GENERAL OBJECTIVE

To train statistical industrial engineers with the ability to analyze and solve the problems in the fields of industrial performance, quality management, administration and statistical modeling; competent in technical and human aspects that enable them to manage, optimize, process, control, discern and transmit information from the appropriate application of engineering techniques, statistics, mathematics, computing and administration, with an ethical, humanistic, entrepreneurial and responsible social perspective.

PROGRAM EDUCATIONAL OBJECTIVES

Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation:

1. The graduate demonstrates competence and appropriate use of methodologies and tools of industrial engineering to efficiently do labor activities in the industry.
2. The graduate efficiently manages the human and physical resources by applying mathematical, statistical, administrative, production and cost models.
3. The graduate uses information and communication technologies as a tool to analyze, interpret information, solve problems, and support the decision-making.
4. The graduate participates actively working in a competitive form in multidisciplinary groups.
5. The graduate develops his profession with an ethical and social responsible perspective.
6. The graduate continues his training and professional updating.

STUDENT OUTCOMES

Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program:

a) an ability to apply knowledge of mathematics, science, and engineering
b) an ability to design and conduct experiments, as well as to analyze and interpret data

c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d) an ability to function on multidisciplinary teams
e) an ability to identify, formulate, and solve engineering problems
f) an understanding of professional and ethical responsibility
g) an ability to communicate effectively
h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i) a recognition of the need for, and an ability to engage in life-long learning
j) a knowledge of contemporary issues
k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

APPLICANT PROFILE

It is wanted that the applicant to the Statistical Industrial Engineering major would have:
- Ability for observation and analysis.
- Ability to understand texts.
- Knowledge and correct management of physical-mathematical concepts at a High school level.
- Ease for the application of mathematics.
- Perseverance, discipline and order at work.
- Disposition and ease in a teamwork environment.
- Initiative and leadership for solving problems.
- Openness to innovation and change.
- Ease for handling information technology.
- Entrepreneurship.

GRADUATES PROFILE

Abilities:
- Design production processes and keep them under statistical control to meet the specifications of the product or service.
- Calculating production costs and compares them with default costs to assess the shortcomings of the production system or service.
- Apply adequate systems and techniques to measure or quantify the tasks, as well as establishing balanced workloads and production lines, determining production costs to make business profitable that will maintain or create jobs.
- Efficiently manage existing resources through the application of

mathematical, statistical, administrative, costs and production techniques and models, and create investment alternative, determining life cycle of goods, which contribute to capitalize the company with competitive returns.

- Implement and manage security policies and hygiene in companies, as well as train staff to develop processes involving human resources.
- Design efficient structures and workspaces to develop productive work in the company.
- Create strategic plans and quality control processes based on different methodologies that allow you to take augmented decisions and incorporate improvements to production systems, including personal and group attitudes.
- Assess and control aspects of product design, cost, speed and coverage of demand in a timely manner, in order to meet the needs of customers.
- Promote and disseminate the implementation and adaptation of innovative methodologies and techniques for continuous improvement of business processes.
- Apply appropriate techniques and mathematical-statistical methods for the collection, analysis and interpretation of results of qualitative and quantitative information to support decision-making.
- Properly handle information technologies and communication as well as statistical software, design and simulation to communicate, evaluate and produce information to support decision-making.
- Read and write scientific and technical texts in their language and in a second language to communicate ideas in their field.

Knowledge:
- Models, techniques and production methods.
- Cost calculations.
- Models of statistical process control.
- Mathematical, statistical and administrative techniques and models.
- Work measurement techniques.
- Principles of industrial safety and ergonomics.
- Operations management models.
- Project evaluation techniques.
- Location, distribution, flow and material handling approaches.
- Quality philosophies.
- Research methods.
- Fundamentals of Statistical computing.
- English language at an advanced level.

Attitudes:
- Analytical and critical of the surroundings.

- Negotiating and conciliatory spirit.
- Adapting to changing contexts.
- Purposeful and proactive.
- Leadership.
- Assertive.
- Entrepreneurial
- Innovative and creative spirit.
- Ethical professional performance.
- Respect and tolerance towards others.
- Disposal for individual and multidisciplinary collaborative work.

