PROGRAM: MBA CONCENTRATION IN QUALITY

Course	**Course ID**
Total Quality Management	II 510

Academic Program Division
Concentration in Quality

Course Description
Throughout the course, students will engage the different concepts and principles of quality management with the purpose of generating a theoretical framework of a total quality management model and be in a position to propose management guidelines in manufacturing and service organizations. The course ranges from quality management processes that begin with needs assessment of customers to service delivery. In addition, it deals with the use and application of models used is such processes. Students learn through a combination of assigned reading, class participation, case studies, and other individual and group activities. Students will also work in a team environment. They will exercise their verbal, written and graphic communication skills to discuss and present information related to the concepts under study.

General learning outcomes
After completing this course, students will: • Understand the different elements, systems, programs and techniques that are integrated in a total quality management program as a strategy to accomplish productivity and competitiveness in manufacturing and service organizations. • Identify the characteristics that customers desire in products using the appropriate methodology and will evaluate the viability of establishing such characteristics from an

organizational competence perspective.

- Design a total quality management model for an organization.

Course Content:	**Hours**
1. Introduction to Quality Systems	4
1.1 Quality Background.	
1.2 Basic Concepts.	
1.3 Quality Planning, Control and Improvement.	
1.4 Quality, Productivity and Competitive Advantage.	
2. Quality Evaluation in Organizations	4
2.1 The Importance of Evaluation.	
2.2 Quality Costs.	
2.3 Market Position	
2.4 Quality and Organizational Culture	
3. Customer Needs Assessment.	8
3.1 Customer Identification.	
3.2 Determining Customer Needs.	
3.3 Quality Information Sources.	
4. Total Quality Management.	
4.1 Introduction.	20
4.2 Elements and Principles of Total Quality.	
4.3 Leadership: The Role of Management.	
4.4 Strategic Planning.	
4.5 Resource, Process, and Information Management.	
4.6 Philosophy of Quality.	
4.7 Total Quality Models.	

Instructor Facilitated Learning Activities	**Hours** **36**
1. Instructor lecture.	20
2. Lab and/or workshop.	OP
3. Panel and group discussion moderated by instructor.	6
4. Small group activities guided by instructor.	6
5. Individual activities guided by instructor.	4

Independent learning activities:	Hours 60
1. Assigned readings. • Students must read the assigned material in order to understand and apply total quality principles.	20
2. Assigned case study and problem solution. • Students must solve assigned cases and problems from the literature.	10
3. Subject research and analysis. . • Research of different elements that make up total quality management systems.	10
4. Essay. a. students must write an essay where they propose a quality management model.	10
5. Integrative course project. • Students must create and present a final Project that relates to the course contents. The objective of this assignment is a proposal of a total quality management model.	10

Evaluation procedures and instruments:

The evaluation processes and instruments are as follows:

1. Written Exam.
    - Each student must prove to the instructor in strict fashion that he/she understands the main course subjects.
2. Turn in assignments.
    - Each student must turn in reports on solved case studies assigned for each unit.
    - Each student will turn in a report for every research activity assigned by the instructor.
3. Presentations before the group.
    - Every student must present the final Project to the group at an agreed upon day and time.
4. Group discussion participation.
    - Each student must participate in course content discussion.

Evaluation criteria:

1. The evaluation instruments and procedures will center on the learning activities whether these be guided by the instructor o independent.
2. The instructor will evaluate and assign a grade to each one of the evaluation instruments. The assigned grade must range from 0 to 100 points
3. The instructor will turn in the grade of each student to the Department of Graduate Studies.
4. The minimum grade for course completion is 80 points.
5. No student can fail a course by accumulation of absences.

References

	Type	Title	Author	Publisher	Year
	Text	Administracion y control de la calidad	James R. Evans William Lindsay	Ed. Thomson	Cuarta Edición, 2000
	Text	Quality Planning And Analysis	J.M. Juran Frank M. Gryna	McGraw Hill	2000

Program: MBA concentration in Quality

Course	**Course ID**
Systems and Quality Norms	II 511

Academic Program Division
Concentration in Quality

Course Description
This course looks for the student to acquire knowledge about quality assurance systems with the objective of applying them in the evaluation and improvement of the quality of goods and services offered by organizations. This course covers quality assurance procedures from clients' needs detection to post-purchase service. It also covers the use and application of models and norms used in such procedures. Students will learn fundamental concepts and models in the field of assurance and norms systems through a combination of readings, participation in class, case study solutions and other individual and group assignments. Students will also work in a team environment. They will exercise their verbal, written and graphic communication skills to discuss and present information related to the concepts under study.

