


ESCUELA
COLOMBIANA
DE INGENIERÍA
JULIO GARAVITO

VIGILADA MINEDUCACIÓN

INSTITUTIONAL PORTFOLIO



www.escuelaing.edu.co

A man and two women are sitting at a wooden table in a modern, brightly lit room with large windows. The man, on the left, is wearing a light grey jacket and brown pants, and is looking at a tablet held by one of the women. The woman on the right is wearing a grey and white patterned sweater and black ripped jeans. The woman in the middle is wearing a grey jacket and blue jeans. On the table, there is a red apple, a notebook, and a pen. The background shows a view of a mountain range under a blue sky with clouds. The text "Passion for knowledge, I live it at Escuela" is overlaid on the image in a white box with large black brackets.

**Passion for
knowledge, I live
it at Escuela**

Our institution

The Escuela Colombiana de Ingeniería Julio Garavito is a university institution focused on technology, whose mission is to contribute to the development of people, knowledge, and society, through integral training and knowledge construction within the context of Colombian reality. It has a trajectory that started in 1972 at the undergraduate, postgraduate, and continuous education levels.

For all its academic offer, the institution has teachers with strong academic and research training, which allows them to develop knowledge aimed at fostering innovation and technological progress, through the development of their academic responsibilities of training, constructing, and development of knowledge and their interaction with the context.

Likewise, Internationalization is understood as the possibility to integrate high quality knowledge and strengthen their missional functions. It is focused on the participation of academic and research communities and networks, multidirectional mobility, homologation and recognition of titles, institutionalization of multilingualism, and the application of international quality standards.

It also promotes the human development of every member of the university community in their individual and collective dimensions, which is achieved through excellent conditions to improve life quality and offering personal, social, educational, and cultural support. Besides, its institutional environment fosters integral growth, allows the construction and consolidation of an academic environment, and it is grounded on the institutional philosophy adopted by the community.



Undergraduate programs

Business Management

SNIES: 53966

Concentration areas:

- ▶ International business and finance

Mathematics

SNIES:17443

Concentration areas:

- ▶ Computational Mathematics
- ▶ Actuary
- ▶ Optimization
- ▶ Continuous systems

Civil Engineering

SNIES:1980

Concentration areas:

- ▶ Structures and materials
- ▶ Hydraulics
- ▶ Environmental engineering
- ▶ Geotechnics
- ▶ Ways and transportation
- ▶ Construction

Electric Engineering

SNIES:1982

Concentration areas:

- ▶ Power systems
- ▶ Energy resources
- ▶ Energy trade
- ▶ Control and automation

Economics

SNIES: 3602

Concentration areas:

- ▶ Company management
- ▶ Finance and projects
- ▶ Energy economics
- ▶ Mathematics
- ▶ History

Environmental Engineering

SNIES:105800

Concentration areas:

- ▶ Sanitary engineering and public health
- ▶ Underground waters
- ▶ Environmental management and land-use planning
- ▶ Energy resources and air quality

Biomedic Engineering

Conjoint degree with Universidad del Rosario

SNIES: 91049

Concentration areas:

- ▶ Bioinformatics
- ▶ Clinical Engineering
- ▶ Medical sign and image processing
- ▶ Rehabilitation engineering

Mechanic Engineering

SNIES:54358

Concentration areas:

- ▶ Industrial automation
- ▶ Materials and processes
- ▶ Automobile engineering
- ▶ Energy resources

Electronic Engineering

SNIES:2866

Concentration areas:

- ▶ Communications
- ▶ Control and automation
- ▶ Bioengineering

Systems Engineering

SNIES:1981

Concentration areas:

- ▶ Software engineering
- ▶ Computational infrastructure
- ▶ Systems and organizations

Industrial Engineering

SNIES:2563

Concentration areas:

- ▶ Production
- ▶ Technology and innovation management
- ▶ Optimization
- ▶ Integrated management systems
- ▶ Organizational management



More information

<http://www.escuelaing.edu.co/escuela/info>

How to apply to our undergraduate programs

Minimum scores in certain areas of the national examination are required by the university per the selected program:

ICFES before 2014-1

At least 45 points in the areas of the programs as follow:

