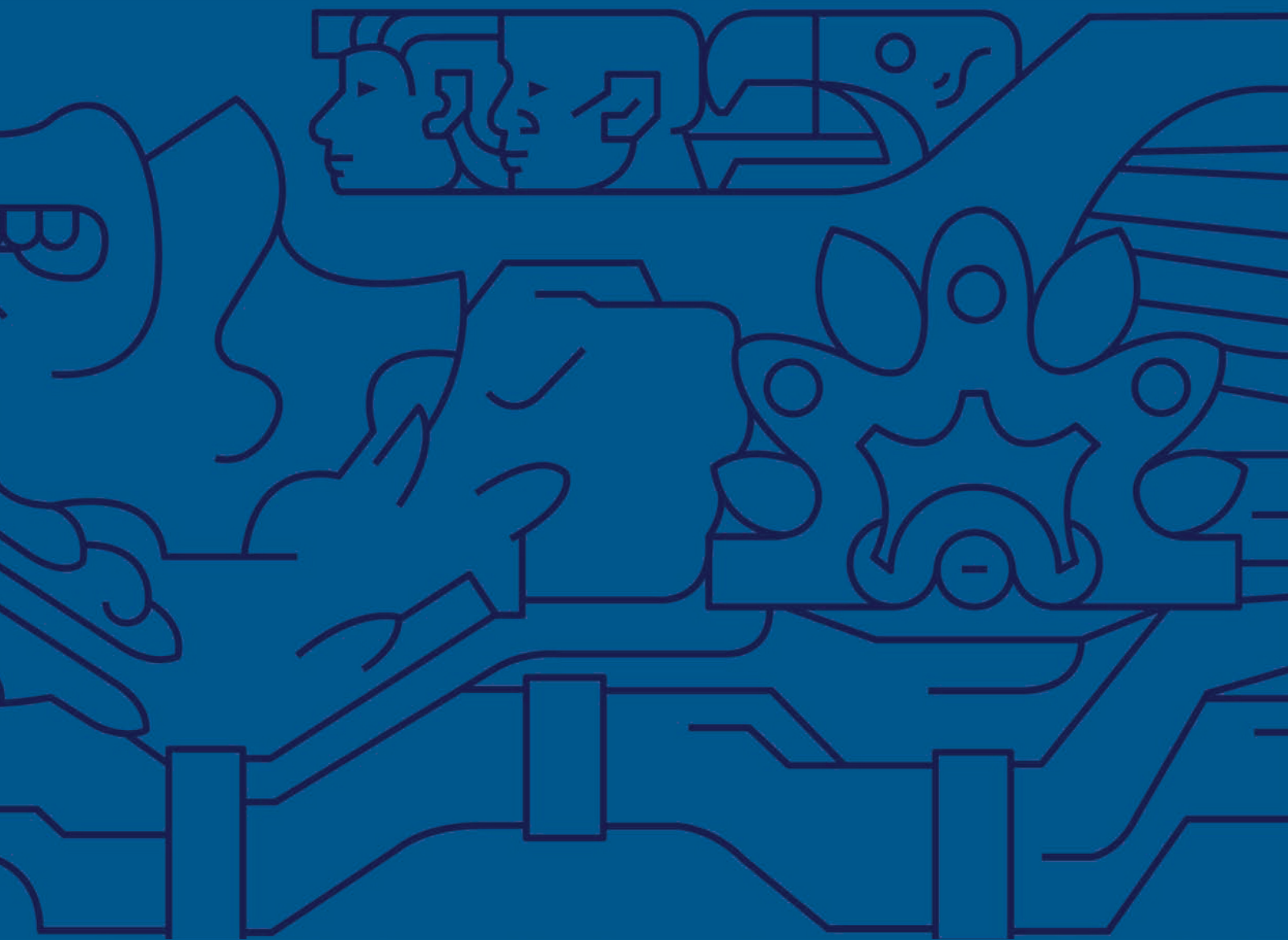
Undergraduate Programs Catalogue

TECNOLÓGICO
DE MONTERREY



UNDERGRADUATE PROGRAMS CATALOGUE

INSTITUTO TECNOLÓGICO Y DE ESTUDIOS SUPERIORES DE MONTERREY

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Notice on the use of inclusive language

The use of the generic masculine or masculine of a collective nature seeks to simplify communication in consideration of the principle of economy of language. Grammatical gender (masculine, feminine) is normally associated with biological sex; however, grammatically there is no intention to discriminate against anybody for their biological sex or sexual identity. In the Spanish language, the use of a mixed collective of the masculine grammatical gender is not a discriminatory practice, but- its use- avoids unnecessary repetitions, permitting the employment of plain language, characterized by conciseness and clarity.

