ITBA

Instituto Tecnológico
de Buenos Aires

About ITBA

ITBA is the first and leading private University specialized in teaching and research in Engineering, Technology and Management in Argentina. Since 1959, the Instituto Tecnológico de Buenos Aires has been renowned for its academic excellence and for its commitment to generating and transferring innovative knowledge to society.

8 BACHELOR'S DEGREES IN ENGINEERING

2 BACHELOR'S DEGREES IN BUSINESS

12 MASTER´S DEGREES & SPECIALIZATIONS

3 PH.D IN ENGINEERING AND INNOVATION

60+ ONLINE AND LIVE PROGRAMS

FIRST TECHNOLOGICAL LEVEL LABORATORIES

+33%
Studentes with international experience

+70%
Industry agreements

100%
Programs with double degree agreements

5.2%
Students to faculty ratio

Undergraduate level

Bachelor in Business and Social Analytics
Bachelor in Business Administration
Bioengineering
Electronic Engineering
Engineering
Mechanical Engineering
Naval Engineering
Chemical Engineering

Graduate level

Master in Data Science
Master in Sustainable Energy Development
Master in Strategic and Technological Management
Master in Energy and Environment ITBA-KIT
Master in Environmental Management
Master in Management & Analytics
Master in Policy Analysis
Master in Projects and Supply Chain Management
Data Science Specialization
Specialization in the Economy of Oil and Natural Gas
Specialization in Oil and Natural Gas Production
Specialization in Well Completion at unconventional reservoirs

Doctoral level

Ph.D. in Engineering
Ph.D. in Software Engineering
Ph.D. In Management of Systemic Innovation

Bachelor in

Business and Social Analytics

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What does a Bachelor in Business and Social Analytics do?

The world generates data at increasing speeds and magnitudes. The Bachelor in Business and Social Analytics trains students to analyze and interpret data to make decisions that positively impact their organizations.

Bachelors in Business and Social Analytics will understand economic, social, and cultural trends to define strategies, generate solutions, create proposals, and take decisions that optimize businesses and improve society's quality of life.

COURSE	SUBJECT	
	FIRST YEAR	
	Computing Tools	Discrete Mathematics
	Introduction to Business Administration	Statistics
	Mathematical Analysis	Learning methodology
	Algebra	Global Historical Overview
	General Computer Science	
	SECOND YEAR	
	Microeconomics	Macroeconomics
	Philosophy	Data Management
	Data Structures and Programming	Information Display
	Applied Mathematics	Elective subject- General Training Area
	Business Ethics	English I
	Applied Statistics I	

THIRD YEAR	
Public and Private Law	Operations Research II
Organizational Structures	Elective subject Business
Applied Statistics II	Elective subject Social
Information Life Cycle Management	Elective subject Computer Science
Descriptive Analytics	Elective subject Analytics
Project I	Simulation
Predictive Analytics	Final Project- Analytics
Operations Research I	English II

Bachelor in
Business Administration

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What does a Bachelor in Business Administration do?

Graduates in Business Administration from ITBA have a comprehensive vision of the business world, anchored in the potential of technology that enables them to create their own business, as well as to lead multinational or family companies.

Their training allows them to innovate, optimize and create new business models, staying ahead of the digital world and market demands, and have the skills to adapt to a constantly evolving environment.

COURSE

SUBJECT	
FIRST YEAR	
Introduction to Business Administration	Global Historical Overview
Algebra	Philosophy
Accounting Systems	Mathematical Analysis
General Computer Science	Managerial Accounting
Introduction to Information Technology	
SECOND YEAR	
Microeconomics	Organizational Management based on business processes
Statistics	
Marketing	Public and Private Law I
Financial Management	Presentation techniques
Data Management	Computational Functional Analysis
Macroeconomics	Elective subjects- Management
Epistemology and heuristics	

THIRD YEAR	
Organizational Structures	Human Resources Management
Decision-making	Sales Management
Taxes and decision-making I	Taxes and decision-making II
Digital Solutions Architecture	Integrated Business Management Systems I
Elective subjects- Management	Elective subjects- Management
Elective subjects- System and Technology	Elective subjects- System and Technology
Operational Management	

FOURTH YEAR	
Business Strategy	Elective subjects- Management
Business Architecture	Elective subjects- System and Technology
Elective subjects- Management	English 1*
Elective subjects- System and Technology	English 2*
Final Project**	Technology certifications:*

-: The credits for these subjects are given by the certifications defined bellow.*
*-**: The Final Project subject will be passed according to one of the following options:*

SUBJECT
Business Diagnosis and Action Plan (Final assignment)
Business Diagnosis and Implementation Systems Plan (Final assignment)
Project on products or services launching (Final assignment)

Bioengineering_

What does a Bioengineer do?