Values:
- Autonomy and social responsibility
- Pluralism
- Humanity
- Quality

FIELD OF WORK:

The context where these professionals can perform are organizations of small, medium and big scale, either public or private, where the company's main line are manufacturing and services; these professionals perform in optimal working conditions; the location of the organizations where the work is urban, peripherical-urban in the region. The professionals of the Statistical Industrial Engineering perform in the following places: Nissan, General Motors, Vianney, Sensata, Cementos Cruz Azul, INEGI, UAA, TATA, CALSONIC, among other major companies.

DURATION: Ten semesters

	T	P	C	DEPARTMENT
FIRST SEMESTER				
ADMINISTRATIVE PROCESS	3	2	8	ADMINISTRATION
INTRODUCTION TO THE STATISTICAL INDUSTRIAL ENGINEERING	3	1	7	STATISTICS
WORKSHOP OF INDUSTRIAL STATISTICS I	1	4	6	STATISTICS
COMPUTING	1	4	6	INFORMATIONS SYSTEMS
DIFERENCIAL CALCULUS	3	2	8	MATH & PHYSICS
Foreign Languages Institutional Program				
Humanistic Education Institutional Program				

	T	P	C	DEPARTMENT
SECOND SEMESTER				
PRODUCTIONS SYSTEMS	3	2	8	HUMAN RESOURCES
INDUSTRIAL DESIGN	2	4	8	REPRESENTATION
INDUSTRIAL STATISTICS WORKSHOP II	1	3	5	STATISTICS
LOGIC AND PROGRAMMING ALGORYTHIMS	2	3	7	INFORMATIONS SYSTEMS
LINEAR ALGEBRA	3	2	8	MATH & PHYSICS
INTEGRAL CALCULUS	3	2	8	MATH & PHYSICS
Foreign Languages Institutional Program				
Humanistic Education Institutional Program				

	T	P	C	DEPARTMENT
THIRD SEMESTER				
MATERIALS Y MANUFACTURING PROCESSES	2	3	7	IMAGE & PROD. DESIGN
LOCATION, DISTRIBUTION AND MATERIAL HANDLING	2	3	7	HUMAN RESOURCES
STATISTICS AND QUALITY	2	2	6	STATISTICS
STATISTICAL COMPUTING	1	4	6	STATISTICS
PROBABILITY	3	3	9	STATISTICS
VECTOR CALCULUS	3	2	8	MATH & PHYSICS
Foreign Languages Institutional Program				
Humanistic Education Institutional Program				

	T	P	C	DEPARTMENT

FOURTH SEMESTER

	T	P	C	DEPARTMENT
MATERIAL FLOW MANAGEMENT	2	3	7	HUMAN RESOURCES
COST ACCOUNTING	3	2	8	COUNTING
ERGONOMICS	3	2	8	IMAGE & PROD. DESIGN
MECHANICS	2	4	8	MATH & PHYSICS
STATISTICAL INFERENCE	2	3	7	STATISTICS
NUMERICAL METHODS	2	2	6	MATH & PHYSICS

Foreign Languages Institutional Program

Humanistic Education Institutional Program

	T	P	C	DEPARTMENT
FIFTH SEMESTER				
INDUSTRIAL PROJECTS ADMINITRATION	2	3	7	HUMAN RESOURCES
COMMUNICATIVE STRATEGIES	2	3	7	COMMUNICATION
STATISTICAL APPLICATIONS TO THE WORK METROLOGY	1	4	6	STATISTICS
REGRESSION ANALYSIS	2	3	7	STATISTICS
OPERATION RESEARCH	2	3	7	MATH & PHYSICS
DIFFERENTIAL EQUATIONS	2	3	7	MATH & PHYSICS