At Tecnológico de Monterrey, the prescripts contained in its regulations are formulated in generic masculine or masculine of a collective nature; consequently, they do not refer only to the masculine gender, but to all the genders that form part of the community.

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Course Content by Academic Discipline

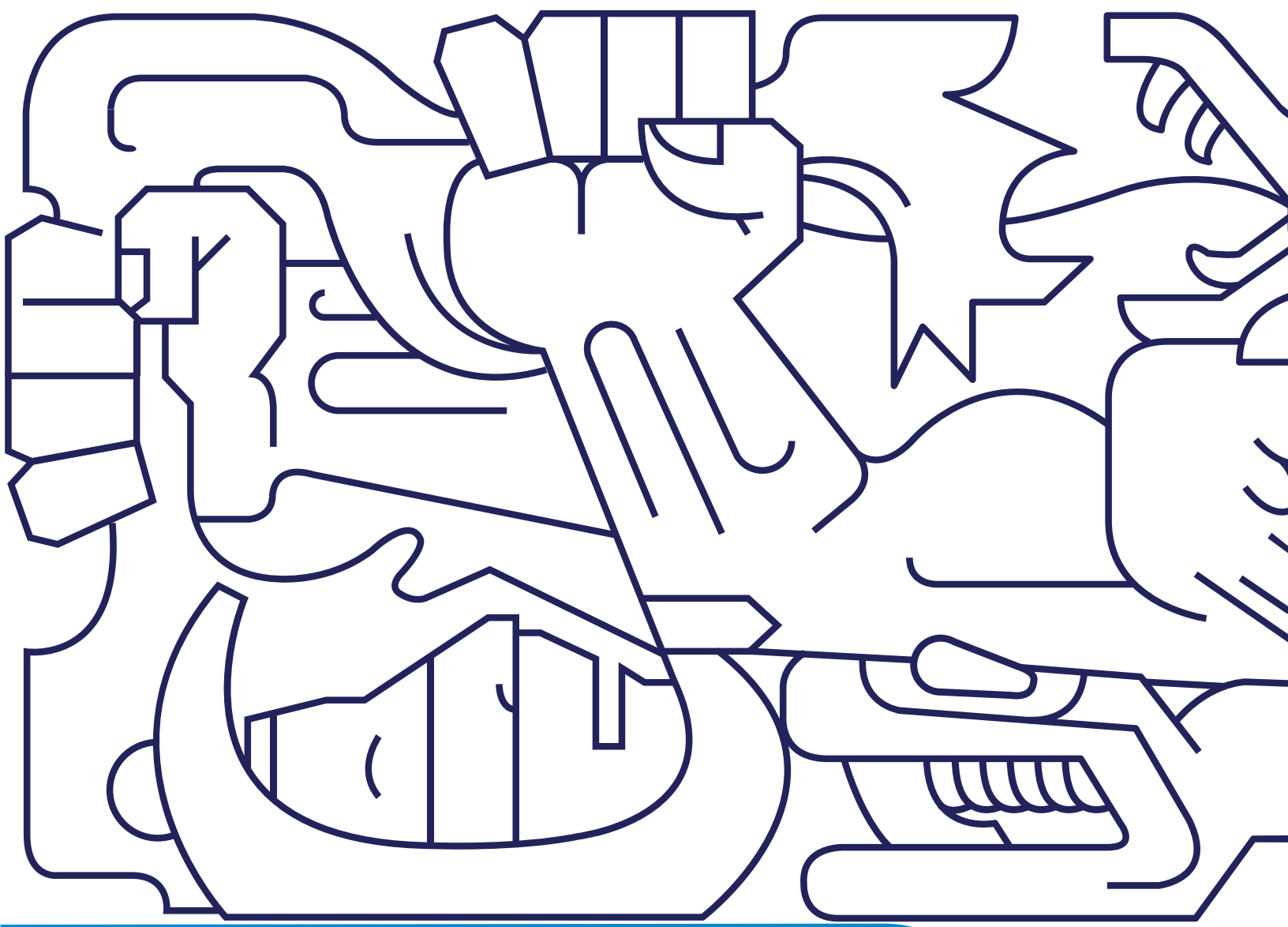
The description of the courses for all the graduate programs offers at Tecnologico de Monterrey is available in the Academic Vice-Rectory official web site: http://sitios.itesm.mx/va/planes_de_estudio/2_1EN.htm