General learning outcomes
After completing this course, students will: • Understand the elements of a quality assurance system. • Apply the different procedures and techniques that integrate a quality assurance system in a manufacturing or service organization. • Understand the structure of current norms for quality assurance systems.

Course Content:	**Hours**
1. Introduction to quality systems	2
1.1 Basic concepts	
1.2 Quality in manufacturing and service systems	
1.2 Infrastructure, process and tools	
2. Process Management	
2.1 Concepts and principles	8
2.2 Process and design	
2.3 Manufacturing and delivery processes	
2.4 Processes and fulfillment	
2.5 Process improvement	
3. Quality assurance	8
3.1 Designing the quality assurance system	
3.2 Design control	
3.3 Inspection and process test control	
3.4 Product control and corrections	
3.5 Team control	
3.6 Information registration	
3.7 Assurance systems in services	
4. Norms and models assurance systems	
4.3 Introduction	18
4.4 Norms models (ISO 9000,QS900, etc.)	
4.3 Quality audit	
4.4 Certification and standardization	

Instructor facilitated learning activities	**Hours** **36**
1. Instructor lecture.	20
2. Lab and/or workshop.	OP
3. Panel and group discussion moderated by instructor.	6
4. Small group activities guided by instructor.	6
5. Individual activities guided by instructor	4

Independent learning activities:	Hours 60
1. Assigned Reading by the instructor. • Each student must engage in readings in order to know and apply the quality assurance systems.	20
2. Case study solution selected by the instructor. • Each student must solve the assigned cases and problems by the instructor from the literature.	10
3. Research and development on a subject assigned by the instructor. • In this course, this activity consists in the research of different elements that make up a quality assurance system.	10
4. Essay assignment. • Each student must write an essay where he/she analyses the structure of a quality system or a current norm.	10
5. Integrative project. • Each student will create and present a final Project related to the course content. The objective of this Project is to propose a quality assurance model for a specific organization.	10

Evaluation procedures and instruments:

The evaluation processes and instruments are as follows:

1. Written Exam.
    - Each student must prove to the instructor in strict fashion that he/she understands the main course subjects.
2. Turn in assignments.
    - Each student must turn in reports on solved case studies assigned for each unit.
    - Each student will turn in a report for every research activity assigned by the instructor.
3. Presentations before the group.
    - Every student must present the final Project to the group at an agreed upon day and time.
4. Group discussion participation.
    - Each student must participate in course content discussion.

Evaluation criteria:

1. The evaluation instruments and procedures will center on the learning activities whether these be guided by the instructor o independent.
2. The instructor will evaluate and assign a grade to each one of the evaluation instruments. The assigned grade must range from 0 to 100 points
3. The instructor will turn in the grade of each student to the Department of Graduate Studies.
5. The minimum grade for course completion is 80 points.
6. No student can fail a course by accumulation of absences.

References

	Type	Title	Author	Publisher	Year
	Text	Administration y Control de la Calidad	James R. Evans William Lindsay	Ed. Thomson	Cuarta Edición, 2000
	Text	ISO 9001:2000 Explained	Charles A. Cianfrani	ASQC	2001

Program: MBA concentration in Quality

Course	**Course ID**
Quality Engineering	II 512

Academic Program Division
Concentration in Quality

Course Description
During this course students will engage different concepts and principles about quality engineering, particularly statistics models applied to evaluation and improvement of product and process quality. In addition, in order to make learning meaningful, students will be involved in the partial or complete application of the tools studied in class through the use of case studies, assignments and projects related to their work field. Once the learning activities have been completed, students will apply the quality engineering statistic models, as well as the principles on which they are based, to the control and improvement of product and process quality systems of human activity. Throughout the course, from an active perspective, the statistic models of quality engineering, such as process statistic control, process capacity analysis, and the models for quality improvement. Students will also work in a team environment. They will exercise their verbal, written and graphic communication skills to discuss and present information related to the concepts under study.