Bioengineering graduates from ITBA have solid knowledge in molecular, cellular, anatomy and physiologic, mechanic biology, and electronic and computing technologies. These tools enable them to face the scientific challenges of the future, applying technology to medicine and biology.

Professionals in Bioengineering create or modify products, systems, and processes for specific applications and participate in the management and administration of technology in hospitals and clinics.

COURSE

SUBJECT	
FIRST YEAR	
Chemistry I	Chemistry II
Representation Systems	General Computer Science
Mathematics I	Mathematics II
Linear Algebra	Physics I
General Training I	Learning methodology
SECOND YEAR	
Data Structures and Programming	Histology and Anatomy
Mathematics III	Mathematics IV
Physics II	Physics III
Molecular and Cellular Biology	Probability and Statistics
THIRD YEAR	
Physiology	Numerical Methods
Physics IV	Electrotechnics
Mathematics V	Signals and Systems

Bio-materials	Biomechanics
Analogical and Digital Electronics	Quantitative Physiology

FOURTH YEAR

Biomedical Instrumentation I	Biomedical Instrumentation II
Structural and Computational Biomedicine	Biomedical Image Processing
Biomedical Signal Processing	Bioinformatics
Control Systems	Biosensors
Law for Engineers	Industrial Organization

FIFTH YEAR

Artificial Organs	Elective subjects
Medical Informatics	Hospital Engineering
Rehabilitation Engineering	Economics for Engineers
Course Final Project	Environmental and Occupational Safety
General Training II	Elective subjects

Supervised Professional Practice

Professional cycle

Additional requirements:
Two levels of English required.

Electronic Engineering

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What does an Electronics Engineer do?

Electronics Engineers from ITBA are trained in basic sciences and in the disciplines of Electricity and Electronics with the objective of studying, constructing, and maintaining electronic and signal processing equipment, systems, and devices.

They can, for instance, make mobile phones smarter, make medical equipment more precise, or store and control energy resources more efficiently.

COURSE	SUBJECT	
	FIRST YEAR	
	Introduction to Computing	Programming I
	Representation Systems	Mathematics II
	Mathematics I	Discrete Mathematics
	Linear Algebra	Physics I
	Learning methodology	General Training I
	SECOND YEAR	
	Chemistry I	Technology of Electronic Materials
	Algorithms and Data Structure	Mathematics IV
	Mathematics III	Probability and Statistics
	Physics II	Physics III
	THIRD YEAR	
	Industrial Organization	Physics IV
	Electrotechnics I	Numerical Methods
	Electronic Physics	Mathematics V

Circuits Theory	Electronics Laboratory
Electronics I	Spanish
Electronics III	English I
FOURTH YEAR	
Environmental and Occupational Safety	Information Transmission
Signal and Digital Systems Analysis	Control Systems
Electronics II	Microprocessors Laboratory
Random Signals	
FOURTH YEAR: TELECOMMUNICATIONS ORIENTATION	
Electromagnetism	Telecommunications elective subject
FOURTH YEAR: MECHATRONICS/CONTROL ORIENTATION	
Economics for Engineers	Mechatronics/Control elective subject
FOURTH YEAR: SIGNAL PROCESSING ORIENTATION	
Adaptive signal processing	Signal processing elective subject
FIFTH YEAR: TELECOMMUNICATIONS ORIENTATION	
Electronics V	Antennas and Radio wave propagation
Power electronics	Digital Networks
Microwaves	Economics for Engineers
Electronic equipment design	Law for Engineers
Digital communications	English II
General Training II	Professional Practice
FIFTH YEAR: MECHATRONICS/CONTROL ORIENTATION	
Electronics IV	Sensors and actuators
Electronics V	Machine technology
Electronic equipment design	Industrial automation

Automated control	English II
Applied Mechatronics	Electromagnetism
Law for Engineers	Professional practice

FIFTH YEAR: SIGNAL PROCESSING ORIENTATION

Electronics V	Voice processing
Power electronics	Image Processing
Neural networks	DSP-fpga laboratory
Electronic equipment design	Economics for Engineers
Electromagnetism	Law for Engineers
Digital communications	English II

Petroleum Engineering

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What does a Petroleum Engineer do?