INTRODUCTION

This document describes the wide range of educational offerings offered by Tecnológico de Monterrey at the professional level, provides a brief description of our educational model, the structure of the study plans, the resources and means available to all our students, student life, academic policies and regulations.

It also includes a brief description of the areas of excellence and specialty topics in which professors and students carry out research projects, with the aim of training, transforming, innovating and transcending in society.

March 2021



I. TECNOLÓGICO DE MONTERREY

I. TECNOLÓGICO DE MONTERREY

History and Evolution

Tecnológico de Monterrey was founded in 1943 thanks to the vision of Don Eugenio Garza Sada and a group of entrepreneurs who formed a non-profit association called Enseñanza e Investigación Superior, A. C.

Tecnológico de Monterrey is a private, non-profit, independent institution with no political and religious affiliations.

The work of Tecnológico de Monterrey and all its campuses is supported by civil associations comprised of a numerous group of outstanding leaders from all over the country who are committed to quality in higher education.

Every year, the board members of these associations meet to define the goals that will guide the major decisions which will help Tecnológico de Monterrey to meet its objective of driving the development of communities and the nation.

Tecnológico de Monterrey has the support of the national community, which participates in the raffles organized by the institution to expand its scholarship program and investment in infrastructure.

Tecnológico de Monterrey enjoys the status of Free University School, which enables it to function as an educational institution.

These are some of the main events that distinguish our Institution 77 years after the foundation of Tecnológico de Monterrey.

Beginning

1944 The number of students enrolled at Tecnológico de Monterrey increases from 350 to 452, while the total number of faculty members, all full-time, grows from 14 to 33. This year sees the initiation of extracurricular activities: the first student association is formed, the first basketball and soccer teams are created, and "Onda", the institution's first magazine, is published.

1945 The students adopt "El Borrego" (The Ram) as their mascot.

1947 The Monterrey Campus is inaugurated and has one thousand students this year. The first undergraduate degrees are awarded to eight students from the BS in Chemical Engineering program. The first raffle, known as Sorteo Tec, is held.

1950 Tecnológico de Monterrey is accredited by the Southern Association of Colleges and Schools (SACS), a US accrediting agency.

1954 Tecnológico de Monterrey. This mural represents the triumph of culture and work with motifs taken from pre-Cortés mythology. Later on, the Library building will become the Offices of the Presidency of Tecnológico de Monterrey.

Growth

1960 Tecnológico de Monterrey has 4,458 students from 19 countries in America and all the states of Mexico.

1963 At the beginning of this year, the first master's degree is awarded in Chemical Sciences. Twenty years after its foundation, Tecnológico de Monterrey begins to delve into two educational facets that will be of paramount importance: the use of electronic computers and educational television.

1967 The first campus outside the city of Monterrey is founded: the Guaymas Campus.

1968 This year sees the launch of the first doctoral program: the PhD in Chemistry, specializing in Organic Chemistry.

1973 Two new campuses open in other Mexican cities: the Mexico City Campus and the Ciudad Obregón Campus.

1974 The Saltillo Campus is founded.

1975 Operations start at the Eugenio Garza Sada Campus in Monterrey; and the Laguna, Querétaro and San Luis Potosí Campuses.

1976 The Chihuahua, Estado de México and Irapuato Campuses are inaugurated.

1978 Tecnológico de Monterrey now has more than 25 thousand students in 14 units throughout Mexico. The Ignacio A. Santos School of Medicine is opened next to the Hospital San José building. The León Campus becomes operational.

1980 Personal computers are introduced as a higher education tool in Mexico. The Colima, Chiapas, Guadalajara, Hidalgo and Morelos (nowadays called Cuernavaca) Campuses are opened.

