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EXTENSION

Extension in the EIA promotes interaction with society by using the following resources:

Pre-college courses prepare youngsters in the final years of secondary education to understand mathematical language and the importance of natural sciences and informatics in engineering.

Continuing Education is responsible for further education for graduates and the diffusion of new knowledge to society. There is an ample portfolio of short and diploma courses on relevant and up-to-date topics both open to the public at large and designed exclusively for interested organizations.

The Business Advisory Center, led by teacher-consultants, advises companies and allows students to do professional practice.

The Center of Innovation and Entrepreneurship –CIE–. In accordance with the strategic direction defined in the EIA institutional project, this center arose to consolidate an entrepreneurial spirit as one of the axes of formation in the School, and to promote and support the creation of organizations led by students that generate jobs.

The Internship Semester is done in domestic or foreign companies. It offers to the students valuable experience for their professional life, at the same time giving the EIA feedback on the formative process.

The Special Project Semester allows the students of the last semesters to elect one of the following options: research practice, entrepreneurship, business practice, social practice, or academic complementary semester.

The Alumni Office takes care of mutual cooperation between the Institution and the professionals it has formed. Its primary aim is to foster areas of mutual interest; ensure that the graduates contribute to the continuity of the School and its permanent progress in accordance with scientific and technological advances; and to support the graduates in their professional and academic career.

COLOMBIA

Colombia is a tropical country with a great diversity of climates, topography, and natural resources, located in the strategic North West corner of South America with both Caribbean and Pacific coasts. The imposing Andes mountain range stretches from the South to the North of the country; in the South is the Amazon region and to the east, the Orinoco region. Colombia possesses one of the richest flora and fauna in the world, enormous hydrological potential, and important mineral resources.

It is predominantly an agricultural and mining country and yet a forward-reaching nation with good industrial, commercial, and scientific development. Petroleum and chemical products are the principal exports, followed by coffee, coal, and emeralds. It also exports flowers, bananas, tobacco, sugar, and cotton in large quantities. In recent years the export of manufactured goods has increased in importance, particularly textiles and clothing.

The capital city, Bogota, and other principal cities such as Medellin, Cali, and Barranquilla have achieved significant economic and cultural development; they have the most important industrial and commercial centers as well as the most famous educational and cultural institutions.



Landscape of Antioquia (Colombia)



Cartagena of Indias (Colombia)



Panoramic view of Medellín

MEDELLIN

Capital of the department of Antioquia, situated in a valley, 1550 meters above sea level; with a spring-like climate and good roads communicating with the rest of the country. It has the best public services in Colombia, a modern health service, two airports, an in-city train service and two large bus stations. Medellín offers excellent and varied hotels, tourism facilities, and an ample university system.

Medellin is an industrial, commercial, financial, and manufacturing city. It is the headquarters of the largest economic group in the country, host to a variety of fairs, exhibitions, and conventions. It is a modern, hospitable city, of warm-hearted, hard-working, forward-looking people, known affectionately as *Paisas*.

Feria de las flores, annual celebration



Sculptures of Botero Park



ORIGIN AND DEVELOPMENT

The Antioquia School of Engineering was founded on 14 February 1978 by a group of 27 engineers, as a non-profit organization, aiming to solve social and technological problems.

Academic work began in January 1979 with the Civil Engineering program. The School now offers the following undergraduate academic programs: Management Engineering, Environmental Engineering, Biomedical Engineering, Civil Engineering, Industrial Engineering, Informatics Engineering and Mechatronics Engineering. Additionally, there are graduate programs in engineering, management, finance, and marketing.

Throughout its history the School has been noted for the formation of professionals of high academic and personal qualities. It has handed on to society integral men and women capable of working effectively towards the development of the country.



New seat EIA in Alto Las Palmas, watercolor of Pedro Pablo Lalinde

MISSION

Integral formation of high-quality professionals in undergraduate and graduate programs, promotion of applied research and interaction with society that will result in the technological, economic, cultural, and social development of the nation.

As an academic community, it promotes a global vision, creativity, teamwork, the improvement of quality of life and a respect for natural surroundings, all based on principles of ethics and justice.