Petroleum engineers generate the fuel that moves our transportation systems and keeps industries running.

They boost the manufacture of thousands of products, ranging from medicines to plastics, and even cosmetics. They have the skills to design and supervise drilling operations, and they can also develop processes and equipment to optimize the production of oil and gas.

COURSE	SUBJECT	
	FIRST YEAR	
	Chemistry I	Chemistry II
	Representation Systems	General Computer Science
	Mathematics I	Mathematics II
	Linear Algebra	Physics I
	General Training I	Learning methodology
	SECOND YEAR	
	Statics and Strength of Materials	Mathematics IV
	Basic programming	Physics III
	Mathematics III	General Mechanics
	Physics II	Physical Metallurgy I
	Probability and Statistics	
	THIRD YEAR	
	Organic Chemistry for Petroleum	Fluid Mechanics
	Electrotechnics	Geology for Engineers

Physics IV	Fluid reservoirs and Petrophysics
Electrical installations and Machinery	Numerical Methods
Thermodynamics	English I
Oil Drilling I	

FOURTH YEAR

Industrial Organization	Enhanced Oil Recovery
Fieldwork I	Reservoir Geophysics
Oil Drilling II	Oil and Gas Well Completion and Workover
Reservoir Engineering	
Pressure Transient Analysis	Oil Production
Well logging	Economics for Engineers
Petroleum Geology	

FIFTH YEAR

Environmental and Occupational Safety	Natural Gasoline and Gas
Surface Facilities Project	Business Development
Fieldwork II	General Training III
Reservoir development	English III
Reservoir simulation	Elective subjects
Law for Engineers	Professional practice
General Training II	
Oil industrialization and Economic Development	

What does an Industrial Engineer do?

Industrial Engineers analyze the links between the parties of an organization and relate them with the general scenario to guarantee the best results.

The comprehensive overview of such Engineers outstands in various situations like shortening the waiting times at the bank, managing to forecast the sales of a company, or even making a marketing campaign more effective.

The analysis and creativity allow these Engineers to find the best solution, positively transform the technological, economic, environmental, and social surroundings.

COURSE	SUBJECT	
	FIRST YEAR	
	Chemistry I	Chemistry II
	Representation Systems	Basic programming
	Mathematics I	Mathematics II
	Linear Algebra	Physics I
	General Computer Science	General Training I
	SECOND YEAR	
	Statics and Strength of materials	Mathematics IV
	Mathematics III	Physics III
	Probability	Thermodynamics
	Physics II	Mechanics and Mechanisms
	Learning methodology	Materials and Processes
	Numerical Methods	

THIRD YEAR	
Production Organization I	Industrial Costs
Physics IV	Thermal Machines
Fluid Mechanics	Electrical Machines
Applied Statistics I	Applied Statistics II
Electrotechnics	Systems and Models
Production Organization II	English I
Electronics and Instrumentation	

FOURTH YEAR	
Production Processes and Technologies	Operations Research II
Operations Research	Marketing
Information Systems	Economics
Budget and Control	Logistics
Thermal Installations	Quality Assurance
Electrical Installations	Technology Updates Seminars
Elective subjects	

FIFTH YEAR	
Planning and Evaluation of Projects	Training for Entrepreneurs
Strategic Planning	Project Management
Simulation	Law for Engineers
Industrial Engineering Final Project	Industrial Facilities
Environmental Management	General Training III

OTHER REQUIREMENTS	
Professional practice	Two levels of English

Computer Engineering

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What does a Computer Engineer do?

Computer Engineers transform and manage information through the design, development, and implementation of technology. They lead technology innovation in organizations.

Their training allows them to intervene in the analysis of data and the different stages of a computer project. Also, they are skilled in the images, videos, and texts as data sources in the development of algorithms for several applications focused on confidentiality, integrity, and availability of information.

COURSE	SUBJECT
FIRST SEMESTER BASIC CYCLE (FIRST YEAR)	
Introduction to Computing	Representation Systems
Algebra	Learning methodology
Mathematical Analysis	
SECOND SEMESTER BASIC CYCLE (FIRST YEAR)	
Imperative Programming	Mathematical Analysis II
Discrete Mathematics	Physics I
FIRST SEMESTER BASIC CYCLE (SECOND YEAR)	
Design and Processing of XML Documents	Computer Logic
	Physics II
Object-Oriented Programming	Chemistry
SECOND SEMESTER BASIC CYCLE (SECOND YEAR)	
Algorithms and Data Structures	Probability and Statistics
Computer Architecture	Physics III