General learning outcomes
After completing this course, students will: • Understand the basic principles of quality engineering. • Identify the level and type of variation in a process, establish graphic models for process variation control and will evaluate the capacity and ability of a process. • Apply a methodology for the improvement of quality based on statistic models. • Apply the basic elements of assigned software.

Course content:	**Hours**

1. Quality in a business environment	2
1.1 Quality background	
1.2 The concept of quality	
1.3 Total Quality Management	
1.4 The importance of statistic models to the improvement of quality.	
2. Methods and Philosophy of Process Statistic Control	
2.1 Variation	2
2.2 Common and special caused of variation	
2.3 Fundaments of Process Statistic Control	
2.4 Process Statistic Control Applications	
3. Quality Control Statistical Models	
3.1 Introduction	
3.2 Statistic measures review	20
3.3 Control tools	
4. Process Capacity Analysis	
4.1 Introduction	6
4.2 Process Capacity Index	
5. Quality improvement statistical methods	
5.1 Chronic problem solution	6
5.2 Quality improvement and optimization schemes (e. I. 6 sigma)	
5.3 Quality improvement implementation	

Instructor facilitated learning activities	**Hours**
	36

1. Instructor lecture.	20
2. Lab and/or workshop.	12
3. Panel and group discussion moderated by instructor.	4
4. Small group activities guided by instructor.	OP
5. Individual activities guided by instructor	OP

Independent learning activities:	Horus 60
1. Assigned readings. • Students must read the assigned material in order to know and apply the principles of experiment design. Specifically: chapters 1, 2, 3, 4, 5, 6 and 9 from the Montgomery book. • Students must do an assigned Reading on a quality engineering application assigned by the instructor.	20
2. Problem solution assigned by the instructor. • Students must solve assigned problems based on chapters 2, 3, 4, 5, 6, and 9 from the text book.	20
3. Field assignments. • Students must complete the exercises from the guided workshop in the computer lab using the assigned software.	10
4. Research and development of a subject assigned by the instructor. • This activity is optional and students can exchange the time intended for independent study for reading time. Another alternative is an Exchange for activities (1 and 2). Previous authorization by the instructor is needed.	OP
5. Integrative Project. • This Project in meant for the students to propose a solution to a problem that involves the application of a methodology to solve a quality improvement Project.	10

Evaluation procedures and instruments:

The evaluation processes and instruments are as follows:

1. Written Exam.
    - Each student must prove to the instructor in strict fashion that he/she understands the main course subjects.
2. Turn in assignments.
    - Each student must turn in reports on solved case studies assigned for each unit.
    - Each student will turn in a report for every research activity assigned by the instructor.
3. Presentations before the group.
    - Every student must present the final Project to the group at an agreed upon day and time.
4. Group discussion participation.
    - This is not subject to evaluation.

Evaluation criteria:

1. The evaluation instruments and procedures will center on the learning activities whether these be guided by the instructor o independent.
2. The instructor will evaluate and assign a grade to each one of the evaluation instruments. The assigned grade must range from 0 to 100 points
3. The instructor will turn in the grade of each student to the Department of Graduate Studies.
4. The minimum grade for course completion is 80 points.
5. No student can fail a course by accumulation of absences.

References

	Type	Title	Author	Publisher	Year
	Text	**Introduction to Statistical Quality Control**	**Douglas C. Montgomery**	**John Wiley and Sons**	**4TH Edition,2001**
	Text	CREATING QUALITY, CONCEPTS, SYSTEMS, STRATEGIES AND TOOLS	William J. Kolarik	McGraw Hill ISBN 0-07-035217-8	Edición 2001
	Text	STATISTICAL METHODS FOR QUALITY IMPROVEMENT	Thomas P.Ryan	John Wiley and Sons, inc., 2000	Ed 2000
	Text	IMPLEMENTING SIX SIGMA	Forrest W. Breyfogle III	John Wiley and Sons, inc., 2000	Ed. John Wiley and Sons, inc., 2000 1999

Program: MBA concentration in quality

Course	**Course ID**
Production Systems	II 514

Academic Program Division
Concentration in Quality

Course Description
Throughout the course every student will engage the different concepts and models regarding production systems, particularly those related to the efficient transformation of resources into goods, with the purpose of developing a theoretical framework on the function of production and apply the different strategies and models used in the design and operations of production systems. In addition, every student, with the purpose of adding significance to his/her learning experience, will be involved in the partial or complete application of the tools that will be studied in class through the use of case studies, assignments, and projects related to his/her field. Students will learn concepts and basic models on the field of operations and production management through a combination of readings, class participation, problem solutions and other individual and group assignments. Students will also work in a team environment. They will exercise their verbal, written and graphic communication skills to discuss and present information related to the concepts under study.