VALUES

The EIA academic community emphasizes the following values:

**HONESTY
RESPECT
RESPONSIBILITY
GLOBAL VISION**

**QUALITY
CREATIVITY
TEAMWORK
SOLIDARITY**





VISION

To be one of the best institutions of higher education in engineering in Colombia recognized nationwide and worldwide for the quality of the engineers and professionals that are produced, for the results of its applied research and for its effective contribution to society.

PRINCIPLES OF THE INSTITUTION

- The constant search for academic excellence in teaching, research, and extension (interaction with society).
- An emphasis on the basic sciences as fundamental pillars for scientific and technological progress and as agents for the consolidation of analytical and logical capabilities and reasoning.
- A global vision which permits the formulation of solutions without the bias of excessive specialization and which permits a more ample exercise of the profession.
- A technical and humanistic formation that favors balanced personal growth, reinforces civic values and stimulates the business spirit.
- Commitment to the development of the nation through coherent and pertinent actions in teaching, research, and extension.
- Respect for humankind, law, society, and environment.
- Selection of the best students, teachers, and employees on the basis of academic and personal merits.



THE RELEVANCE OF THE APPROACH

In order to carry out its Mission, EIA has focused on six aspects of university education: undergraduate, graduate, continuing education, research, extension, advisory and consultancy services. Special attention is given to three areas:

- Creativity, productivity, and business technology
- Transformation and care of the environment
 - Health technology





THE PEDAGOGIC MODEL AS A GUIDE

The daily round of the academic community is based on three words: being, knowing, and serving.

BEING

Human formation

KNOWING

Creation and development of knowledge

SERVING

A commitment of service to the community

In the pedagogical model EIA, the formative process centers on learning, with an emphasis on values, the development of thinking skills, and the solution of problems relevant to the society.



Laboratory of Biomedical Engineering

THE AXES OF FORMATION

The graduates of the EIA are equipped with special competences obtained through the study of the basic sciences and the engineering sciences, complemented with the culture that is obtained through the formation axes:

Humanistic: related with the personal, integral formation in values, social sciences, aesthetic sensitivity, development in communication abilities, teamwork, and commitment to society.

Scientific & Technical: in this axis the basic sciences, the scientific method and the professional techniques predominate; it establishes the relationship between the logic of sciences and that of the profession to reach the competences necessary for each professional to be effective in different work situations both nationally and internationally.

Information Management: is related with the search for, organization of, transformation of and use of information in a responsible, reliable, and opportune fashion, with the help of the appropriate technological tools, to attend to local necessities and worldwide communication.

Research for technological development: stimulates and generates a culture of research that permits the adaptation of knowledge to produce diverse, creative, and useful solutions to those technological problems that come up.

Respect for the environment: knowledge of environmental variables and their consideration in decision-making processes.

Entrepreneurial spirit: strengthening the business mentality orientated to the development of businesses and the generation of employment.



LABORATORIES

The EIA has laboratories as teaching aids and as services to companies. There are facilities in: Chemistry; Physics and Electronics; Biology and Water Quality; Hydraulics; Soils and Materials; Ceramics; Mineralogy and Geology; Photogrammetry; Telematics and Software; Simulation, Geographic Information Systems, Biomechatronics, Physiology, Bioinstrumentation, Tissue Culture, and Biomaterials. The last five laboratories are shared with the Health Sciences Institute CES, another prestigious university in Medellin.



Agreements exist with other universities, research organizations, and other public and private bodies for the use of more specialized laboratories.

THE ACADEMIC COMMUNITY

STUDENTS

The admission process, based on academic and personal merits, ensures that only those candidates with a high performance record are admitted to EIA. Undergraduate EIA students rank in the top 10% according to the results of the National Examinations held at the end of the secondary education phase. An average of 300 freshmen are admitted each year. In the case of postgraduate studies, the admission process includes an analysis of research capabilities allowing our graduates to make noteworthy papers in international events.

FACULTY

A balance is maintained between full-time and part-time staff. The existing ratio is one full-time teacher for each group of 30 students. They attend primarily to the areas which require more care in the professional formation, such as research, the basic sciences, and basic engineering sciences. In this basic formation EIA has achieved recognition in its field.

