



A) COURSE

Course Id:	Course
5975	QUALITY MANAGEMENT AND CONTINUOUS IMPROVEMENT SYSTEMS

Class Hours per Week	Lab hours per week	Complementary practices	Credits	Total hour course
3	0	3	6	48

B) GENERAL COURSE INFORMATION:

	EE (IEA)	ME (IM)	MME (IMA)	EME (IME)	MTE (IMT)
Level:	X	VIII	IX	X	X
Course Type (Required/Elective)	OPTIONAL	OPTIONAL	MANDATORY	OPTIONAL	OPTIONAL
Prerequisite Course:	QUALITY CONTROL	QUALITY CONTROL	QUALITY CONTROL	QUALITY CONTROL	QUALITY CONTROL
CACEI Classification:	CI	CI	CI	CI	CI

C) COURSE OBJECTIVE

At the end of the course, the student will be capable of:

To reflect about how to act in quality management in an organization to position it in the arena of the competitiveness; and generate proposals based on tools that generate results that cause benefit. The student must be convinced that organizations should adopt a system for manage and administer the processes under a total quality approach because is the best way to ensure to belong in the market. The student must understand well the processes to manage and control a system to ensure total quality in the company. He will learn and apply tools that allow more efficient and effective operation of the organization based on the incorporation of quality concepts, productivity, competitiveness and innovation. To this end, you will meet and seek regulations put into practice the international norms such as ISO 9001-2015, ISO 17025, ISO 26000; as well as modern theories that consider the human resource development and employment to improve the systems for quality management and continuous improvement. It will study and apply modern methodologies based on quality technology, such as Lean Sigma, TQM, total quality tested prestigious organizations Models. You can implement strategies and initiatives that help increase profitability and improve the positioning of large companies, medium, small or micro. The student will develop a final project that applies the tools revised in the course.

D) TOPICS (CONTENTS AND METHODOLOGY)

1.- INTRODUCTION TO QUALITY MANAGEMENT SYSTEMS	Hours: 6
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Specific Objective:	The student will understand how a system for quality management is conceptualized and improvement keep going. The student knows success stories in national and foreign companies. The student clearly identify the elements that make the processes and elements of a system for quality management and continuous improvement The student understands and prepares to apply methodologies and international standards seeking operational excellence in the organization. The student is prepared to use methods of translating customer requirements internal and / or external.
1.1 Definitions related to a system for quality management and continuous improvement 1.2 Introduction to Quality Management Systems 1.3 Elements to identify customer requirements	
Readings and other resources	Recommended Books: Frank Gryna, <i>Análisis y Planeación de la Calidad Método Juran</i> , Mc Graw Hill, ISBN: 9789701061428, 2007 Deming, Walter E.: <i>Calidad, productividad y competitividad</i> , Madrid. Díaz de Santos, 1989. Humberto Gutiérrez Pulido, <i>Calidad y Productividad</i> , Mc Graw Hill , ISBN: 9786071511485, Edición: 04, 2014 James R. Evans y William M. Lindsay. <i>Administración y Control de la Calidad</i> , 7ma Edición. Editorial CENAGE Learning. Lectura de Artículos Científicos sobre casos de estudio de éxito en Sistemas de Gestión Revisión de sitios en internet: por ejemplo: http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm http://asq.org/learn-about-quality/malcolm-baldrige-award/overview/overview.html http://www.nist.gov/baldrige/ http://www.pnc.org.mx/
Teaching Methodologies	Professor presents the topics in the classroom At least once a week working in collaborative working groups and discussing cases experiences in implementing management systems. Technical reports and / or testing to be delivered to the teacher generated. Students are supervised by Professor during the development process of Final projects. Articles readings and reporting where scholarly opinion is showed. These are items related to the design, implementation and control systems for the quality management and continuous improvement; and success stories.
Learning Activities	The research work, done in class exercises, tasks performed by students , case analysis, academic reports with results of special projects , have the objective to broaden and go in deep in the topics reviewed in the course.

