

# MSM

## Master of Science in Manufacturing Systems

(Edition 2009)

### Remedial Semester

Code	Name	CL	L	U	CA	UDC
M1002	Computerized Drawing	2	2	8	3	4.7
M2010	Materials Behavior	3	1	8	3	4.7
M4000	Analysis and Synthesis of Mechanical Systems	3	0	12	3	3.5
		8	3	28	9	12.9

### First Semester

Code	Name	CL	L	U	CA	UDC
GI5000	Research and Innovation Methods	1.5	0	6	1.5	0
M4009	Advanced Materials in Manufacturing	3	1	12	3	4.7
OP4000	Quality Development Course	1.5	0	6	1.5	0
OP4006	Elective Course I	3	0	12	3	0
		9	1	36	9	4.7

### Second Semester

Code	Name	CL	L	U	CA	UDC
M4008	Product Design	3	0	12	3	3.5
M4010	Automation in Manufacturing Systems	3	1	12	3	4.7
OP5042	Elective I	3	0	12	3	0
		9	1	36	9	8.2

### Third Semester

Code	Name	CL	L	U	CA	UDC
GI5007	Thesis I	3	0	12	3	
OP5043	Elective II	3	0	12	3	0
OP5044	Elective III	3	0	12	3	0
		9	0	36	9	0

### Fourth Semester

Code	Name	CL	L	U	CA	UDC
GI5008	Thesis II	3	0	12	3	
OP5045	Elective IV	3	0	12	3	0
OP5046	Elective V	3	0	12	3	0
		9	0	36	9	0

#### Academic credits

- CL** The letter "CL" indicates the number of class-hours per week.
- L** The letter "L" indicates the number of laboratory-hours per week.

- U** The letter "U" represents the equivalent time in courses lasting 15 weeks (semester) and 12 weeks (trimester), of weekly work that the student dedicates to the course to meet its objectives. They include the "class hours", as well as the time dedicated to the student's independent work.
- CA** The letters "CA" represents the number of semester credit hour of the course.
- UDC** Load Units

## **Program and Learning Outcomes**

### **General program objectives**

The objective of this program is to train professionals for industry, who, as agents of change, will be capable of technological development, innovation and technology transfer, in new product, manufacturing materials and productive process design settings.

### **Learning outcomes**

On completing the program, students will be able to:

- Consolidate companies' competitiveness through the development and integration of design and manufacturing technology in order to increase productivity, enhance quality, reduce costs and ensure their reliability.
- Plan, manage and execute technological development projects in the area of high added-value product design and manufacturing, taking into consideration their technical, economic and social impact.
- Interact with national and international multidisciplinary working groups for research, development and innovation in relation to new products and manufacturing processes.
- Independently update their knowledge in order to continue to be an agent of technological change and development in the manufacturing industry.

### **Target Audience**

This program is aimed at engineers from all disciplines. Given its interdisciplinary nature, for the development and technological enhancement of manufacturing systems, the interaction of multiple areas of knowledge is required.

## **Program Outcomes**

### **Justification**

In the past few decades, Mexico has been characterized as a country with an important economic dimension, privileged geographic position, young population and openness to globalization, making it an attractive country for investment and attaining a globally relevant industrial and manufacturing sector. Companies in this sector continuously require technological capacities to support their strategies and enhance their product offering, consolidation and competitiveness, without neglecting their social and environmental responsibilities.

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- Interact with national and international multidisciplinary working groups for research, development and innovation in relation to new products and manufacturing processes.
- Independently update their knowledge in order to continue to be an agent of technological change and development in the manufacturing industry.

### **Target audience**

Engineers from every discipline. Given its interdisciplinary nature, technological development and enhancement in manufacturing systems require the interaction of multiple areas of knowledge.

### **Research areas**

- New product design and innovation
- Advanced materials
- Automation and mechatronics for manufacturing
- Production engineering

Campus that offer this program

<b>Campus</b>	<b>Number of periods offered</b>	<b>From</b>	<b>Closed for new students</b>
<b>Monterrey</b>	Complete	Semester Aug - Dec 2009	

**Last update:** 05/May/2009

## Graduate Requirements

To obtain a specialty degree, a master's degree or Ph. D. degree at Tecnológico de Monterrey, students are required to:

1. Have completely finished the undergraduate cycle prior to passing the first course in the curriculum of the specialty, master program, medical residency, or doctoral program.
2. Have fulfilled, in compliance with existing standards, the academic prerequisites of the corresponding program, through proficiency tests or the corresponding remedial courses.
3. Have obtained a bachelor degree—with the antecedent of high school or its equivalent—that is equivalent to those offered by Tecnológico de Monterrey.
4. Have covered all the courses in the given curriculum, either by passing the courses at Tecnológico de Monterrey or by obtaining revalidation or equivalence agreements—in compliance with the standards—corresponding to part of the courses taken at other institutions, and passed the remaining courses at Tecnológico de Monterrey. Courses taken at foreign universities with which there are agreements are considered, for the effects of this article, as courses taken at Tecnológico de Monterrey, as long as they do not exceed a set percentage of the curriculum established by each graduate program.
5. In those curricula that so specify, to have prepared a research project or thesis that, having been defended before an academic committee, has been approved by said committee.
6. Have taken at least the equivalent of the second half of the corresponding curriculum at Tecnológico de Monterrey, in the case of students with revalidation or equivalence agreements at this level. Flexibility may be exercised in this standard in graduate programs that, under agreement, may be established jointly with other universities.
7. For doctoral programs, have published (or have proof of acceptance for publication), in an indexed journal, at least one paper on a topic related to the student's research project.

Last update: 21/July/2017