Part-time staff attends principally to the professional areas. Their permanent contact with the professional world enriches the learning-teaching process.

ALUMNI

Graduates are recognized as professionals with high academic and human qualities. Proof of this is the large percentage of graduates who hold high positions in technical and administrative fields, not only in Colombia but abroad. They have obtained doctorates in prestigious universities throughout the world; as businesspersons, they are conscious of the importance of generating employment and developing their career. All fulfill our motto: Being, Knowing, and Serving.

INFORMATION TECHNOLOGIES

The EIA has one computer per 10 students in its modern computer rooms, which are used for teaching, research, and extension. There is Internet access and specialized software for engineering and languages. There is also a center for Geographic Information Systems, a center for computer-aided design (CAD) and a workshop for the practical work of Informatics students. There are network points around the campus, including in the cafeterias and study areas. All students and faculty members have a cost-free account for Internet access and e-mail.





LIBRARY

ALBERTO QUEVEDO DÍAZ

The Library of the EIA is a cultural center and the principal support for teaching, research, and extension. Its collections and services contribute to the accomplishment of the Institution's aims.

The Library has a specialized collection with an average of 10 books per student, dedicated to diverse areas of Civil, Management, Environmental, Industrial, Informatics, Biomedical, and Mechatronics Engineering and to the Humanities, complemented with updated international data bases. There are a number of agreements with local universities and businesses for the sharing of collections for the benefit of the academic communities. The library's internal database is available for users both in campus and by Internet.

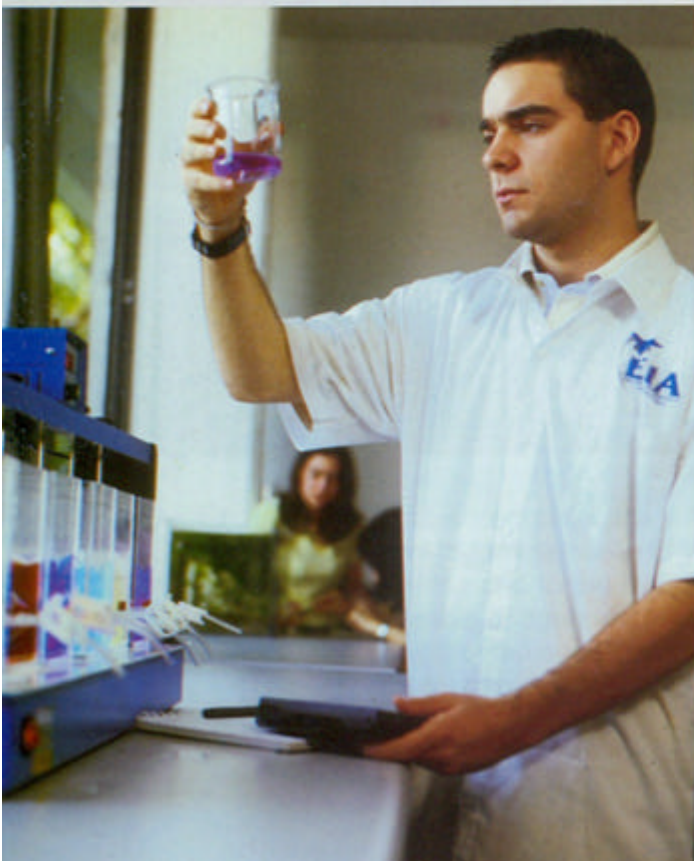
RESEARCH



The objectives of research are to generate new knowledge, support and reinforce teaching, and contribute to the solving of scientific, technological, and social problems in the areas covered by the EIA.

The following have been defined as LINES OF PRIORITY ACTION:

- Soil resource
- Hydraulic resources
- Information systems
- Finance
- Logistics
- Clean technology
- Human rehabilitation



The EIA has participated in the creation and strengthening of centers of technological development such as the Center for Research and Development of the Construction Industry, the National Center for Cleaner Production and Environmental Technology, the Center for Productivity and Technological Development in the Metallurgical Industry, the Technological Park of Antioquia, the Center for Pharmaceutical and Science Research, the Technological Business Incubator of Antioquia, and the Science and Technology Center of Antioquia.