Foreign Languages Institutional Program

	T	P	C	DEPARTMENT
SIXTH SEMESTER				
OPERATIONS MANAGEMENT	3	2	8	HUMAN RESOURCES
INVESTIGATION METHODS AND TECHNIQUES	3	2	8	EDUCATION
LABORATORY OF STATISTICAL QUALITY CONTROL	2	3	7	STATISTICS
PROFESSIONAL ETHICS	2	2	6	PHILOSOPHY
SAMPLING	2	3	7	STATISTICS
KINEMATICS AND DYNAMICS	2	4	8	MATH & PHYSICS

Foreign Languages Institutional Program

Internships

	T	P	C	DEPARTMENT
SEVENTH SEMESTER				
SEMINAR OF QUALITY ENGINEREEING	2	3	7	HUMAN RESOURCES
LABORATORY OF DESIGN AND ANALYSIS OF EXPERIMENTS	2	3	7	STATISTICS
METROLOGY	2	3	7	MATH & PHYSICS
ADVANCE STATISTICAL QUALITY CONTROL	2	3	7	STATISTICS
MULTIVARIATE METHODS	2	3	7	STATISTICS
STOCHASTIC MODELS	2	3	7	STATISTICS

Internships

	T	P	C	DEPARTMENT
EIGHTH SEMESTER				
FINANCIAL ASSESSMENT OF PROJECTS				FINANCE
MAINTENANCE MANAGEMENT				HUMAN RESOURCES
ADVANCE DESIGN AND ANALYSIS OF EXPERIMENTS				STATISTICS
STATISTICAL STRATEGY COACHING OF SIX SIGMA				STATISTICS
DATA BASE				INFORMATION SYTEMS
STATISTICAL MODELLING				STATISTICS
Social Service				
Internships				

	T	P	C	DEPARTMENT
NINTH SEMESTER				
SEMINAR OF MODER TENDENCIES OF THE ADMINISTRATION	2	2	6	ADMINISTRATION
AUTOMATION PRINCIPLES	2	3	7	ELECTRONIC SYSTEMS
RELIABILITY OF INDUSTRIAL COMPONENTS	2	3	7	STATISTICS
TAGUCHI DESIGN OF EXPERIMENTS	3	2	8	STATISTICS
NONPARAMETRIC STATISTICS	2	3	7	STATISTICS
OPTIONAL SUBJECT I				
Social Service				
Internships				

	T	P	C	DEPARTMENT
TENTH SEMESTER				
STATISTICAL OPTIMIZATION OF INDUSTRIAL PROCESSES	2	3	7	STATISTICS
TIME SERIES	2	3	7	STATISTICS
DESIGN OF MANUFACTURING SYSTEMS	0	4	4	STATISTICS
OPTIONAL SUBJECT Ii				
Social Service				
Internships				

SUPPORT CENTRES:
-ECONOMIC AND ADMINISTARTIVE CENTRE
-BASIC SCIENCE CENTRE
-DESIGN AND CONTRUCTION CENTRE
-SOCIAL AND HUMANITIES CENTRE

Optional Professional Subjects of Open Modality

Orientation I. Statistics and Advanced Computing

Orientation II. Advanced Techniques for Operations Management and Human Resources

INSTITUTIONAL PROGRAMS
- Internships
- Social service
- Tutoring
- Mobility and Academic Exchange
- Encouragement of Foreign Languages
- Humanist Training Program

DEGREE REQUIREMENTS

The graduate will stick to what was stablished in chapter XIV of the degree in technical, senior technical and bachelor level, article 156 of the Teaching General Regulation that states the following:

"Once all the subjects and requirements indicated are accredited in the study plan of all careers of technical, senior technical and bachelor, the graduate would be able to request the expedition of his university degree in the Department of Student Affairs, after fulfilling the following items:

I.   To have fulfilled the requirements of Social Service, Humanistic Education, Internships and Foreign Languages, defined in the institutional programmes.
II. To verify no debit to the Universidad Autónoma de Aguascalientes
III. To have covered the stablished fee in the taxation plan to the acquisition of the university degree; and
IV. To have submitted the exit exam."

Approved by the Honourable University Council in ordinary session held on 15 December 2011.