FIRST SEMESTER BASIC CYCLE (THIRD YEAR)	
Database I	Operating Systems
Human-Computer Interaction (HCI)	Software Engineering I
SECOND SEMESTER BASIC CYCLE (THIRD YEAR)	
Communication Protocols	Numerical Methods
Languages Theory, Automata and Compilers	General Training I
	English I
Web Applications Project	
FIRST SEMESTER PROFESSIONAL CYCLE (FOURTH YEAR)	
Cryptography and Security	Software Engineering II
Database II	Artificial Intelligence Systems
Economics for Engineers	
SECOND SEMESTER PROFESSIONAL CYCLE (FOURTH YEAR)	
Advanced Numerical Methods	Systems Simulation
Distributed Objects Programming	Law for Engineers
Computer Project Management	Elective subjects
FIRST SEMESTER PROFESSIONAL CYCLE (FIFTH YEAR)	
Information Networks	Final Project
SECOND SEMESTER PROFESSIONAL CYCLE (FIFTH YEAR)	
General Training III	English II
Environmental and Occupational Safety	Professional practice

Mechanical Engineering

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What does a Mechanical Engineer do?

Mechanical Engineers transform and adapt nature's energy sources as well as products and processes to move the world and the industries since they know how nature, materials, and technologies available work, and they use such knowledge to create better solutions to the existing options.

Their training allows them to design products, plan and manage machinery maintenance and manufacturing processes, develop and build facilities, assess materials, and optimize energy conversion processes.

COURSE	SUBJECT	
	FIRST YEAR	
	Chemistry I	Chemistry II
	Representation Systems	General Computer Science
	Mathematics I	Mathematics II
	Linear Algebra	Physics I
	General Training I	Learning methodology
	SECOND YEAR	
	Mechanical Design	Probability and Statistics
	Introduction to Programming	Mathematics IV
	Mathematics III	Physics III
	Physics II	General Mechanics
	THIRD YEAR	
	Electrotechnics	Numerical Methods
	Statics	Physics IV
	Mathematics V	General Electronics

Tensile Testing	Fluid Mechanics
Thermodynamics	Strength of Materials
FOURTH YEAR	
Industrial Organization	Industrial Control and Instrumentation
Environmental and Occupational Safety	Internal Combustion Engines
Machinery Elements	Polymer Materials
Physical Metallurgy I	Mechanisms
Heat Transfer	Management of Mechanical Projects
Turbomachines	Finite Elements I
FIFTH YEAR	
Manufacturing Processes I	Law for Engineers
Pneumatic Hydraulics and PLC	Elective Orientation
Economics for Engineers	Professional practice
AUTOMOTIVE ORIENTATION (FIFTH YEAR)	
Electrical Installations	Transmissions in automobiles
Automotive mechatronics systems	Internal Combustion Engines design
Automotive structures	Automotive project
Dynamics in automobiles	
MATERIALS ORIENTATION (FIFTH YEAR)	
Electrical installations	Laboratory of Advanced Materials
Introduction to steel manufacturing	Manufacturing Processes II
Mechanics and Physics of steel	Structural Integrity
Strain and Fracture of Materials	Technology of Composite Materials
Corrosion and Degradation of Materials	Materials Project

PRODUCTION ORIENTATION (FIFTH YEAR)	
Electrical Installations	Manufacturing Processes II
Refrigeration and Air-Conditioning	Finite Elements II
Industrial Installations	Industrial Maintenance
Strain and Fracture of Materials	Mechanics Project

OTHER REQUIREMENTS
English I and English II

Naval Engineering

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What does a Naval Engineer do?

Naval Engineers master the technologies and technical tools that facilitate the use and comprehensive exploitation of seas and oceans, focusing on the care of their ecosystems.

Students in naval engineering will be able to design, project, build, repair, and inspect ships of any kind, work or sport boats, and marine devices, among others.

Their training allows them to innovate, optimize and create new business models, staying ahead of the digital world and market demands, and have the skills to adapt to a constantly evolving environment.