The EIA contributes to the solution of problems through the formulation and execution of research projects, thus offering to the community a group of teachers and researchers who, with student help, are capable of finding novel solutions to problems. The permanent contact with local firms helps to identify such problems and allows participation with the support of different academic bodies in the financing and development of projects.

PROGRAMAS DE OUTDOOR FACILITIES ALTO DE LAS PALMAS

The EIA is aware of the necessity of having appropriate spaces for relaxation and the practice of sports. It has started work on creating a sports area on the new campus in the Alto de Las Palmas, Envigado.

The EIA is advancing in the construction of the new campus, whose first stage is the sport area including a soccer field, two sport centers for the practice of volleyball, basketball and indoor soccer; a sand volleyball court and a baseball diamond. The sport area is completed by a leisure zone, access ways, bathrooms, dressing rooms, and general services.

The second stage is the construction of four buildings, each one of them with 18 classrooms and a small auditorium; additionally, a main auditorium will be built with room for 500 spectators, a library building, three cafeterias, gymnasium, 22 laboratories, a coliseum, chapel, outdoor theater, jogging path, a lake, an observatory, and parking lots.

The new campus is a 112.000 m² area with approximately 50.000 m² of green areas.





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INSTITUTIONAL WELL-BEING

The Institutional Well-Being area motivates the human development of the academic community, improving quality of life through programs designed to strengthen the academic, spiritual, psycho-affective, physical, recreational, and cultural qualities of the students, teachers, and other employees of the School.

The EIA promotes cultural and recreational activities and sports to such an extent that musical and theatrical groups are in existence. There is successful participation in national and local university sporting events.



INTERNATIONALIZATION AND AGREEMENTS

The internationalization in the EIA seeks to respond to new challenges presented by globalization, with programs and actions contributing to academic excellence. To meet this objective, the EIA maintains cooperation agreements for the carrying out of joint projects with domestic and foreign bodies and for the promotion of internationalization in the field of education.

The EIA belongs to the Colombian Network for International Cooperation in Higher Education (RCI), which encompasses universities and firms in Medellín and other Colombian cities. It is also a member of the Columbus program of co-operation between European and Latin American universities, the EAIE (European Association for International Education), and the ICDE (International Council for Open and Distance Education). The international organization of students AEISEC has an office in our Institution that offers international exchange and academic activities to the university community.

To guarantee an international dimension, the EIA has formalized agreements for academic and cultural cooperation with the following foreign universities: Adolfo Ibáñez (Chile), Guadalajara and Autónoma de Nuevo León (Mexico), Pinar del Río (Cuba), West Indies (Trinidad and Tobago), Politécnica de Madrid (Spain), Politécnica de Valencia (Spain), Sevilla (Spain), Autónoma de Madrid (Spain), National School of Engineers in Metz (France), and Heinrich Heine in Düsseldorf (Germany).



UNDERGRADUATE PROGRAMS

The EIA has the following undergraduate programs, each with a global focus, which prepares in 10 or 11 semesters engineers with values and social responsibility, committed to the development of the country. All of its programs satisfy the quality standards of the Ministry of National Education and the CNA (National Accreditation Board). The EIA was the first institution of higher education in Colombia to have all of its undergraduate programs accredited or with a quality registration certificate, according to the standards of the CNA.

MANAGEMENT

Management Engineering

(Program with high quality accredited by the CNA)

It forms competent professionals in the design, innovation, analysis, interpretation, planning, leadership, implementation, negotiation, evaluation, and control of decisions in the administration, human resources, financial, and marketing areas, combining the systemic vision of the organizations with the methodology and rigor of engineering.

Management Engineer manages the administrative decision-making in the organizations, with the purpose of making them nationally and internationally competitive. These decisions are applied to the human, financial, technological, and commercial resources of the organization.



ENVIRONMENTAL



Environmental Engineering

(Program with quality registration certificate from the CNA)

It forms competent professionals in the design of technical solutions for the prevention, mitigation, and control of environmental impacts, as well as in the diagnosis, evaluation, and administration of the environment in its physical (water, air, soil), biotic (flora, fauna), and social dimensions.