2.- QUALITY MANAGEMENT SYSTEMS: NORMATIVES	Hours: 14
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Specific Objective:	The identification of the regulations that are used in systems for quality management and improvement keep going. Propose regulatory systems employing studied. Select improvement criteria continuous based on the analysis and identification of the relevant regulations. Develop a project that shows the use of international standards in the implementation of a system for managing quality and continuous improvement in an organization.
	2.1 Series ISO-9000 a) ISO-9000:2005 b) ISO-9001:2008 c) ISO 9001-2015 2.2 ISO/TS 16949 – Auto parts Certification Norms 2.3 ISO-19011- Quality Audits 2.4 ISO-26000 – Social Responsibility 2.5 ISO/TR 10013:2001 – Documents for Management System
Readings and other resources	Frank Gryna, <i>Análisis y Planeación de la Calidad Método Juran</i> , Mc Graw Hill, ISBN: 9789701061428, 2007 Deming, Walter E.: <i>Calidad, productividad y competitividad</i> , Madrid. Díaz de Santos, 1989. Humberto Gutiérrez Pulido, <i>Calidad y Productividad</i> , Mc Graw Hill , ISBN: 9786071511485, Edición: 04, 2014 James R. Evans y William M. Lindsay. <i>Administración y Control de la Calidad</i> , 7ma Edición. Editorial CENAGE Learning. Lectura de Artículos Científicos sobre casos de estudio de éxito en Sistemas de Gestión Revisión de sitios en internet: por ejemplo: http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm http://asq.org/learn-about-quality/malcolm-baldrige-award/overview/overview.html http://www.nist.gov/baldrige/ http://www.pnc.org.mx/
Teaching Methodologies	Instructor presents the topics in the classroom At least once a week working in collaborative working groups and discussing cases experiences in implementing management systems. Technical reports and / or testing to be delivered to the teacher generated. Students are supervised by Instructor during the development process Final project Articles readings and reporting where the view shown student. These are items related to the design, implementation and control systems for quality management and continuous improvement and success stories.
Learning Activities	The research work, done in class exercises, tasks performed by students , case analysis, academic reports with results of special projects , have the objective to broaden and go in deep in the topics reviewed in the course.

3.- QUALITY TOOLS	Hours: 16
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Specific Objective:	The student will identify and apply the basic tools of quality to justify activities improvement, data and trends analysis and decision -making. You will learn the tools used for: Identifying CTQ's , Advanced Quality Planning . Prepare documentation compliance with international standards of ISO
	<p>3.1 Basic Quality Tools</p> <p>3.1.1 Pareto</p> <p>3.1.2 Verification Sheets</p> <p>3.1.3 Stratification</p> <p>3.1.4 Multivary Diagram</p> <p>3.1.5. Ishikawa Diagram</p> <p>3.1.6 Scatter diagram and correlation analysis</p> <p>3.1.7 Control Charts</p> <p>3.1.8 Tools 5S's</p> <p>3.2 Specific Requirements of ISO Standards</p> <p>3.2.1 APQP</p> <p>3.2.2 Control Plan</p> <p>3.2.3 PPAP</p> <p>3.2.4 FMEA</p> <p>3.2.5 PSW3.2.6</p> <p>3.2.5 Measurement System Analysis (MSA)</p>
Readings and other resources	<p>Frank Gryna, <i>Análisis y Planeación de la Calidad Método Juran</i>, Mc Graw Hill, ISBN: 9789701061428, 2007</p> <p>Deming, Walter E.: <i>Calidad, productividad y competitividad</i>, Madrid. Díaz de Santos, 1989.</p> <p>Humberto Gutiérrez Pulido, <i>Calidad y Productividad</i>, Mc Graw Hill , ISBN: 9786071511485, Edición: 04, 2014</p> <p>James R. Evans y William M. Lindsay. <i>Administración y Control de la Calidad</i>, 7ma Edición. Editorial CENAGE Learning.</p> <p>Internet links::</p> <p>http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm</p> <p>http://asq.org/learn-about-quality/malcolm-baldrige-award/overview/overview.html</p> <p>http://www.nist.gov/baldrige/</p> <p>http://www.pnc.org.mx/</p>
Teaching Methodologies	<p>Professor presents the topics in the classroom</p> <p>At least once a week working in collaborative working groups and discussing cases experiences in implementing management systems</p> <p>Technical reports and / or testing to be delivered to the teacher generated ..</p> <p>Students are supervised by Professor during the development process</p> <p>Final project</p> <p>Articles readings and reporting where the view shown student. These are items related to the design implementation and control systems for quality management and continuous improvement ; and success stories.</p> <p>Course contents presentation, collaborative work, problem-based learning.</p> <p>Use of Software: Excel Intermediate and Advanced and Minitab.</p>



Learning Activities	The research work, done in class exercises, tasks performed by students , case analysis, academic reports with results of special projects, have the objective to broaden and go in deep in the topics reviewed in the course.
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4.- INTRODUCTION TO LEAN SIGMA INITIATIVE	Hours: 10
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Specific Objective:	The student studies the Lean Sigma initiative. You must know and identify the elements and philosophy in which it is based. The student makes a reflection and makes comparisons to identify elements involved in the system for quality management and continuous improvement. Develops skills to incorporate statistical thinking and systems thinking in projects Continuous improvement.
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- 4.1 . Lean Sigma initiative
- 4.1.1 Phase : Definition
 - 4.1.2 Phase : Measurement
 - 4.1.3 Phase : Analysis
 - 4.1.4 Phase : Improve
 - 4.1.5 Phase : Control
- 4.2 Processes to ensure standardization of the system for quality management and improvement keep going

