FOREWORD

The School of Engineering at Universidad de los Andes is one of the top schools in its field, thanks to its teaching and research. It provides a superior education to its undergraduate and graduate students. Its research has high international exposure and contributes to Colombia’s development, thanks to its highly qualified teaching staff and well-equipped work environment. Graduates are recognized for the skills they develop, which enable them to transform society through work in technological, economic, social and environmental fields.
A TRADITION OF EXCELLENCE

Quality of teaching staff
- Full-time professors with strong academic backgrounds: 85% have PhD degrees.
- Internationally recognized in the world of Colombian and international engineering for their research work.
- 75% of course enrollments are taught by full-time professors.
- 96% of professors’ doctoral degrees earned at universities abroad.

The best students
- More than 95% of our students scored in the top 10% on Colombia’s national university entrance examination.
- First and second places in the higher-education quality examinations (ECAES).
- 25% of undergraduate students pursue double-degree programs.
- Approximately 300 students have benefited from the scholarship program “Quiero estudiar,” a financial support program for low-income students who show academic excellence.

Globally connected
- International agreements for undergraduate and graduate study.
- Student exchanges in undergraduate and master’s programs (more than 100 students studied abroad in 2010).
- Double degrees.
- Work-study visits for professors and doctoral students.
- Visiting professors.
- International Summer School.
- More than 75 professors visited foreign universities to take part in academic activities in 2010.

Infrastructure
Universidad de los Andes is committed to improving its resources and infrastructure to provide students and professors with an environment that fosters learning and the development of research.
- 58 laboratories.
- 8 computer rooms for classes and individual or group work.
- 1 active learning classroom.
- 36 group study rooms endowed with cutting-edge technology equipment and specialized hardware and software.
- 200,000 titles in all areas of knowledge and access to more than 75 international scientific databases.

Graduates
The School of Engineering keeps track of its graduates by undertaking systematic follow-up studies. The results evidence the quality of their education:
- Employers find that Los Andes engineering graduates perform at high levels, showing strong professional competence, initiative and resourcefulness.
- Graduates receive the best jobs and show the fastest professional development.
- 81% of first-degree graduates find employment in the first three months after their graduation.
- Our alumni have gone on to complete graduate programs in the world’s best universities.

Leadership in research
- The School is recognized for its leadership in research in Colombia.
- Strategic research centers have been established for focused research initiatives.
- 24 research groups recognized in Colombia.
- Participation in local and international academic networks for cooperation in research.
- A leader in the use of information technology.

Webpage
http://ingenieria.uniandes.edu.co/egresadosING/
WE FORM LEADERS WHO CONTRIBUTE TO THE DEVELOPMENT OF THE COUNTRY

The School’s track record is reflected in the quality of its programs. The curricula are modern and innovative; they satisfy the most diverse interests of academic education and promote active learning among students.

Undergraduate
- Environmental Engineering
- Biomedical Engineering
- Civil Engineering
- Electrical Engineering
- Electronic Engineering
- Industrial Engineering
- Mechanical Engineering
- Chemical Engineering
- Systems and Computing Engineering

Masters degrees
- Environmental Engineering
- Civil Engineering
- Electrical Engineering
- Electronic and Computer Engineering
- Industrial Engineering
- Mechanical Engineering
- Chemical Engineering
- Systems and Computing Engineering

Doctoral degree
- Ph.D. in Engineering

Accreditation
The excellence and high quality standards of the School of Engineering have allowed it to win some of the most important recognitions in education. All undergraduate programs have received the highest-quality accreditation level from the National Accreditation Council.

Universidad de los Andes is the only private university in Colombia granted national accreditation from the Ministry of Education for the nine-year period from 2005 to 2014.

Profile of students and graduates
The School seeks to develop in the students the capacities to:
- Identify and understand problems of their times, interpret social needs and respond to them with solutions founded on an understanding and mastery of the sciences, mathematics, technology and the methods of engineering.
- Become leaders in the environments in which they live, with regard to identification, appropriation, use and generation of the technologies that will best contribute to sustainable progress. In this way contribute to Colombia’s economic development.
- Deploy entrepreneurial skills in the creation and promotion of technology-based businesses.

Well-being
Universidad de los Andes is concerned about the welfare of its community and offers services to help its community members:
- Cultural activities: Films, concerts, theater, exhibitions, lectures, dance and more.
- Sports: A 6,600 m² sports center offering instruction in more than 25 sporting disciplines.
- Medical service.
- Counseling center.
- Financial aid.
RESEARCH FOR THE PRESENT AND THE FUTURE

Doctoral program

• Los Andes’s School of Engineering was the first program in Colombia to receive a high-quality accreditation from the National Accreditation Council.

• Independent researchers able to undertake and direct research that contributes to the advancement of science and technology, and who are recognized by the national and international academic community.

• Research aimed at producing new knowledge in engineering.

• Direction and participation in research projects conducted by interdisciplinary work groups.

• Over 60 professors from foreign universities as co-directors of doctoral theses.
As a way of increasing its contribution to Colombia, the School has defined interdisciplinary research lines that will concentrate our research efforts in the coming years. The first four strategic research centers are those for Sustainable Mobility, Energy, Water and Materials.

