MANUFACTURING AND INDUSTRIAL AUTOMATION ENGINEERRING

MAIN OBJECTIVE

To form manufacturing and industrial automation engineers able to design and implement effective forms of industrial, manufacturing, production and automation systems usage to create goods or provide services. This Engineer will acquire skills to design products, equipment, tools and other items for manufacturing. Also, as a graduate, this person will be able to create competitive advantages by means of business management strategies for quality control, systems automation, and manufacturing planning always being socially responsible and keeping an ethical and humanistic perspective.

APPLICANT'S PROFILE

Abilities, attitudes and values required from the major applicants:

Fields of evaluable abilities

Calculus
Physics
Mathematics
Chemistry
English
Logical and mathematical reasoning
Verbal reasoning
Spanish
Information and communication technologies

Non-evaluable (but desired) interests

Analysis and synthesis of problems
Industrial manufacturing processes
Science and technology
Team working

Graduate profile

The Manufacturing and industrial automation professional will have abilities on:

Developing and integrating technologies, in production lines, for time reduction in manufacturing processes.

Designing mechanisms and quality control tools to meet quality standard requirements on manufacturing.

Providing and supervising corrective and preventive maintenance to the manufacturing systems.

Promoting and boosting the organization development by means of design and execution of projects and programs on manufacturing process improvement.

Implementing health and safety programs to identify, prevent, evaluate, and control risk factors within the workspaces.

Know, identify and use production parameters and standards for production systems characterization

Analyze and evaluate the global, national and regional environment for an appropriate production of new products, services and business.

Plan, manage and design new production methodologies and services

Operate automatic machinery used in industrial systems

Design and implement manufacturing systems

Manage material and human resources
Apply methods and logistics for corporations' organization
Intermediate English language skills

Knowledge
Mathematical and Physics basis
Electricity, analog and digital electronics
Science of Materials
Industrial Security basis
Project Management and Evaluation of Projects
Production Process Basis
Human resources basis
Process optimization
Technical, legal, ethical, ecological and quality rules
Medium level English Language

Attitudes
Awareness to continuous education
Critical and philosophical
Innovative
Ken to work in multidisciplinary teams
Show respect for Environment
Entrepreneur
Ethical

Values
Autonomy
Social Responsibility
Pluralism
Humanism
Professional performance with quality

Field of Working
Public and private institutions
Manufacturing industry
Transformation industry
Good and services trade
Marketing and business
Counselor services
Public administration

Duration
Nine semesters

CENTER OF ENGINEERING SCIENCES

MANUFACTURING AND INDUSTRIAL AUTOMATION ENGINEERING

CURRICULUM

PROGRAM 2012
CAREER 49

First semester	CENTER	DEPARTMENT
INTRODUCTION TO MANUFACTURE ENGINEERING	ENG. SCIENCES	ROBOTICS
LOGICAL CIRCUITS	BASIC SCIENCES	ELECTRONICS
PROGRAMING LOGICS	BASIC SCIENCES	ELECTRONICS
ALGEBRA	BASIC SCIENCES	MATHS
DIFERENTIAL CALCULUS	BASIC SCIENCES.	MATHS
OPERATING GROUPS	SOC & HUMAN SCIENCES	SICOLOGY

Second semester	CENTER	DEPARTMENT
MATERIALS FOR ENGINEERING	ENG SCIENCES	ROBOTICS
INDUSTRIAL AUTOMATION I	ENG. SCIENCES	ROBOTICS
ELECTRICAL CIRCUITS	BASIC SCIENCES	ELECTRONICS
PROGRAMMING	BASIC SCIENCES	ELECTRONICS
LINEAR ALGEBRA	BASIC SCIENCES	MATHS
CHEMISTRY	BASIC SCIENCES	CHEMISTRY

Third semester	CENTER	DEPARTMENT
INDUSTRIAL AUTOMATION II	ENG SCIENCES	ROBOTICS
INDUSTRIAL METROLOGY	ENG. SCIENCES.	ROBOTICS
RESISTANCE OF MATERIALS	ENG. SCIENCES	AUTOMOTIVE
ELECTRONICS	BASIC SCIENCES	ELECTRONICS
PHYSICS I	BASIC SCIENCES	MATHS
INTEGRAL CALCULUS	BASIC SCIENCES.	MATHS