General learning outcomes:
After completing this course, students will: a. Understand the principles and basic concepts and principles in production systems management. b. Understand the scope of operations management and production systems in the achievement of competitive advantage for the organization. c. Apply the different strategies and models used in the design and operation of production systems. d. Apply the basic elements of the assigned software.

Course content:	**Hours**

1. Introduction to production and operations management. 1.1 Production systems 1.2 Operations	2
2.Operations and competitive strategy 2.1 Operations strategy 2.2 Operations priorities 2.3 Productivity 2.4 Productivity measurement	4
3. Project management 3.1 Project management 3.2 Project planning 3.3 Project control techniques	6
4. Product design and process selection 4.1 Product design process 4.2 Enfoques de diseá 4.3 Process design and selection 4.4 Operations technology	8
5. Facilities design: location and distribution 5.1 Capacity planning 5.2 Facility location related aspects 5.3 Basic types of distribution	8
6. Supply Chain Management 6.1 Reach of the supply chain 6.2 Purchasing 6.3 Just In Time Production	8

Instructor facilitated learning activities	**Hours**

	36
1. Instructor lecture.	24
2. Lab and/or workshop.	8
3. Panel and group discussion moderated by instructor.	4
4. Small group activities guided by instructor.	OP
5. Individual activities guided by instructor	OP

Independent learning activities:	Hours 60
1. Assigned Reading by the instructor. • Every student must read the assigned material in order to know and apply the principles of design and operations of the production systems. Specifically those related to the chapter in the text book.	20
2. Problem solution selected by the instructor. • Every student must solve assigned problems based on chapters from the text book.	20
3. Field assignments. • Every student must complete the exercises from the guided workshop sessions in the computer lab using the assigned software.	10
4. Research and development of a subject assigned by the instructor. This activity is optional and students can exchange the time intended for independent study for reading time. Another alternative is an Exchange for activities (1 and 2). Previous authorization by the instructor is needed.	OP
5. Integrative Project. • This Project in meant for the students to propose a solution to a problem that involves the strategies of design and models of production.	10

Evaluation procedures and instruments:

The evaluation processes and instruments are as follows:

5. Written Exam.
    - Each student must prove to the instructor in strict fashion that he/she understands the main course subjects.
6. Turn in assignments.
    - Each student must turn in reports on solved case studies assigned for each unit.
    - Each student will turn in a report for every research activity assigned by the instructor.
7. Presentations before the group.
    - Every student must present the final Project to the group at an agreed upon day and time.
8. Group discussion participation.
    - This is not subject to evaluation.

Evaluation criteria:

1. The evaluation instruments and procedures will center on the learning activities whether these be guided by the instructor o independent.
2. The instructor will evaluate and assign a grade to each one of the evaluation instruments. The assigned grade must range from 0 to 100 points
3. The instructor will turn in the grade of each student to the Department of Graduate Studies.
4. The minimum grade for course completion is 80 points.
5. No student can fail a course by accumulation of absences.

References

	Type	Title	Author	Publisher	Year
	Text	**Operations Management For Competitive Advantage**	**Richard B. Chase, Robert Jacobs and Nicholas J. Aquilano**	**Irwin Inc.**	**Tenth edition, 2004**
	Text	Production/Operations Management	William J.Stevenson	Irwin Inc.	Fifth edition,1996
	Text	Production/Operations Management	James R. Evans	West Publishing Company	Fifth edition, 1997

Program: MBA concentration in Quality

Course: Japanese Techniques	**Course ID:**

Academic Program Division: Concentration in Quality

Course description:
This course cover in detail Japanese techniques aimed at production quality, considering the advantages offered by these techniques to total customer satisfaction, including the end user as well as the production chain.

