolution companies must take toward becoming e-businesses, new business models that can be developed using ICT, and the importance of alignment the IS strategy with the overall business strategy.
- Business in the term “business strategy” in this course refers to both for-profit organizations and development or non-profit organizations.
- This course is a combination of lectures, seminar-type talks by guest speakers, and a high degree of case analysis and discussion. Students will be expected to analyze the critical issues in a series of management cases, including a final strategy formulation project, and be prepared to discuss their analyses and recommendations in class.

Course Objective/s:

- The objectives of the course are:
- to examine different strategy models, the external competitive environment, and technology directions and how they might impact strategy;
 - to provide the student with a broad understanding of the management and use of ICT as it relates to business and organization strategy and success;
 - to critically understand how strategies may be shaped by ICT and how the ICT strategy may even be the organization’s strategy; and
 - to identify emerging issues.

Course Outline

- I. Understanding IT. (1 session)
 - IT vs. IS
 - History of IT
 - Discussion: Moore's Law and Role of IT in a Firm.
- II. IT and Competitive Advantage (3 sessions)
 - Porter's Value Chain
 - Porter's 5 Forces Model
 - Robert and Racine's Driving Forces
 - Discussion: "IT Does Not Matter" (Nicholas Carr)
 - Discussion: Case on Competitive Advantage (Zara or Netflix)
- III. Business Processes, ERP, and IT (3 sessions)
 - Business Processes
 - Enterprise Resource Planning Systems (Short Demo)
 - Business Process Management/Reengineering
 - Workshop: Draw up a business process.
- IV. Decision-making and IT (1 session)
 - Business Intelligence/Analytics
 - Data Warehousing
 - Data Mining
- V. Electronic Business (1 session)
 - E-commerce Overview
 - Research Findings on Internet Use (USA)
 - Marketing Online
 - Discussion on Philippine Scenario
- VI. Customer Relationship Management (1 session)
 - Demo
- VII. Technology Trends (2 sessions)
Guest Speakers:
 - Cloud Computing
 - Web 2.0
 - Mobile
- VIII. Creating a Technology Strategy (2 sessions)
 - The Strategic Planning Process
 - Developing an IT Strategy
 - Case Discussion
- IX. Project Presentations (1-2 sessions)

References (optional):

1. Case and Article Readings to be given in Class
2. Management Information Systems (5th Ed.) – James A. O'Brien
3. e-Strategy Pure and Simple – Michael Robert and Bernard Racine