1981 The Central de Veracruz and Tampico Campuses are inaugurated.

1982 The Toluca Campus begins operating.

1983 The Ciudad Juárez, Mazatlán, Sinaloa and Sonora Norte Campuses begin operating.

1985 The Zacatecas Campus is inaugurated.

Consolidation

1986 The mission "to prepare professionals with levels of excellence in their area of specialization" is defined, together with the general statutes. Tecnológico de Monterrey is formally incorporated as a multi-campus university with a new organizational structure.

Tecnológico de Monterrey is connected to the international inter-university communication network known as BITNET. The satellite telecommunications network is launched.

1989 The Center for Advanced Technology for Production (CETEC) is opened on the Monterrey Campus. Satellite transmissions are used to teach the Master's in Education with diverse specializations.

1990 The Center for Strategic Studies (CEE) is created. Courses from the master's degrees in Business Administration and Computer Studies are transmitted by satellite for Tecnológico de Monterrey faculty members, as well as three core courses, related to sociocultural values and professional practice.

Transformation

1996 Tecnológico de Monterrey defines its Mission toward 2005: To prepare individuals who are committed to the development of their communities; who are internationally competitive in their area of knowledge; and who conduct relevant research and extension studies for the development of Mexico.

1997 Universidad Virtual is created. Tecnológico de Monterrey offers its academic and continuing education programs in Mexico and Latin America. The teaching-learning redesign process begins.

1998 The Aguascalientes Campus is inaugurated. The rule was laid down that undergraduate students' social service must benefit the community.

2001 Tecnológico de Monterrey, in conjunction with diverse national and international organizations and foundations, creates the Community Learning Centers. Two new campuses begin their activities: the Cumbres Campus, in Monterrey; and the Santa Fe Campus, in Mexico City.

2002 The Morelia Campus is inaugurated.

2003 The Puebla Campus is inaugurated. The Graduate School for Public Administration and Public Policy (EGAP) is opened with sites on the Mexico City, Estado de México and Monterrey Campuses. Tecnológico de Monterrey receives the Andrew Heiskell Award 2003-2004, bestowed by the United Nations Institute of International Education, in the Outstanding Faculty Program Category.

2004 The Council for the Accreditation of Higher Education (COPAES) of the Mexican Ministry of Education recognizes Tecnológico de Monterrey as the institution of higher education with the highest number of academic programs accredited or recognized by national and international organizations. By this year, Tecnológico de Monterrey has a network consisting of 27 Business Incubators. Prepanet activities are launched to offer online high school with a few face-to-face activities to people who need to earn their high school diploma, but who for diverse reasons were unable to do so. Two new high schools are opened: one in Matamoros, Tamaulipas, and the other in Metepec, Estado de México. The Alumni and Friends Philanthropic Network begins operating in Monterrey.

2005 A new Tecnológico de Monterrey Vision is defined to be fulfilled in 2015, together with the Mission and strategies that will contribute to the realization of this new vision. Tecnológico de Monterrey is awarded the accolade given by the Ministry of the Economy to institutions who provide outstanding support to the consolidation of the National System of Business Incubation. The Family Business Institute is created and developed through an agreement between the Spanish Enterprise Institute and Tecnológico de Monterrey. The Valle Alto High School begins operating in Monterrey.

2007 The Business Accelerator Network began operations. It was created by the Institute for Sustainable Social Development to support society in the areas of education and business creation and development; academic programs in health, nutrition and housing; and professional consulting services.

2008 At the initiative of Tecnológico de Monterrey alumni, the ENLACE E+E Network was created to drive Tecnológico de Monterrey's business incubators and accelerators. The FEMSA Biotechnology Center was opened at the Monterrey Campus, focusing on three areas: Bioprocess Engineering, Food Biotechnology and Pharmaceutical Biotechnology.

2009 With FEMSA's support, the Strategic Technology Observatory opened its doors to promote business innovation and a spirit of research. Community Learning Centers were created to take quality education to underprivileged and geographically remote communities.

2010 After serving as President of the Tecnológico de Monterrey for just over 25 years, in June 2010, Dr. Rafael Rangel Sostmann tendered his resignation as President to the Board of Directors.