General learning outcomes:
Students will know the general manufacturing concepts and techniques from the Japanese industry, such as the strategy to guarantee, in the long term, the survival, growth and profitability of an organization by optimizing its productivity.

Course content

Subjects by unit:	**Hours**
1. Introduction.	**2**
2. Work philosophy of Kaizen. 2.1 Rules to apply Kaizen. 2.2 Implementation.	**3**
3. Just in time (JIT). 3.1 5 zeros theory. 3.2 Waste. 3.3 Conditions for an organization to work under JIT.	**6**
4. Gemba. 4.1 5'S methodology 4.2 Conditions.	**3**
5. Kanban.	

5.1 Typology. 5.2 Kanban production. 5.3 Kanban transport.	**6**
6. Leveled production. 6.1 Leveled production 6.2 Advantages.	**3**
7. Manufacturing Reduction Deadline (SMED) 7.1 Building time. 7.2 Lead time between successive processes. 7.3 Transport time. 7.4 Effects.	**3**
8. Operations standardization. 8.1 Procedure. 8.2 Objectives	**3**
9. Poka-Yoke. 9.1 Applications and benefits.	**3**
10. Total quality.	**4**

Learning activities:	
• **Classroom activities:** - Instructor lecture. - Case discussion. - Guest speaker. - Student p [presentation.	**36**
• **Independent learning activities:** - Readings - Homework - Exercises - Research projects	**60**

Evaluation criteria and procedures:

- Final exam
- Homework assignments
- Research Project
- Participation

References

	Type	Title	Author	Publisher	Year
1	Text	El system de producción	Shigeo Shingo		

		Toyota desde el punto de vista de la ingeniería			
2	Text	Técnicas japonesas de fabricación	Richard J. Schonberger		
3	Text	Toyota production system: an integrated approach to just in time	Y. Monden	Industrial Engineering and Management	1996
4	Text	Una revolución en la producción: el sistema SMED	Shigeo Shingo	Tecnologías de Gerencia y Producción, S.A.	1990
5	Text	El sistema JIT y la flexibilidad de la producción	T. M. Bañegil	Pirámide	1993
6	Text	Gestión. Calidad y competitividad	John M. Ivancevich	McGraw-Hill	1997
7	Text	Poka-Yoke. Mejorando la calidad del producto evitando defectos	H. Hirano.		
8	Text	International Journal of Production Research			

Program: MBA concentration in Quality

Course	**Course ID**
Manufacturing Strategies	MF 501

Academic Program Division
Concentration in Quality

Course Description
Students will develop a systemic vision of the supply chain and their approach to problem solving related to manufacturing and supply chain management. The course studies efficient integration of supply, manufacturing, storage, and distributors, in a way that goods are produced and distributed in the right quantity, location and time. The purpose is to minimize costs in the entire system, while at the same time satisfying quality systems and service required. In other words, looking for global optimization of the supply system which has its central role in the manufacturing process. Each student will apply his or her knowledge acquired in previous courses and will solve problems related to the coordination of product design, its manufacturing and supply chain. The case study method will be used and applied to real world situations from actual organizations. .

Course Content:	**Hours**
1. <u>Introduction to the supply chain</u> 1.1 What is the supply chain? 1.2 Global optimization 1.3 Managing uncertainty 1.4 Important aspects of the supply chain 1.5 Course objectives 1.6 How to prepare a good case analysis 1.7 Summary and review questions	6
2. <u>Configuration of the logistics network</u> 2.1 Introduction 2.2 Data gathering 2.3 Data validation model 2.4 Solution techniques 2.5 Key aspects of network DSS configuration 2.6 Summary and review questions	6

3. Inventory and stock management to prevent against risks. ("Risk Pooling") 3.1 Introduction 3.2 An example of inventory storage 3.3 "Risk Pooling" 3.4 Centralized vs. decentralized system 3.5 Inventory management and supply chain 3.6 Pragmatic aspects 3.7 Projections 3.8 Summary and review questions	6
4. The value of information 4.1 Introduction 4.2 The "bullwhip"effect 4.3 Effective projections 4.4 Information for systems coordination 4.5 Finding wanted products 4.6 Lead time reduction 4.7 Information follow-up and the supply chain 4.8 Summary and review questions	6
5. Supply chain integration 5.1 Introduction 5.2 Push, pull, push-pull systems 5.3 Demand based strategies 5.4 Impact of the Internet on Supply chain strategy 5.5 Distribution strategy 5.6 Centralized control versus decentralized control 5-7 Central versus local facilities 5.8 Review questions 5.9 Case 9, The Great Inventory Correction	6
6. Product and supply chain coordinated design 6.1 Logistics design 6.2 Supplier integration in product development 6.3 "Mass Customization" 6.4 Summary and review questions	6