- Engineering and Mathematics
Physics, Mathematics, and Language
- Economics
Philosophy, Mathematics, and Language
- Business Management
Mathematics, Social Studies, and Language
- Biomedical Engineering
Mathematics, Physics, Language, Biology, and Chemistry

ICFES from 2014-2 and on

At least 45 points in the areas of the programs as follow:

- Engineering and Mathematics
Natural Science, Mathematics, and Critical Reading
- Economics
Mathematics, Critical Reading, and Social and Citizen Competences
- Business Management
Mathematics, Critical Reading, and Social and Citizen Competences
- Biomedical Engineering
Natural Science, Mathematics, and Critical Reading



Application is done through the website of the university www.escuelaing.edu.co, per the following steps:

- ▶ Register or ask for your reference number
- ▶ Make the payment of the registration fees
- ▶ Fill in the online registration form
- ▶ Hand in all the documents in the established dates (check the list at <http://bit.ly/1gYExAA>)

All applications that do not meet the minimum scores in the required areas will be rejected.

According to the level of classification in the three areas, the applicant may or may not be accepted.

The university reserves the right to verify the supplied information regarding the National Examinations, which is why it is not necessary to attach the printed results with all other application documents. All admission criteria can be found on the website of the university.

* The Directive Board may modify registration and selection scores and criteria; in such a case, these changes will be announced on time.

Julio Garavito Armero scholarship

Awarded to applicants with high scores in the National Examination, interested in pursuing higher education studies and have economic difficulties. Tuition fees may be totally or partially waved.

How to participate in the calls

To select the beneficiaries, the university makes open calls every semester on its website under the Admissions section. High school graduates who wish to be admitted to the programs of Economics, Electric Engineering or Mathematics must comply with the registration process and may be nominated if they have the highest scores in the interest areas of the current National Examination as follows:

Economics

- ▶ At least 55 points in Philosophy, Mathematics, and Language (ICFES before 2014-1) *At least 65 points in Mathematics, Critical Reading, and Social and Citizen Competences (ICFES from 2014-2 on)*

Electric Engineering and Mathematics

- ▶ At least 55 points in Physics, Mathematics, and Language (ICFES before 2014-1) *
- ▶ At least 65 points in Natural Science, Mathematics, and Critical Reading (ICFES from 2014-2 on) *

Additionally, the applicant should prove their inability to afford the tuition fees. The applicant must submit, within the dates established by the Admissions Office, the necessary documents to support this claim as listed on the university website to perform a socio economical study.



*These requirements can be modified for each call based on the decisions of the Directive Board of the university.

What is included in the scholarship

For the first semester, the scholarship may be fully or partially awarded according to the results of the National Examination and the interviews that preselected applicants should attend. For all subsequent semesters, the scholarship's coverage depends on the student's GPA. The scholarship is awarded for the expected duration of the selected program for Economics, Mathematics, and Electric Engineering. The scholarship is exclusive for the academic program selected, it is personal, non-transferable, and unpostponable.

Nominations: Online at <http://bit.ly/1VzQylz>

Other scholarships and discounts

Discounts based on the results of the National Examination. Discount for students who are admitted to first semester, this discount can be kept throughout the program's duration. GPA should be equal or above 3.8.

Academic excellence scholarship. It is awarded every semester and covers 100% of tuition. It is given to students with an excellent academic performance from fourth semester on.

Manuel Casabianca scholarship. It covers a partial amount of tuition. It is given to Civil Engineering students with a GPA equal or above 4.0 from third semester on.

Fundación Regalo de Dios scholarship. It partially or totally covers tuition fees. It is given to registered students with a GPA above 3.5. Two scholarships are awarded, one for Civil Engineering and another for the other programs. New students should submit their academic record of their last three school years and National Examination results.

Discount for children of faculty and staff. 5% discount for every year of service and no more than 80%. The application should be made directly to the Administrative Vice-presidency.

Discount for siblings. Available for siblings of students registered in the university since 2008-2, valid for 10% of tuition fees for each student.

Discount for Alumni's children. 10% of tuition fees.

Differential tuition fees

This is a system that establishes a personalized tuition fee, based on the family group income.

This model responds to the principle of social solidarity that guarantees that whoever aspires to an integral, high quality education will not be discriminated against. The only restriction will be academic performance.

What constitutes a mandatory requirement is a genuine interest and a solid academic preparation.