The EGADE programs at the Mexico City, Monterrey and Santa Fe campuses merged to form a single national school known as EGADE Business School.

2011 As of October 3, Salvador Alva Gómez took over as the new Chancellor of the Tecnológico de Monterrey. On January 1, David Noel Ramírez Padilla was appointed President of Tecnológico de Monterrey.

2012 The Zambrano Hellion Medical Center was opened in January. This new hospital center seeks to transform private medical practice in Mexico.

The Board of Directors of the Tecnológico de Monterrey announced the appointment of José Antonio Fernández Carbajal as the new Chairman of the Board, replacing Mr. Lorenzo H. Zambrano Treviño as of February 14. Mr. Fernández Carbajal became the fourth Chairman of the Board, succeeding Eugenio Garza Sada (1943-1973), Eugenio Garza Lagüera (1973-1997) and Lorenzo H. Zambrano Treviño (1997-2012).

The Monterrey Regional Presidency established the Distinguished Professor Emeritus Prize to be awarded on May 15 every year (Teachers' Day in Mexico). The first professor to receive this honor was the architect José Luis Pineda.

The Latin American Citizenship Institute was created with the aim of replicating the best civic practices of Mexico and Latin America and orientating the entrepreneurial and humanistic capacity of Tecnológico de Monterrey.

Tecnológico de Monterrey initiates a transformation to generate cultural change and a process-based approach.

The values that govern the institution's operations are defined:

- Innovation
- Global outlook
- Teamwork
- Ethics and citizenship
- Integrity

2012 As Tecnológico de Monterrey collaborators, we are committed to complying with the guidelines contained in the Code of Ethics and to making them part of our lives and daily activities.

2013 The Institution announced the new Educational Model Tec21, which will enable the development in future generations of competencies for the leaders of the 21st century. The Model is based on innovative, challenging experiences, spaces for active learning, and faculty who inspire and innovate.

The following changes were announced in the institution; Salvador Alva is now President of Tecnológico de Monterrey; there are now three instead of five regional presidencies: Northern Zone, Central-Southern Zone and Western Zone; three Vice Presidencies were created: High School, Undergraduate, and Research, Graduate and Continuing Education.

The Protein Development Research Center was created.

The Eugenio Garza Sada Institute for Entrepreneurship was founded.

2014 The Federal Government of Mexico honored Tecnológico de Monterrey with the National Entrepreneurship Award.

2016 The new organizational structure of Tecnológico de Monterrey includes the Campus Vice Presidency, which will enhance the academic and student experience processes.

The scope of the Schools has been expanded to integrate undergraduate programs as well.

2017 David Garza Salazar, formerly the academic vice rector, was appointed as the new of Tecnológico de Monterrey, replacing David Noel Ramírez Padilla, who became Rector Emeritus.

2018 QS World University Rankings classifies Tecnológico de Monterrey as the top private university.
The progress of the fulfillment of Vision 2020 was reviewed and the five values that characterize and represent the Tecnológico de Monterrey community were identified.

2020 Appointment of Juan Pablo Murra Lascurain as Rector of Undergraduate and Graduate Studies of the Tecnológico de Monterrey.

Education that Transforms Lives

Multi-campus University

Nowadays, Tecnológico de Monterrey is a multi-campus university with academic sites in the diverse regions of Mexico.

The prestige enjoyed by Tecnológico de Monterrey since its foundation, stemming from the culture of entrepreneurship, work, efficiency and responsibility that it fosters its students, motivated its graduates, who come from diverse regions of Mexico, to promote the presence of Tecnológico de Mon- terrey in their hometowns.

This gave the Institution significant insight into the different needs of each region in order to prepare professionals, without uprooting them from their hometowns, with the capacity to address them. Moreover, as a nationwide, multicampus university, Tecnológico de Monterrey accepts its respon- sibility to provide a valid response to the country's foremost challenges.

Some of Tecnológico de Monterrey's alumni are now directors in successful companies in Mexico and Latin America, while the presence of its graduates in key government and public administration positions is constantly growing.

Values

In 2018, we identified five values that characterize and represent the Tecnológico de Monterrey community, and three behaviors for each of the values, which clarify their meaning and scope.