COURSE	SUBJECT
FIRST YEAR	
Chemistry I	Materials Science I
Representation Systems	General Computer Science
Mathematics I	Mathematics II
Linear Algebra	Physics I
General Training I	Learning methodology
SECOND YEAR	
Mechanical Design	General Mechanics
Introduction to Programming	Mathematics IV
Mathematics III	Physics III
Physics II	Statics
THIRD YEAR	
Electrotechnics	Mathematics V

Hydrostatics and Stability	Strength of Materials
Physics IV	Probability and Statistics
Materials Science II	English I
Thermodynamics	Resistance and Propulsion
Fluid Mechanics	
FOURTH YEAR	
Economics for Engineers	Finite Elements I
Machinery Elements	Electronics and Instrumentation
Shipbuilding	Naval Readiness
Turbomachines	Marine Engines
Numerical Methods	Law for Engineers
FIFTH YEAR	
Ship Structures	English II
Ships Project	Elective subjects- General Training Area
Marine Propulsion Plants	Elective subjects- Technology area
Shipyards and Vessels maintenance	Professional practice
Workboats Project	Shipping Practice

Chemical Engineering

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What does a Chemical Engineer do?

Chemical Engineers develop comprehensive projects involving physical, chemical, and biological transformations applied to industrial processes. Their training includes the safety and protection of the environment.

These professionals may work in the planning and development of processes and manufacturing products for the chemical industry and related areas.

COURSE	SUBJECT
FIRST YEAR	
Chemistry I	Chemistry II
Representation Systems	General Computer Science
Mathematics I	Mathematics II
Linear Algebra	Physics I
General Training I	Learning methodology
SECOND YEAR	
Introduction to Chemical Engineering	Physics II
Organic Chemistry I	Organic Chemistry II
Chemistry Laboratory Work	Probability and Statistics
Statics and Strength of Materials	Mathematics IV
Mathematics III	Physics III
THIRD YEAR	
Biochemistry and Microbiology	Physical Chemistry
Analytical Chemistry	Electrotechnics

Transport Phenomena	Numerical Methods
Thermodynamics	General Mechanics
Supervised Work I	Spanish
FOURTH YEAR	
Unit Operations I	Oil industrialization and Economic Development
Unit Operations II	
Reactors and Reaction Engineering I	Process Control
Physical Metallurgy I	Process Control Laboratory
Law for Engineers	Chemical Industries
English I	Polymer Materials
Elective subjects	Economics for Engineers
Unit Operations III	
FIFTH YEAR	
Industrial Organization	English II
Conceptual Design Process	Introduction to Environmental Engineering
Plants Project	
Supervised Work II	General Training III
General Training II	

Total course hours: 4320 hours.

Master in

Data Science

The **Master in Data Science** provides tools to the professionals to design, prepare, analyze and manage large volumes of data, both structured and unstructured.

It emphasizes the theoretical fundamentals to allow the graduates with the necessary flexibility to adjust to abrupt technological changes and also in the study of case studies and laboratory practices with commercial software and open source.

COURSE

Module 1:
Leveling.

Module 2:
Data Science Fundamentals.

Module 3:
Data Mining.

Module 4:
Data Storage and Online Analytical Processing.

Module 5:
Big Data Processing Tools.

Module 6:
Data visualization.

Module 7:
Machine learning Algorithms and Techniques.

Module 8:
Big Data Transformation and Loading, Design, and Application of Extraction Processes.

Module 9:
Geographical and Scientific Data Analysis.

Module 10:
Intensive Seminar on Complex Data Advanced Topics.

Thesis workshop.

Thesis workshop II.

Elective I-Graphs Databases

Elective II-Analysis and Proce of Satellite Images

Elective III-Implementation of Automated Learning Applications the Cloud

Elective IV-Neurorobotics

Thesis

Master in

Sustainable Energy Development

One of the current main challenges in the world is obtaining universal access to energy and, at the same time, mitigating the impact of its production and consumption as factors contributing to climate change This predicament requires professionals who can **project, design, manage and regulate dynamic energy systems** that bring sustainable and innovative solutions considering the natural resources available and demand.

The **Master in Sustainable Energy Development** provides knowledge and tools to work in planning and energy management areas through a comprehensive approach that combines innovative technologies and development considering the economic, social, and environmental determinants they produce.

COURSE

Introduction to sustainable energy development

Fossil energy resources

Conventional Renewable Energy Resources

Non-conventional Renewable Energy Resources

Energy efficiency

Energy demand

Energy transport, storage, and distribution

Energy systems integration

Disruptive energy technologies

Energy demand management

Energy Economics

Energy equality

Energy sustainability

Strategic planning and energy scenarios

Master in

Strategic and Technological Management

Technology development that determines economics and productivity growth has implications for human labor. Therefore, technology becomes a strategic asset for business management.

The **Master in Strategic and Technological Management** promotes skills and knowledge to transform technological innovation into business innovation.