**Objectives of the strategic research centers:**

- To develop theoretical and applied research that will help find solutions for priority problems in Colombia and the region.
- To achieve regional leadership in the development of interdisciplinary research, contributing to the adoption of global best practices.
- To encourage a growing number of young researchers with the ability to understand the technical, economic and social dimensions of the problems in each research area.

**Laboratories**

In its ongoing first-level research work, the School of Engineering is supported by a laboratory infrastructure equipped with modern areas and facilities, high-technology equipment and latest-generation software.

This infrastructure allows professors and students to pursue new engineering research trends:

- Scientific and entrepreneurial innovation.
- Technology transfers for the national productive sector.
- Participation of multidisciplinary teams in projects.
- Special flexibility, allowing adaptation to change and new requirements.
- Integration with teaching, which encourages growth and consolidation of the master’s and doctoral programs.

The School of Engineering has 58 laboratories, all equipped with high-standard equipment for scientific, experimental and computational work. These laboratories are distributed over 5,560 m² in the modern facilities of the school’s building, Edificio Mario Laserna. Some of the most important equipment supporting the research groups’ activities are:

- Dynamic structures simulator (Materials and Civil Works Research Center and Structures and Geotechnical Research Group).
- Wind tunnel (Energy Conversion Group).
- Anechoic chamber and vector analyzer (Electronics and Telecommunications Systems Group).
- Track for modeling pavements, centrifuge for geotechnical modeling and triaxial testing machine (Structures and Geotechnics Research Group).
• Differential scanning calorimeter and plasma reactor (Materials and Manufacturing Group).
• Interferometer (Structural Integrity Group).
• Biaxial testing machine for tissues and particle image velocimetry system (Biomedical Engineering Group).
• Gas and liquid chromatography systems (Environmental Engineering Research Group).
• PVD photography system (Microelectronics Group).

• High-pressure reactors (Product and Process Design Group).
• X-ray diffractometer, spectrometer, electron scan microscope and atomic force microscope (various groups).

Research groups
The School has 24 research groups across the engineering disciplines, all recognized by the Department of Science, Technology and Innovation (COLCIENCIAS), and all of which perform interdisciplinary work on CIE projects.

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CONTACT WITH THE WORLD

Internationalization has always been a priority of the School of Engineering. Its development plan emphasizes the importance of broadening perspectives and the international positioning of its students, professors and academic programs.

International ranking

In 2011, the School of Engineering of Universidad de los Andes was ranked 219 in the QS World University Rankings.

Webpage

The School encourages a wide range of international activities that enable its community to take part in exchanges and double-degree programs and to benefit from the visits of foreign professors who take part in academic activities such as the International Summer School. These activities have become an international showcase for the School.

Exchanges and work-study visits. One or two semesters of an academic program at university abroad.

Double degrees. Conduction of studies at a university abroad, distributing subjects between two programs to obtain two diplomas, recognized by both institutions.

Visiting professors. Participation of prestigious professors with international experience who offer seminars, lectures, courses and forums in different areas.

Thesis directors. Doctoral students have an international co-director in addition to their local thesis director at the University.

Academic research networks. Full-time professors at the School take part in international cooperation groups through research projects, advisory services for theses and academic committees in international journals.

International Summer School. A variety of courses over the whole range of engineering disciplines, taught by professors from prestigious foreign universities.

Other. International academic events, work-study visits by professors abroad, international cooperation projects and co-direction of doctoral theses.

Institutions. On the next page are some of universities with which the School has signed cooperation agreements.

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<th>University</th>
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CONTRIBUTIONS TO REGIONAL AND NATIONAL DEVELOPMENT

One of the objectives of the School of Engineering is to make a positive impact on the economic, social and scientific progress of Colombia and its many regions and communities.

The following are some of the relationships that the School has developed with private enterprises, public institutions and Colombian and foreign non-governmental agencies.

Specialized consultancy. Participation in projects designed to resolve specific business management problems. The School has the capacity to provide special value to the contracting party while developing the competences of the research team responsible for the project.

Specialization programs. The 12 graduate specialization programs are designed to integrate the vision of business with the academic world, promoting links between the School and the business community.

Innovation. The School supports business in an effort to increase competitiveness and to contribute to the development of solutions to critical problems in Colombia.

Alliances/Agreements. The School has long-term alliances with the following institutions: the Disaster Prevention and Attention Department; the Bogotá water and sewerage utility EAAB; the national higher education development authority ICFES; the Bogotá urban development Institute IDU; the Organization of Ibero-American States for Education, Science and Culture; the Bogotá city Health Department; the Bogotá Chamber of Commerce; the electricity utility CODENSA SA ESP; Telefónica SA; the Ministry of Defense; and the defense industry INDUMIL, among others.

University-industry program. This is a link between students from the School’s master’s programs and Colombia’s economic and social sector. It enables master’s students to pursue their studies with economic support from businesses that participate in the program.

Fundraising for research. Following its institutional development program for the next few years, the University has made the decision to direct its efforts toward a highly ambitious goal: to become a research university. The School of Engineering has therefore started to implement a fundraising program for investment in the development of research lines that are strategic for Colombia, in areas in which the School has developed strengths.

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