Tecnológico de Monterrey is guided by five values:

Innovation

We are passionate about disruption that generates value.

- We break paradigms, creating new opportunities for our publics.
- We are entrepreneurs, generating and realizing ideas that target the publics we serve.
- We support and recognize people so they can generate change, assume risks and learn from their mistakes.

Integrity

We exercise freedom with responsibility.

- We are congruent, act in good faith and reject unethical behaviors.
- We are responsible for our behaviors and our decisions are consistent with our principles and values.
- We manage the institution's resources with austerity and honesty.

Colaboration

Together, we fulfill the Vision.

- We foster and recognize collaborative, multidisciplinary work.
- We act rigorously, empowering people and eliminating the barriers that prevent us from collaborating.
- We prioritize collective over individual success.

Empaty and Incluiton

We always put people first.

- We take the time to listen to, understand, support and develop the members of our community.
- We respect people's dignity and value our community's diversity.
- We foment compassion and learn to live in harmony with our differences.

Global Citizenship

We work for a sustainable world.

- We are conscious citizens with a global outlook.
- We participate with solidarity to solve the problems of the world and the most vulnerable communities.
- We promote sustainable development to benefit future generations and the planet.

Vision

The world is changing at such an accelerated pace that Tecnológico de Monterrey must continue to evolve to fulfill its purpose. As a result, in 2018 the Board of Directors reviewed the progress and fulfillment of the Vision 2020 and defined the Vision 2030, as follows:

> The Vision of Tecnológico de Monterrey is to drive in its community leadership, innovation and entrepreneurship for human flourishing.

Differentiators

Through educational experiences we train people who become agents of change; people who are responsible for their own lives, aware that their actions can support the transformation of others.

Code of Ethics

This Code of Ethics is based on the purpose of the Tecnológico de Monterrey: Education that transforms lives, and on the visions of its institutions. It is grounded in our institutional values and, in particular, a sense of humanity and integrity.

It is not, nor does it seek to be, exhaustive in relation to the ethical dilemmas that arise in the setting of our activities; therefore, it will be enriched when the requirements of daily practice so require.

As members of the organization, we are committed to channeling our actions toward the common good and the transformation of our society. Thus, all the board members, directors, faculty, doctors and employees of the Tecnológico de Monterrey:

1. Acknowledge the dignity of people and treat them with respect and justice.
2. Treat everybody equally and shun discrimination in every form.
3. Act with integrity, honesty, responsibility, objectiveness, congruence and impartiality.
4. Recognize and respect intellectual property and others' merit.
5. Avoid any type of conflict of interest and, if any conflicts should arise, report them to the corresponding authorities.
6. Assume data transparency as a commitment and respect the confidentiality of issues as determined by the Institution.
7. Use resources in a responsible, austere and efficient manner.
8. Protect the environment.
9. Seek the benefit of the Institution above personal benefit.
10. Comply with the laws, regulations and policies that govern our activities at institutional, national and international levels.

As Tecnológico de Monterrey collaborators, we undertake to fulfill the guidelines contained in the Code of Ethics and make them part of our lives and daily actions.

Accreditations

The national and international academic program and institutional accreditations reflect the quality of the academic services offered and are one of the means employed by Tecnológico de Monterrey to assure and enhance its academic quality, thus consolidating its leadership position in Mexico's higher education.

Institutional Accreditations

a) International

Tecnológico de Monterrey is accredited by the Southern Association of Colleges and Schools (SACSCOC, http://www.sacscoc.org), to award undergraduate, master's and doctorate degrees.

For further information on Tecnológico de Monterrey's accreditation, please contact:

Southern Association of Colleges and Schools
Comission of Colleges
1866 Southern Lane
Decatur, GA. 30033-4097
Telephone: (+1) 404-679-4500

b) National

Tecnológico de Monterrey is accredited by the Federation of Mexican Private Higher Education Institutions (FIMPES, http://www.fimpes.org.mx).