Readings and other resources	<p>Frank Gryna, <i>Análisis y Planeación de la Calidad Método Juran</i>, Mc Graw Hill, ISBN: 9789701061428, 2007</p> <p>Deming, Walter E.: <i>Calidad, productividad y competitividad</i>, Madrid. Díaz de Santos, 1989.</p> <p>Humberto Gutiérrez Pulido, <i>Calidad y Productividad</i>, Mc Graw Hill , ISBN: 9786071511485, Edición: 04, 2014</p> <p>James R. Evans y William M. Lindsay. <i>Administración y Control de la Calidad</i>, 7ma Edición. Editorial CENAGE Learning.</p> <p>Internet links::</p> <p>http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm</p> <p>http://asq.org/learn-about-quality/malcolm-baldrige-award/overview/overview.html</p> <p>http://www.nist.gov/baldrige/</p> <p>http://www.pnc.org.mx/</p>
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Teaching Methodologies	<p>Professor presents the topics in the classroom</p> <p>At least once a week working in collaborative working groups and discussing cases experiences in implementing management systems</p> <p>Technical reports and / or testing to be delivered to the teacher generated.</p> <p>Students are supervised by Professor during the development process of the final project.</p> <p>Articles readings and reporting where the view shown student. These are items related to the design implementation and control systems for quality management and continuous improvement; and success stories.</p> <p>Course contents presentation, collaborative work, problem-based learning.</p> <p>Use of Software: Excel Intermediate and Advanced and Minitab.</p>
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Learning Activities	Research work, exercises done in class, tasks performed by students , case studies , academic reports with results of special projects , They aim to extend and go in deep in the the topics reviewed in the course. This unit requires collaborative working groups to focus their attention use teaching techniques: case-based learning or based learning Investigation.
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E) TEACHING AND LEARNING METHODOLOGIES

- a) The instructor presents contents, using teaching didactic materials
- b) Reading of scientific articles and outreach .
- c) Research by students .
- d) Presentation of reports by the student .
- e) Use of Minitab 17.0 and Excel software. MegaStat ,
- f) Visits to companies.
- g) Presentation in class experts in management systems for quality management and improvement keep going
- h) Professor advance deliver the rubrics to assess essays, reports and final project. Rubric must be authorized by the quality academy.

F) EVALUATION CRITERIA:

Evaluation:	Schedule	Suggested Form of Evaluation and weighing	Topics
1 st Partial Evaluation	Session 16	Homeworks, reports 20%, Weekly examinations 20%, Partial examination 60%	Units 1, 2
2d Partial examination	Session 32	Homeworks, reports 20%, Weekly examinations 20%, Partial examination 60%	Units 2, 3
3d Partial Examination	Sesión 48	Homeworks, reports 20%, Weekly examinations 20%, Partial examination 60%	Units 3, 4
Final Examination		100% (Promedio de las Evaluaciones Parciales)	
Other activities			
Extraordinary examination	Week 17	100% Test	100% Course Program
examination certificate of proficiency	Dates are programmed for Administration in charge	100% Test	100% Course Program
Regularization Examination	Dates are programmed for Administration in charge	100% test	100% Course program



Instructor will design at least 2 activities to observe and measure the level of achievement of the following skills:

- (B) Ability to design and conduct experiments , and analyze and interpret information .
- (E) Ability to identify , formulate and solve engineering problems.
- (F) ethics and professional responsibility .
- (H) A broad education necessary to understand the impact of engineering solutions in a global context (economic, environmental and social).
- (J) knowledge of contemporary issues
- (K) Ability to use techniques, skills and modern engineering tools necessary for engineering practice .
- (L) Willingness to assume leadership roles and responsibilities .

G) BIBLIOGRAPHY AND ELECTRONIC RESOURCES

Main Books

1. Feigenbaum A.V. (1991). Total Quality Control. New York: McGraw-Hill
2. Frank Gryna, *Análisis y Planeación de la Calidad Método Juran*, Mc Graw Hill, ISBN: 9789701061428, 2007
3. James R. Evans y William M. Lindsay. *Administración y Control de la Calidad*, 7ma Edición. Editorial CENAGE Learning.
4. Deming, Walter E.: *Calidad, productividad y competitividad*, Madrid. Díaz de Santos, 1989.
5. Jeffrey Liker . *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer* Hardcover. 2004
6. Humberto Gutiérrez, *Calidad y Productividad*, Mc Graw Hill , ISBN: 9786071511485, Edición: 04, 2014
7. Gary K. Griffith, *The Quality Technician's Handbook*, Sixth Edition ISBN: 978-0-13262-128-1
8. Rowland Hayler and Michael Nichols , *What is Six Sigma Process Management?*, ISBN: 978-0-07145-341-7

Complimentary Books

1. Summers, *Administración de la Calidad*, Pearson, ISBN: 9789702608134, 2006
2. José Luis Palacios Blanco, *Administración para la calidad*, Editorial Trillas. Sexta Edición