Professionals will learn to apply technology to create value and sustainable competitive advantages, developing decision-making skills and a systemic vision of the business.

COURSE

Fundamentals for business administration

Microeconomics and Macroeconomics
Accounting and Costs
Management Quantitative Techniques
Management Control and Finances
Strategic Marketing
Commercial Planning
Supply Chain and Operations
Sustainable Development
Global Markets

Strategic management

Systemic thinking for strategic planning
Organizations' management and administration
Competitive strategies in Argentina
Strategic management
Organizational culture and Leadership
Seminar for Conferences about strategies
Seminar on Negotiation skills

Technological Innovation

Innovation and Production Economics
Innovation Trends
Innovation Policies in Argentina
Technological Innovation Management
Assessment of Technological projects
Management of Technological projects
Development of Technology Ventures
Trademarks, Patents, and Intellectual Property
Seminar on Renewable Energies
Seminar on Health Technology
Seminar on the Agribusiness
Seminar on ICTs
Seminar on the Environment
Integrated Seminar: Transfer week
Seminar on Emotional Intelligence
Seminar on Technology
Seminar on Analytics
Fieldwork
Research Methodology
Tutoring and Research Activities
Thesis research methodology

Master in

Energy and Environment ITBA-KIT

This Master trains **leaders in socio-economic and cultural change processes;** related to a **comprehensive improvement in the energy** chain and its links; energy efficiency, care of the environment, energy policies and regulations, and the management of distributed energy and the incorporation of **renewable energy** to smart grids.
At the end of the course, graduates will relate technical, environmental, regulatory, and economic concepts; manage the latest tools in calculating, simulating, and designing; put forward and develop efficient, sustainable, and competitive solutions; and work in interdisciplinary and network.

The Master in Energy and Environment is part of the Binational Program to Strengthen Argentine-German Interuniversity Networks. ITBA and Karlsruhe Institute of Technology (KIT) jointly administer this double degree program: ITBA awards a *Magister in Energy and Environment* degree and KIT a *Master in Mechanical Engineering* degree. The course has a CUAA-DAHZ subsidy with coverage for language courses and mobility for professors and students.

COURSE

Advanced engineering fundamentals

Mechanical Design
Electronics and Control
Fluid Mechanics
Modeling and Simulation
Thermodynamics and Heat Transfer

Specialization in Renewable Energies
Bioenergy

Circular Value Chains
Energy Economics
Wind Energy
Geothermal Energy
Hydraulic Energy
Solar Energy
Hydrogen Energy

Thesis of interest for the business area

KIT Curriculum

Advanced Fundamentals

Fluid Mechanics
Thermodynamics and Heat Transfer
Mechanical Design
Modeling and Simulation
Electronics and Control

Renewable Energies

Applied Combustion Technology
Applied Mechanics
Automation Technology
Building Simulation
CFD for Power Engineering
Chemical Fuels
Combined Cycle Power Plants
Development of Innovative Appliances and Power
Efficient Energy Systems and Electric Mobility
Electrical Machines
Energy and Indoor High Performance Buildings
Energy Converting Engines
Energy Technology for Buildings
Engineering Design
Fundamentals of Combustion
Fundamentals of Energy Technology
Fundamentals of reactor safety
Fusion Technology
Geothermal Energy
Heat Transfer
Hydrogen Technology
Integrated Product Development
Lightweight Construction
Machines and Processes
Man - Technology - Organization
Materials Science and Engineering
Microsystem Technology
Nuclear Power Plant Technology
Polymer Engineering
Simulator Training Combined Cycle Power Plants
Technical Ceramics and Powder Materials
Technical Thermodynamics and Heat Transfer II
Transport and Storage of Chemical Energy Carriers

Thesis Work

Master in

Environmental Management

The Master in **Environmental Management** focuses on the technical analysis of environmental topics emphasizing the use of specific management tools and the implementation of sustainable policies.

Graduates will be able to analyze environmental topics through multidisciplinary approaches connecting technical knowledge to the management experience in companies and governmental and non-governmental as well as current economic and social issues.

COURSE

Mathematics

Chemistry

Biology

Introduction to Social Geological Topics

General Module

Ecology Principles
Waste
Water and liquid effluent
Air quality
Soil assessment and remediation
Environmental impact evaluation
Energy and environment
Environmental audits
Management systems
Environmental education and communication
Environmental economics and management

Masters' Module
Social Responsibility and Social Impact
Research Methodology
Environmental Law II
Environmental Management in the Oil industry
Non-renewable natural resources 1
Biodiversity
Non-renewable natural resources 2
Climate change

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Master in

Management & Analytics

The **Master in Management & Analytics** trains professionals with solid knowledge in management and decision-making in business environments, combined with thorough techniques of acquisition, administration, analysis, and **exploitation of large volumes of data** which allows them to articulate the **business vision** with the technical aspects of data management.