For further information on Tecnológico de Monterrey's accreditation, please contact:

Federación de Instituciones Mexicanas Particulares de Educación Superior
Río Guadalquivir No. 50 - 4° piso, Col. Cuauhtémoc
Delegación. Cuauhtémoc.
C.P. 06500 México, D.F.
Telephone: (+52) (55) 5514-5514

Program Accreditations

Undergraduate

During 2020, the following agencies recognized by the Council for the Accreditation of Higher Education (COPAES) accredited or maintained the accreditation of the undergraduate academic programs of Tecnológico de Monterrey at its different campuses:

- Association for the Accreditation and Certification of Social Sciences (ACCECISO)
- National Accrediting Agency for Architecture Programs and Habitable Space Disciplines (ANPADEH)
- Accreditation Council for Accounting and Business Administration Education (CACECA)
- Accreditation Council for Engineering Education (CACEI)
- Accreditation Council for Education and Research in Psychology (CNEIP)
- Mexican Accreditation Council for Medical Education (COMAEM)
- Mexican Council for the Accreditation of Design Programs (COMAPROD)
- Mexican Committee for the Accreditation of Education in Agronomy (COMEAA)
- Accreditation Council for Communication (CONAC)
- National Council for the Accreditation of Economic Sciences (CONACE)
- Council for the Accreditation of Legal Education (CONAED)
- National Council for Dental Education (CONAEDO)
- National Accreditation Council for Informatics and Computing (CONAIC)
- National Council for the Accreditation of Higher Education in Law (CONFEDE)
- National Council for Quality in Nutritional Science Education Programs (CONCAPREN)

The following tables show the undergraduate programs by campus, accredited by national COPAES agencies at February 2021.

School	Campus	Program	Description	Agency
Architecture and Design	Ciudad de México Estado de México Guadalajara Monterrey Sonora Norte Toluca	ARQ	B.A. in Architecture	ANPADEH
	Ciudad de México Monterrey Puebla Querétaro Toluca	LDI	B.A. in Design	COMAPROD
Social Sciences and Government	Chihuahua	LED	B.A. in Law	CONFEDE
	Ciudad de México			CONAED
	Ciudad de México	LEF	B.A. Economics and Finances	CONACE
	Ciudad de México Estado de México Querétaro	LRI	B.A. in International Relations	ACCECISO
Humanities and Education	Ciudad de México Querétaro	LCMD	B.A. Communication and Digital Media	CONAC
	Toluca			ACCECISO
	Estado de México	LPO	B.A. Organizational Psychology	CNEIP
Engineering and Sciences	Querétaro	IA	B.S. Agronomy Engineering	COMEAA
	Ciudad de México Estado de México Guadalajara Monterrey Puebla Querétaro	IBT	B.S. in Biotechnology Engineering	CACEI
	Guadalajara Monterrey Puebla	IC	B.S. in Civil Engineering	
	Monterrey Puebla	IDA	B.S. Automotive Engineering	
	Ciudad de México Monterrey Puebla	IDS	B.S. in Sustainable Development Engineering	
	Monterrey	IFI	B.S. in Engineering Physics	
	Monterrey Querétaro	IIA	B.S. Food Industry Engineering	
	Monterrey	IID	B.S. in Innovation and Development Engineering	
	Ciudad de México Cuernavaca Culiacán Estado de México Guadalajara Hidalgo Laguna	IIS	B.S. in Industrial Engineering with minor in Systems Engineering	

School	Campus	Program	Description	Agency
Engineering and Sciences	Monterrey Morelia Puebla Querétaro Saltillo Sonora Norte Tampico	IIS	B.S. in Industrial Engineering with minor in Systems Engineering	CACEI
	Monterrey Puebla Querétaro	IMA	B.S. Mechanical Engineering Option A	
	Ciudad de México Guadalajara Monterrey	IMD	B.S. in Biomedical Engineering	
	Ciudad de México Estado de México Monterrey	IME	B.S. Mechanical Engineering Option E	
	Chihuahua Ciudad de México Ciudad Juárez Cuernavaca Estado de México Guadalajara Monterrey Morelia Puebla Querétaro Saltillo San Luis Potosí Sonora Norte	IMT	B.S. in Mechatronics Engineering	
	Monterrey	INCQ	B.S. in Nanotechnology Engineering	
	Monterrey	INT	B.S. Business Informatics	
	Estado de México	ISC	B.S. Computer Science and Technology	CONAIC
	Guadalajara Querétaro			CACEI
	Estado de México Monterrey Puebla Querétaro	ISD	B.S. Digital Systems and Robotics Engineering	
	Ciudad de México Monterrey Puebla	ITC	B.S. in Computer Science and Technology	
	Monterrey			CONAIC
	Guadalajara Monterrey	ITE	B.S. Electronic and Computer Engineering	CACEI
	Ciudad de México	ITS	B.S. Telecommunications and Electronic Systems	
	Estado de México Monterrey	IQA	B.S. Chemical Engineering Option S	
	Monterrey	IQP	B.S. Chemical Engineering Option S	