Fourth semester	CENTER	DEPARTMENT
INDUSTRIAL INSTRUMENTATION	ENG. SCIENCES	ROBOTICS
PARTS MANUFACTURING I	ENG. SCIENCES	ROBOTICS
MECHANICS	ENG. SCIENCES	AUTOMOTIVE
CAD FOR ENGINEERING	BASIC SCIENCES	AUTOMOTIVE
PHYSICS II	BASIC SCIENCES	MATHS
VECTOR CALCULUS	BASIC SCIENCES	MATHS

Fifth semester	CENTER	DEPARTMENT
CAD FOR ENGINEERING	BASIC SCIENCES	ROBOTICS
PARTS MANUFACTURING II	ENG. SCIENCES	AUTOMOTIVE
TERMODINAMICS AND THERMAL MACHINES	ENG. SCIENCES	AUTOMOTIVE
PROBABILITY AND STATISTICS	BASIC SCIENCES	STATISTICS
DIFFERENTIAL EQUATIONS AND LAPLACE TRANFORMS	BASIC SCIENCES	MATHS
PROFESSIONAL ETHICS	SOC & HUMAN SCIENCES	PHILOSOPHY

Sixth semester	CENTER	DEPARTMENT
MODELLING & DYNAMIC SIMULATION	ENG SCIENCES	ROBOTICS
INDUSTRIAL MACHINES	ENG. SCIENCES	ROBOTICS
OPERATIONS MANAGEMENT I	ECO & MNG. SCS	HUM RESOURS
STATISTICAL INFERENCE	BASIC SCIENCES	STATISTICS
RESEARCH OF OPERATIONS	BASIC SCIENCES	MATHS
HEATH TRANSFERENCE	BASIC SCIENCES	BIOCHEMISTRY

Seventh semester	CENTER	DEPARTMENT
CONTROL SYSTEMS	ENG. SCIENCES	ROBOTICS
INDUSTRIAL AUTOMATION III	ENG SCIENCES	ROBOTICS
OPERATIONS MANAGEMENT II	EC & MANAG SCS	HUMAN RESOUR
FLUIDS MECHANICS & HYDRAULIC MACHINES	ENG. SCIENCES	AUTOMOTIVE
STATISTICS CONTROL OF QUALITY	BASIC. SCIENCES	STATISTICS
INDUSTRIAL ROBOTICS	ENG. SCIENCES	ROBOTICS
LOGISTICS	ENTERPRISES SCS	AGROBUSINESS

Eighth semester	**CENTER**	**DEPARTMENT**
INDUSTRIAL MAINTENANCE	ENG. SCIENCES	ROBOTICS
HUMAN RESOURCES MANAGEMENT	EC & MANAG SCS	HUMAN RESOURCES
LOCATION, DISTRIB AND HANDLING OF MATERIAS	EC & MANAG SCS	HUMAN RESOURCES
BUSINESS	ENTERPRISES SCS	AGROBUSINESS
LABOUR LAWS	SOC & HUMAN SCIENCES	LAWS
OPTIONAL PROFESSIONAL I		
OPTIONAL PROFESSIONAL II		

Ninth semester	**CENTER**	**DEPARTMENT**
INTEGRAL PROJECT (INTERNSHIP)	ENG. SCIENCES	ROBOTICS

INSTITUTIONAL PROGRAMS

- Professional practices
- Social service
- Tutorials
- Mobility and Academic Exchange
- Promotion of foreign languages
- Humanist Training Program

DEGREE REQUIREMENTS

The graduate must adhere to what is established in Chapter XIV of the degree at the technical, technical level superior and bachelor's degree, article 156 of the General Teaching Regulation that states the following:
“Once you have accredited all the subjects and requirements indicated in the curriculum of the level courses technician, technical superior and bachelor, the graduate can request the issuance of his degree in the Department of School Control, after complying with the following elements:
I.- Have fulfilled the requirements of Social Service, Humanistic Training, Professional Practices and Foreign Languages, defined in institutional programs;
II.- Check that there is no debit with the Autonomous University of Aguascalientes;
III.- Have covered the quota established in the plan of taxation to obtain the title; and
IV.- Have submitted the exit exam.”