Environmental Engineer manages integrally the environment, taking into account environmental variables in the planning of industrial projects and infrastructure, in accordance with sustainable development.

BIOMEDICAL

Biomedical Engineering

(Program with quality registration certificate from the CNA)

It forms competent professionals in the design, implementation, simulation, mathematical modeling, research and management of biomedical solutions in rehabilitation, clinical engineering, bioinstrumentation, health biotechnology, and biomaterials.

This program is offered in agreement with another recognized institution of higher education, the Health Sciences Institute –CES–.

Biomedical Engineer develops technological, scientific, and administrative solutions, under integral and optimal criteria, seeking the human health.

Prosthesis





CIVIL

Civil Engineering

(Program with high quality accredited by the CNA)

It forms competent professionals in the design, planning, construction, and administration of civil works such as buildings and other structures, water and hydraulic works, soils and geotechnics, highways and transportation projects; as well as in the identification of necessities and the conception of the respective solutions, that contribute to the balanced development of the country.

Civil Engineer opportunely manages civil works relating to the sustainable development of the region and the country.

INDUSTRIAL

Industrial Engineering

(Program with quality registration certificate from the CNA)

It forms competent professionals to analyze, diagnose, plan, design, implement, evaluate, and administer processes in the areas of product design, production, quality, and logistics.

Industrial Engineer innovates and optimizes the processes in manufacturing and service enterprises, in order to obtain high competitiveness in national and international fields.



MECHATRONICS



Mechatronics Engineering

(Program with quality registration certificate from the CNA)

It forms competent professionals that apply the electronics and the techniques of computational intelligence to the design, execution, updating, and control of mechanical and electromechanical systems to the development of products, and to automatic and intelligent processes in multidisciplinary areas with high levels of autonomy and versatility in their functions.

Mechatronics Engineer administer mechatronic solutions to respond integrally to the requirements of updating and modernization of Colombian industry at all levels, in order to obtain greater competitiveness and minimize technological dependency.

Informatics Engineering

(Program with quality registration certificate from the CNA)

It forms competent professionals in the analysis, design, construction, implementation, support, administration and research of solutions in the areas of software engineering, telematics, and data bases for all kinds of companies.

Informatics Engineer develops informatics solutions with the purpose of optimizing information systems and thus facilitate the strategic, tactical, and operative decision-making in organizations and to generate an exportable supply of products and services in the industry of knowledge, allowing a sustainable competitive advantage.

INFORMATICS



GRADUATE PROGRAMS

The EIA prepares specialists in areas required by Colombia to support technological, economic, social, and political development of the region and the country .

Management of Production and Services

It develops the competences required by specialists in the planning and control of production to make more competitive and productive manufacturing and services companies. Modern services must scientifically apply technology to the main processes, to create more efficient companies in this sector of the economy. The program emphasizes in the Theory of Constraints –TOC– and Logistics.

Corporate Finance

It forms specialist leaders working with excellence in the fields of the public and private finance, with emphasis in accounting control and financial engineering and possessing systemic vision of management that results in the economic and social benefit of the country.

Management of Engineering Companies

It forms engineers and architects in enterprise management and the management of engineering and architecture projects, committed to innovation and change, to program, direct and control projects, with competences in marketing, quality, and human resources. They are trained in legal, fiscal, and hiring aspects, with skill in handling and understanding of systems and their application in decision-making for the direction and control of works, giving special attention to quality standards, technological management, and research.

Urban Management and Processes

It forms specialists with the necessary competences so they can plan, design, manage, and control contemporary cities. The city of the twenty-first century must be oriented by people specially prepared, since it requires scientific planning, architectonic and engineering design, understanding of social phenomena, administrative capabilities, and mastery of the economy.

Management of Global Markets

It forms specialists with managerial and personal competences for global management of markets that generate strategies and enterprise tactics in agreement with the world tendencies, allowing companies to take advantage of opportunities and to confront new challenges that global markets bring.



REGIONAL SUPPORT

EIA supports the industrial clusters defined by the Chamber of Commerce of Medellín: construction, food, and textiles/clothing and also the three clusters defined in the development plans for the region of Antioquia: textiles/clothing, health, and software/technology. In this way, the Institution contributes to the accomplishment of the regional development goals .