Once the fee is established, this value will be the base for the whole academic program.



Graduate programs

Master programs

Electric Engineering SNIES 105769

Concentration areas:

- ▶ Energy resources (P, R)
- ▶ Energy markets (P, R)
- ▶ Power systems (P, R)

Information Management (P)

SNIES 91269

Concentration areas:

- ▶ Entrepreneurial architecture
- ▶ Corporate intelligence
- ▶ Knowledge management

Integral Project Development and Management SNIES 101339

Concentration areas:

- ▶ Project development (Alignment, formulation, assessment, and execution) (P)
- ▶ Project management (P)

Master's degree in Biomedical Engineering

SNIES: 106595

Application areas:

- ▶ Bioinstrumentation (P, R)
- ▶ Rehabilitation (P, R)
- ▶ Clinical Engineering (P, R)
- ▶ Signs and images digital processing (P, R)

Civil Engineering SNIES 53118

Concentration areas:

- ▶ Geotechnics (P)
- ▶ Environmental Engineering (P, R)
- ▶ Structural Engineering (P, R)
- ▶ Hydraulic resources and environment (P, R)
- ▶ Traffic and Transportation (P)

Electronic Engineering SNIES 101379

Concentration areas:

- ▶ Industrial control and automation (P, R)
- ▶ Telecommunications (P, R)
- ▶ Biomedical engineering (P, R)

Industrial Engineering SNIES 101895

Concentration areas:

- ▶ Logistics (P, R)
- ▶ Operations management (P, R)
- ▶ Integrated management (P, R)

P: In-depth mode

R: Research mode

Specializations

- ▶ Integral Project Development and Management SNIES 8501
- ▶ Road Design, Construction, and Preservation SNIES 8503
- ▶ Economics for Engineers SNIES 11696
- ▶ Structures SNIES 2973
- ▶ Industrial Production Management SNIES 52800
- ▶ QHSE Integrated Management SNIES 19205
- ▶ Foundations Engineering SNIES 52304
- ▶ Hydraulic Resources and Environment SNIES 4656
- ▶ Environmental Sanitation SNIES 4826



More information
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Ph.D. in Engineering

Program description

The Escuela Colombiana de Ingeniería Julio Garavito's doctoral program in Engineering adopts a critical and optimistic vision on scientific research. It incorporates knowledge in Engineering, applied sciences and technology. It was designed as a response to the urgent need of developing countries of creating a research and innovation ecosystem able to generate an economy based on knowledge through highly qualified human resources and a quick technological implementation. Likewise, it acknowledges the importance of applied research, created in close collaboration with industry, as a mechanism to further local developments and accelerate the country's growth.

Why study this doctoral program at the Escuela?

- A model that emphasizes on research and academic excellence, and that allows for curricular flexibility.
- Student interaction with international multidisciplinary teams.
- Relation University-Enterprise to strengthen the link with the productive sector and execution of strategies for enterprises growth in innovation.
- First class research facilities: 68 laboratories, 6 auditoriums, 98 fully equipped classrooms and a modern building that houses the biggest Reaction Wall in Latin America that allows the making of the most complex resistance tests in construction engineering.
- 8 research groups in Engineering, 61 published scientific articles, 72 innovation and technology development products, 120 social appropriation of knowledge products and more than 138 human resources education products.
- The Escuela has 6 undergraduate programs with High Quality Accreditation and belongs to the select group of High Quality Accredited universities.
- Library with more than 30.000 titles, 17 databases and interlibrary agreements with 96 universities.

Curricular structure

Time	Academic load	Areas	Lines
Eight semesters	Between 11 and 14 credits	Electronic engineering	Computation and information systems Robotics and Industrial control Biomedics
		Civil Engineering	Infraestructure Engineering sustainable materials



How to apply to our graduate programs

To start the application process, you must comply with the following requirements, as per the Graduate Regulations, within the times established by the university:

- ▶ Holding an undergraduate degree from a legally recognized higher education institution.
- ▶ Starting the registration process.
- ▶ Paying the registration fees.
- ▶ Fill in the online registration form.
- ▶ Handing in the documentation within the established dates (check the list at <http://bit.ly/1o7nGL4>)
- ▶ Presenting the interview where certain criteria are assessed: Academic performance, professional experience, work fields, among others.