It provides theoretical, technical, and practical knowledge to analyze business contexts and define strategies based on data for decision-making, and **lead innovation processes** with great communication and leadership skills.

COURSE

Management Control and Finances
Commercial Planning and Data- Driven Businesses
Strategic management based on Data
Innovation Management
Organizations' Management and Administration
Data Governance
Programming for Data Analysis
Fundamentals of Analysis and Data Mining
Data Storage and Online Analytical Processing
Big Data Processing Tools
Machine learning Algorithms and Techniques
Workshop on Research Methodology and Academic Writing

Elective courses

Organizational Culture and Leadership
Systemic Thinking for Strategic Planning
Sustainable Development
Innovation and Production Economics
Global Markets
Evaluation of projects
Project Management
Competitive Strategies in Argentina
Supply Chain and Operations
Microeconomics and Macroeconomics
Accounting and costs
Technological Innovation Policies in Argentina
Deep Learning

Master in

Policy Analysis

Contemporary societies face public problems characterized by their complexity: multiplicity of factors, different temporal frameworks, different territory scales, and high levels of uncertainty, among others. To address such complexity we need to **strengthen the analysis and design of public policies based on evidence, using rigorous analysis technologies and methods** that generate relevant and valid knowledge of the public policy processes.

The **Master in Policy Analysis** provides knowledge and tools to analyze, design, and assess public policies based on several methods and processes of production and analysis of information. The program, characterized by a holistic vision, allows the approach to complex issues considering multiple dimensions.

COURSE

Systemic thinking and public policies
Public policy processes
Quantitative analysis methods applied to public issues
Qualitative analysis methods applied to public issues
Design and assessment of public policies
Modeling and simulation applied to public issues
Science, society, and public policy
Economic analysis of public policy
Workshop on writing and communication
Thesis workshop I
Thesis workshop II

Elective courses
Advanced quantitative analysis methods
Data science and public problems
Neurosciences and decision-making in public policies
Prospective and futures analysis
Dialogue processes in public affairs
Employment and labor policies
Climate change and public policies
Energy transitions
Cities and public policies
Agriculture and sustainability

Master in

Projects and Supply Chain Management

Due to complex logistics systems and the volatility of the markets, we need trained professionals in the **global supply chain and project management** to evaluate the expansion of a production line, the possible incorporation of new technologies related to production, the feasibility of a project, and its connectivity with the **operations in the national and international supply chain.**

The **Master in Projects and Supply Chain Management** provides unique training in the operations related to **complex logistics systems** and the design of sustainable and innovative solutions based on the available infrastructure, the macroeconomics conditions, and the demand levels.

COURSE

Fundamentals of the supply chain and 4.0

Fundamentals of the Supply Chain
Logistic planning
Supply chain design
Supply chain analytics
Supply chain systems and technologies
Supply chain simulation

Management

Integrated Project Management
Risk Management in the Supply Chain
Complex Logistics Systems
Decision-making
Global Strategic Management

Global operations

Global project logistics and physical Integration
Operations Management and Supply
Production planning and control
Transport, Infrastructure, and Maintenance

Data Science
Specialization

Data Science Specialization provides tools to the professionals to design, prepare, analyze and manage large volumes of data, both structured and unstructured.

It emphasizes the theoretical fundamentals to allow the graduates with the necessary flexibility to adjust to abrupt technological changes and also in the study of case studies and laboratory practices with commercial software and open source.

COURSE

Module 1:
Leveling.

Module 2:
Data Science Fundamentals.

Module 3:
Data Mining.

Module 4:
Data Storage and Online Analytical Processing.

Module 5:
Big Data Processing Tools.

Module 6:
Data visualization.

Module 7:
Machine learning Algorithms and Techniques.

Module 8:
Big Data Transformation and Loading, Design, and Application of Extraction Processes.

Module 9:
Geographical and Scientific Data Analysis.

Module 10:
Intensive Seminar on Complex Data Advanced Topics.

Module 11:
Comprehensive Final Assignment Workshop.

Ph.D.