Instructor facilitated learning:	**Horus 36**
1. Instructor lecture.	12
2. Lab and/or workshop.	12
3. Panel and group discussion moderated by instructor.	4
4. Small group activities guided by instructor.	4
5. Individual activities guided by instructor	4

Independent learning activities:	Hours 60
6. Assigned Reading by the instructor. a. Every student must read the assigned material in order to know and understand the basic concepts included in the course content. b. Every student must read the assigned case study for class discussion. Cases from the text book and reference books will be used.	10
7. Written article, essay, or summary from the readings. a. Every student must write a summary of the readings for every element in the course content and review question from every chapter which will serve as a base for panel discussions in class.	10
8. Problem solution selected by the instructor. a. Every student must propose a strategy that he or she considers appropriate for a case study. The proposal must be made based on the case studies discussed in class.	10
9. Field work. a. Every student must complete the workshop exercises. The workshop sessions are based on chapters from the reference book. He or she must justify the strategy based on the theoretical framework provided by the supply chain strategic management process. Additional information will come from internet searches and other electronic resources.	10
10. Case study research and development. a. Students must work in teams to build a case based on their observations regarding a situation involving an actual organization which will be presented in class as a final Project.	10
11. Integrative final project. a. This required activity must be done in teams of two at the most. The objective is the implementation of the manufacturing and supply chain strategic management methodology learned in class to a situation related to their professional activities.	10

Evaluation procedures and instruments:

1. **Homework, reports and summaries (20%)**

   Every assignment that is turned in, be it summaries, answers to questions, or reports, or any other required activity, must contain the following information:

Name and student enrollment number, assignment number, brief description or title (students must keep track of every assignment number and description), due date (which will be agreed upon in class), assignments will not be received in different dates.

Some assignments will be done individually and others in groups. Quality and clarity will be evaluated in student presentations. The lack of any of the above mentioned information may result in cancelation of the assignment without make up opportunity.

2. **Partial exams (20%)** The partial exams will take place on the dated indicated in the course syllabus. No exams may be taken outside the set dates.

3. **Chapter presentations or cases and class participation (10%)** Willingness to participate in class and previously assigned presentations is important. Student engagement toward the achievement of unit goals as well as the general course objective will be evaluated. Creativity in student work be it oral or written will also be evaluated as well as his or her willingness to work in teams. Being on time to each class is paramount not only for this specific evaluation criterion, but for the general course evaluation as well.

4. **Case reports or partial case (30%)** There will be a report for every case

   Assigned by the instructor.

5. **Discussion questions (20%)** The instructor will have a pop quiz on occasion based on the true or false questionnaires written in English at the end of every chapter. Discussion questions seek to promote organized participation from students to evaluate their understanding of the subjects being studied.

Evaluation criteria:

1. The evaluation instruments and procedures will center on the learning activities whether these be guided by the instructor o independent.
2. The instructor will evaluate and assign a grade to each one of the evaluation instruments. The assigned grade must range from 0 to 100 points

3. The instructor will turn in the grade of each student to the Department of Graduate Studies.
4. The minimum grade for course completion is 80 points.
5. No student can fail a course by accumulation of absences.

References:

1. Simchi-Levi D., Kaminsky P. and Simchi-Levi E."Designing and Managing the Supply Chain", Second Edition, McGraw-Hill Higher Education,N. Y. 2003

2. Chase R., Jacobs R. and Aquilano N., "Operations Management for Competitive Advantage", Tenth Edition, MacGraw-Hill/Irwin Series, Boston, 2004

3. Lawrence J.A. Jr., and Pasternack B. A., "Applied Management Science, A Computer Integrated Approach For Decision Making", John Wiley and Sons, N.Y. 1998
4. Hoop W. and Spearman M. "Factory Physics", Second Edition, MacGraw-Hill Higher Education, N. Y. 2001