Financial Support

Student loans with financial institutions

Short-term loans with external institutions are credit lines that can finance up to 100% of tuition fees, with monthly payments that range from one to six months depending on the duration of the study cycle.

These credit lines can cover up to 100% of each study cycle's fees, and payment can be done in up to 6 months, depending on the study's duration. The procedure and approval is done in less than an hour with the financial institutions that have an agreement with the university. (For a list of all institutions check <http://bit.ly/1Bggw2h>)

For those students who require a term longer than 6 months to pay their tuition fees, there is a long-term loan option with Sufi-Bancolombia that allows for students to pay 40% of the debt during the program's duration. All remaining capital debt must be paid within the following three years.

Projects office

Within the institutional framework and based on its experience, the Office plays an active role on the development, application, and consolidation of a culture of Projects and Project Management and its environment, as a contribution to the human, economic, and social development of countries, companies, and institutions.

As Global Registered Education Provider (REP®), that recognizes the university as the first university in Colombia accredited for training in Project Management by the Project Management Institute PMI®, the Office provides training, research, and extension (accompaniment, consulting, and support) services in the fields of integral project development and management, internally for undergraduate and graduate programs and all other institutional dependences of the university, and externally to national and international companies and institutions.

Relationship with the context

The External Management Office offers different programs to enrich professional training. Along their stay in the university, students find opportunities to grow at the personal and professional levels, which enable them to get closer to national and international institutions, companies, and universities.

Because of this, the Office coordinates and manages the following activities for all the academic community:

- ▶ International mobility
- ▶ Professional practicum
- ▶ Social practicum
- ▶ Entrepreneurship culture
- ▶ Alumni office
- ▶ Agreements and contracts
- ▶ Continuous education

Funding Promotion and Management Office

Through the Funding Promotion and Management Office, Escuela Colombiana de Ingeniería Julio Garavito, along with public and private institutions, donors, and others, develops shared value strategies such as:

- ▶ Undergraduate and graduate scholarships: Allowing more and better opportunities for talented youth going through financial difficulties to access high quality education and becoming professionals of the future.
- ▶ Research and innovation promotion: the dynamics of the country and the world demands professionals and researchers of the highest quality, able to provide innovative answers to the challenges posed by the current local and global reality.
- ▶ Infrastructure development, installations services, and laboratories: in this aspect, it is a priority for young students at the university to be trained, research, and experiment in cutting edge laboratories with the latest equipment, in the best locations and along with the best companies in the country, answering to real challenges they face every day.

Everyone, people and companies can contribute to the development of this transforming projects.

For further information about these opportunities, you are kindly invited to reach us at gestiondefondos@escuelaing.edu.co or call +57 (1) 6683600, ext. 271.

Investigation and Innovation for the university (I+i)



The university conceives research as a methodic process of generation, appropriation, and application of knowledge in the scientific, technologic and professional fields it works on. This process is grounded on logics, problems, and validity criteria belonging to each field, as well as the progress achieved by their corresponding academic and scientific communities at the national and international levels.

Its high academic level, its commitment to transforming the social conditions and ethical conduct are the institutional values that, as a priority, lead research and sets it to the service of human beings. Freedom of thought and academic plurality, which the institution states as its principles, are evidenced in the autonomy that academic communities within the university must define their own research paradigms and to lead their studies from epistemological approaches and methodological processes that are coherent with the research goals and problems of each field.

Research, as a basic function of the university, is composed by individual or collective creative work, performed in a systematic manner and led to develop critical thinking and scientific initiative in every member of the academic community and to generate or incorporate knowledge in every field.

On the other hand, the university conceives innovation as a process that is generated from a research idea or from the creation or transformation of products, services, processes, procedures, methodologies, and techniques that meet the needs of society.

Research groups

These groups develop basic applied research and innovation research activities. All projects and products born from the groups' activities are focused on their stronger field of performance, in each one of the development sectors of the country.