The Ph.D. in Engineering and Software Engineering are intended for training experts in multiple branches of technology. The programs are based on projects managed by ITBA research professors, financed and accredited by the Ministry of Sciences, Technology and Productive Innovation and other state scientific organizations, as well as private companies or ITBA funds. We share objectives and trends with the best international universities where we join the training, I+D+i, and the transference to the productive sector, a true Sabato´s Triangle in the university world.

The Ph.D. In Management of Systemic Innovation is aimed to train researchers on innovation with skills to analyze, design, and manage innovative processes and ecosystems. This Program characterizes by a systemic vision that allows the approach to complex issues based on forms of investigation and analysis that consider both technological creativity and the economic, social, environmental, and cultural dimensions of the innovation processes.

1 Ph.D. in Engineering

2 Ph.D. in Software Engineering

3 Ph.D. in Management of System Innovation

About the School of Innovation

We offer professionals the crucial analytical and technical knowledge and skills to act on future challenges.

Committed to the development of individuals and organizations, the School of Innovation promotes a collaborative, flexible and dynamic environment, capable of responding to technological challenges and new market demands. We offer academic learning experiences with real time results on cutting edge technologies and adaptive management capabilities for students and executives who are eager to expand their personal an professional possibilities with a thought-leading knowledge, culturally immersive and professional network enhancing experience in Buenos Aires.

*SUMMER & WINTER PROGRAMS_*

Spend a month earning college credits at your home university while enjoying an exciting multicultural Buenos Aires.

+ *Data analytics*

The program covers the transactional and multidimensional databases, which are fundamental to provide adequate data support to any IT project. It seeks to offerthe necessary knowledge in order to implement database systems that respond to the requirements of the project that aims to impact.

+ *Physics ii*

The program aims to present the main physical foundations, an introduction to Electricity and Magnetism, Geometric and Physical Optics, and how they formulate the various physical models that explain them, their underlying hypotheses and the limits for their application, which serve as a basis for subsequent courses in this discipline, as well as others that relate to them.

+ *Digital manufacturing – Workshop*

This workshop was design to learn and experience hands on all the steps prior to the industrialization of a product: modeling, prototyping, defining materials, components and processes.

+ The energy challenge – Zero emissions by 2050

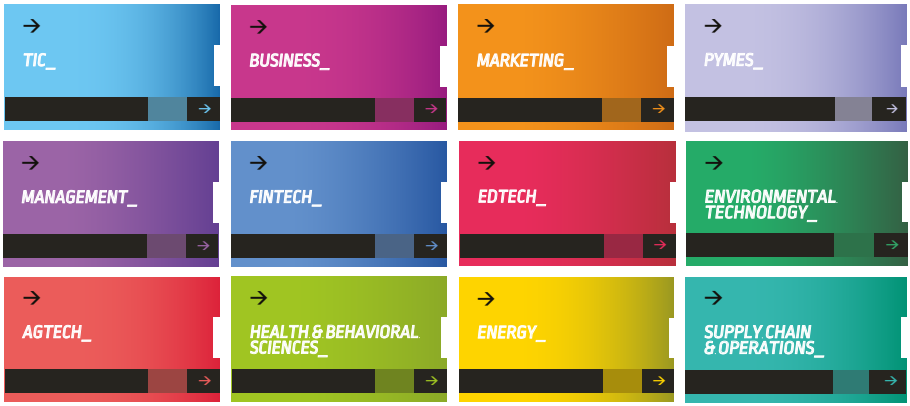
The program provides discussions on the key factors and issues associated with the energy transition required to reach zero GHG emissions. The four energy value chains: power generation, transportation fuels, industrial energy and residential energy will be analyzed and discussed. After finishing the course, students will have the tools and knowledge to professionally use the main information sources, understand the policies, technical and economic issues, challenges and opportunities of the road to zero emissions with focus
on renewable energies.

+ Operation research & simulation

The program is designed to provide students with theoretical and practical tools for solving operations research and optimization problems related to industrial engineering. Beginning with mathematical modeling and evolving to simulation, this program gives the basics to understand the structure of systems and to identify the opportunities for optimization.

ONLINE PROGRAMS_

Training experiences in cutting edge technologies and adaptive management for professionals from around the world. Offers flexible access to digital learning courses from our course catalogue which are developed and taught by ITBA Instructors.



CUSTOMIZED PROGRAMS_

Targeted and customized learning experiences for corporate and educative organizations around the world. Unique programs specially developed to address our partners´ goals and needs.

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For Executives from around the world who are eager to expand their personal and professional horizons with an academic, cultural and network-enhancing experience in Buenos Aires.

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+ information

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Escuela de
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