AUTOMOTIVE ENGINEERING

OBJECTIVE

To form leading automotive engineers in the areas of automotive production and maintenance with ability to diagnose, optimize, construct and implement a solution to the problems related to the fields of Automotive Mechanics, Automation and Manufacturing; with quality and respect for the environment, in an ethical and humanistic framework.

DESIRABLE ASPIRANT PROFILE:

The applicant for Automotive Engineering must meet the following characteristics:

- Facility for physics and mathematics.
- Interest in automobiles.
- Ease for Drawing
- Ability for analysis and synthesis
- Observation ability
- Entrepreneurial attitude
- Critical and reflective attitude

GRADUATE PROFILE:

Abilities

- To maintain the electrical, electronic and mechanical systems that are part of the automotive vehicles.
- To determine mechanical failures in gasoline and diesel vehicle engines, in accordance with the principles of electromechanical operation using electronic diagnostic equipment.
- To optimize the mechanisms for fuel consumption in the automobile and the emission of pollutants in industrial processes, in response to the national and international environment quality standards.
- To participate in production systems in the automotive industry seeking the optimization of resources in the manufacturing processes.
- To automate manufacturing processes through the use of current technology for the manufacture of auto parts.
- To adapt electromechanical, pneumatic, and hydraulic equipment using modern technology to improve production processes and costs.
- To develop auto part design projects, using technology and an adequate material selection.
- To implement quality and environmental standards in automotive production processes, under national and international control schemes.
- Construct electronic circuits to control the basic and power functions of the car as well as the adaptation of electrical signals in sensors.
- Implement software embedded in electronic, hydraulic and mechanical systems for comfort, safety and services in the car.
- Interpret and communicate adequately technical texts in the native language and in the English language for their use in the field of Automotive Engineering

Knowledge

- Mathematics, Physics and Chemistry.
- Electrical circuits, electronic circuits and power circuits
- Automotive diagnostic systems, automotive systems (brakes, steering and suspension, transmission, hydraulic, tires).

- Electric Motors, Transformers, Automotive Electronics and Classic Control.
- Digital logic, computer numerical systems and communication protocols in the car.
- CAD-CAM computer aided design and industrial systems programming.
- Properties and resistance of materials, environmental and manufacturing processes.
- Mechanical design, Thermodynamics, Project methodology.
- Quality Standards and Systems, Economic and Financial Engineering, Production Administration and
- Safety and industrial hygiene.
- Principles of Internal Combustion Engines, Fuel Injection Systems and Fluid Mechanics.

CURRICULUM

First Semester	**CENTER**	**DEPARTMENT**
INTRODUCTION TO AUTOMOTIVE ENGINEERING	AUTOMOTIVE	ENG. SCIENCE
TECHNICAL MECHANICAL DRAWING	ENG. SCIENCE	AUTOMOTIVE
PROGRAMMING LOGIC SYS	BASIC SCIENCE	ELECTRONIC
ALGEBRA	BASIC SCIENCE	MATHS & PHY
DIFFERENTIAL CALCULUS	BASIC SCIENCE	MATHS & PHY

Second semester	**CENTER**	**DEPARTMENT**
CAD	ENG. SCIENCE	AUTOMOTIVE
ELECTRICAL CIRCUITS	BASIC SCIENCE	ELECT. SYST.
PROGRAMMING	BASIC SCIENCE	ELECT. SYST.
LINEAR ALGEBRA	BASIC SCIENCE	MATHS & PHY
INTEGRAL CALCULUS	BASIC SCIENCE	MATHS & PHY

Third semester	**CENTER**	**DEPARTMENT**
MECHANISM ELEMENTS	ENG. SCIENCE	AUTOMOTIVE
LOGIC CIRCUITS SYST.ELECTRONIC SYS	BASIC SCIENCE	ELECT.
PHYSICS I	BASIC SCIENCE	MATHS & PHY
VECTOR CALCULUS	BASIC SCIENCE	MATHS & PHY
PROBABILITY AND STATISTICS	BASIC SCIENCE	STATISTICS
OPERATIVE GROUPS	SOC & HUMAN SCI	SICOLOGY

Fourth Semester	**CENTER**	**DEPARTMENT**
CHASSIS, BRAKES AND SUSPENSION	ENG. SCIENCE	AUTOMOTIVE

PHYSICS II	BASIC SCIENCE	MATHS & PHY
DIFFERENTIAL EQUATIONS	BASIC SCIENCE	MATHS & PHY
CHEMISTRY AND ENGINEERING MATERIALS	BASIC SCIENCE	CHEMISTRY
ANALYSIS OF ENVIRONMENTAL AND SOCIAL PROBLEMS	SOC & HUMAN SCIENCE	SOCIOLOGY

Fifth Semester	**CENTER**	**DEPARTMENT**
POWERTRAIN	ENG. SCIENCE	AUTOMOTIVE
MATERIALS RESISTANCE	ENG. SCIENCE	AUTOMOTIVE
FLUID MECHANICS AND HYDRAULIC MACHINES	AUTOMOTIVE	ENG. SCIENCE
ELECTRONICS	BASIC SCIENCE	ELECT. SYST.
PHYSICS III	BASIC SCIENCE	MATHS & PHY

Sixth Semester	**CENTER**	**DEPARTMENT**
THERMODYNAMICS AND THERMAL MACHINES	ENG. SCIENCE	AUTOMOTIVE
ELECTRICAL MACHINES AND POWER CONTROLLERS	BASIC SCIENCE	ELECT. SYST.
ELECTRIC AND ELECTRONICAL SYSTEM OF MOTOR VEHICLE	ENG. SCIENCE	AUTOMOTIVE
ECONOMICS AND FINANCIAL ENGINEERING	EC & MANAG SCI	FINANCE
SCIENTIFIC TEXTS DRAFTING	ART & CULTURE	HISP. STUDIES

Seventh Semester	**CENTER**	**DEPARTMENT**
PNEUMATIC AND HYDRAULIC CIRCUITS	ENG. SCIENCE	AUTOMOTIVE
MANUFACTURING PROCESS ON AUTOMOTIVE INDUSTRY	ENG. SCIENCE	AUTOMOTIVE
CONTROL SYSTEMS	ENG. SCIENCE	ROBOTICS
PRODUCTIONS SYSTEMS MANAGEMENT	EC & MANAG SCI	BASIC MANAG
PROFESSIONAL ETHICS	SOC & HUMAN SCI	PHILOSOPHY

Eight Semester	**CENTER**	**DEPARTMENT**
INTERNAL COMBUSTION MACHINES	ENG. SCIENCE	AUTOMOTIVE
MECHANICAL DESIGN	ENG. SCIENCE	AUTOMOTIVE
BASIC QUALITY SYSTEMS	EC & MANAG SCI	HUMAN RESO
SAFETY AND INDUSTRIAL HYGIENE	EC & MANAG SCI	HUMAN RESO

ELECTIVE COURSE I	ENG. SCIENCE	AUTOMOTIVE
ELECTIVE COURSE II	ENG. SCIENCE	AUTOMOTIVE

	CENTER	DEPARTMENT
Ninth Semester		
INTERSHIP PROJECT	ENG. SCIENCE	AUTOMOTIVE

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.”