- ▶ Gibiome
- ▶ Ecitrónica
- ▶ Gimath: Research group of Mathematics from Escuela Colombiana de Ingeniería
- ▶ CTG-Informática
- ▶ Strategic Modelling in Energy and Power (MEEP)
- ▶ Socio economic studies - Corpoica
- ▶ Hydraulic studies center
- ▶ Economics studies center
- ▶ Environmental studies center
- ▶ Entrepreneurial studies and development center
- ▶ Center for research in manufacture and services (Cimser)
- ▶ Research group in Geotechnics
- ▶ Research group in Roads and Transportation Sustainable Design for Mechanical Engineering (DSIM)
- ▶ Research group in Structures and Materials
- ▶ Integral Project Development and Management
- ▶ Teachers innovation and education research - INNOVAD-IE



Infrastructure

The university is located on a 278,000 m², 238,370 m² can be used for building, a built area of 26,257 m², a free area of 168,611 m², and 35,555 m² destined for sporting areas.

The campus is composed of ten main buildings, a cafeteria, four concessions for food courts, eleven sports areas, a lawn athletic lane, a walkway with stations (the path of life), the Cultural and Sports Center "El Otoño" with a 408 m² area and about 11,000 m² for parking spots, walkways, squares, as well as wide green arborized zones.





Laboratories

The Colombian School of Engineering, Julio Garavito, in fulfilling its mission has a series of laboratories that cover diverse knowledge areas.

- [Electrical Engineering](#)
- [Electronic Engineering](#)
- [Biomedical Engineering](#)
- [Industrial Engineering](#)
- [Mechanical Engineering](#)
- [Civil Engineering](#)
- [Systems Engineering](#)
- [Natural Sciences Department](#)

Taking into account the importance of having modern, state of the art technology spaces, the School inaugurated in 2016 a 9309 m² building, with an underground parking lot, to distribute the Electric, Electronic, Biomedical, Mechanical, and Natural Sciences laboratories in 46 new spaces. These laboratories are essential in the education of students, both undergraduate and graduate. Currently, a new building is under construction with similar characteristics, dedicated to the diverse areas of Civil Engineering. The Industrial Engineering and Systems Engineering laboratories have spaces in different buildings.

Library

The Jorge Álvarez Lleras Library holds a collection that supports academia and research in the university, having information resources, services, and documentation in the fields of engineering, economics, and hard sciences.

The collection is composed by over 50,000 items (books, journals, audiovisual resources, and maps) and offers access to 17 databases that add up around 30,000 journals and millions of full-text and reference articles, among others.

The following services are available:

- ▶ Online catalog
- ▶ External loan
- ▶ Loan renewal
- ▶ Books reservation
- ▶ Return
- ▶ Inter library loan
- ▶ Databases, e-books, and e-journals
- ▶ Institutional repository
- ▶ Bibliographies
- ▶ Alert service
- ▶ Document hunting
- ▶ Introduction for users

- ▶ Training for users
- ▶ Reference
- ▶ Ask our librarian
- ▶ Virtual room
- ▶ Wi-Fi
- ▶ Video library
- ▶ Study rooms



University Welfare

This program is aimed at all the Escuela's community, focusing on fostering human development through activities whose goal are integral training and encouraging a pleasant institutional environment, to improve the quality of life of each member in every dimension: emotional, social, cultural, spiritual, as well as cognitive, physical, and aesthetic.

In this sense, University Welfare is an invigorating agent that articulates personal life projects with the institution's educational project, framed within the reality of its context, understanding that it is everyone's responsibility and working with principles of pertinence, equity, and coherence. At the Escuela, University Welfare works in the following fields:

- ▶ Healthcare
- ▶ Recreation and sports
- ▶ Human development
- ▶ Socio-economic promotion
- ▶ Environment
- ▶ Arts and culture



University Press

The University Press has published books since 1990 in the fields of engineering, mathematics, economics, and management, having over 67 items so far, which has allowed to leave a mark in the specific field of technical books. All publications are available online.

Several works in the Civil Engineering Collection have received the National Engineering Award Diódoro Sánchez by the Colombian Association of Engineers.

The Escuela publishes a journal. This is a space for permanent publication for the Escuela's academic community and other universities as well.

The following collections are currently available:

- ▶ Civil Engineering
- ▶ Engineering sciences
- ▶ Mathematics
- ▶ Telecommunications
- ▶ Entrepreneurial development
- ▶ Economics
- ▶ Notes
- ▶ Graphic expression
- ▶ Informatics
- ▶ Electronics
- ▶ Electrics
- ▶ Mechanics
- ▶ Arts and humanities



More information
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