School	Campus	Program	Description	Agency
Medicine and Health Sciences	Ciudad de México Guadalajara Monterrey	LNB	B.A. in Nutrition and Wellness	CONCAPREN
	Monterrey	LPS	B.S. in Clinical Psychology and Health	CNEIP
		MC	Physician & Surgeon	
	Guadalajara			COMAEM
	Monterrey	MO	Medical and Surgical Dentist	CONAEDO
Business	Ciudad de México Hidalgo Estado de México Monterrey Morelia Puebla Querétaro Toluca	LAE	Bachelor of Business Administration	CACECA
	Chihuahua Ciudad de México Estado de México Laguna Monterrey Puebla Querétaro San Luis Potosí	LAF	B.A. in Financial Management	
	Ciudad de México Hidalgo Estado de México Monterrey Querétaro Toluca	LCPF	B.A. in Finance and Accounting	
	Ciudad de México Guadalajara Querétaro Santa Fe	LDE	B.A. in Entrepreneurship	
	Ciudad de México Estado de México Monterrey Toluca	LEM	B.A. in Marketing	
	Chihuahua Ciudad de México Estado de México Laguna Monterrey Morelia Puebla Querétaro Saltillo San Luis Potosí Tampico Toluca	LEM	B.A. in Marketing	

School	Campus	Program	Description	Agency
Business	Chihuahua Ciudad de México Estado de México Laguna Monterrey Morelia Puebla Querétaro Saltillo San Luis Potosí Tampico Toluca	LIN	B.S. in International Business	CACECA
	Ciudad de México	LMC	B.A. Marketing and Communication	
	Ciudad de México	LPO	B.A. Organizational Psychology	CNEIP

b) International

In addition, Tecnológico de Monterrey offers programs accredited by the following international organizations:

- Accreditation Board for Engineering and Technology (ABET).
  111 Market Place, Suite 1050,
  Baltimore MD 21202-4012.
  United States of America
  Telephone: (+01)410-3477700
  www.abet.org

- The Accrediting Council on Education in Journalism and Mass Communications (ACEJMC).
  1435 Jayhawk Blvd. Lawrence, KS 66045
  Teléfonos: (+1) 785 864 3973.

- National Association of Schools of Art and Design (NASAD)
  11250 Roger Bacon Drive, Suite 21 Reston,
  VA 20190-5248
  Telephone: 703-437-0700
  http://nasad.arts-accredit.org/

This list shows Tecnológico de Monterrey's undergraduate programs accredited by international organizations, at February 2021, in the academic areas indicated:

School	Campus	Program	Description	Agency
Humanities and Education	Monterrey	LMI	B.A. Communication and Digital Media	ACEJMC
		LCMD	B.A. Journalism and Media Studie	
Engineering and Sciences	Monterrey	IBT	B.S. in Biotechnology Engineering	ABET
	Monterrey	IC	B.S. in Civil Engineering	
	Monterrey	IFI	B.S. in Engineering Physics	
	Monterrey	IIA	B.S. Food Industry Engineering	
	Chihuahua Ciudad de México Estado de México Guadalajara Monterrey Puebla Querétaro San Luis Potosí Santa Fe	IIS	B.S. in Industrial Engineering with minor in Systems Engineering	
	Monterrey Puebla Querétaro	IMA	B.S. in Mechanical Engineering Option A	
	Ciudad de México Estado de México Monterrey	IME	B.S. in Mechanical Engineering Option E	
	Chihuahua Ciudad de México Estado de México Guadalajara Monterrey Puebla Querétaro Santa Fe	IMT	B.S. in Mechatronics Engineering	
	Monterrey	INT	B.S. Business Informatics	
	Monterrey	IQA	IB.S. in Chemical Engineering Option A	
	Monterrey	IQS	IB.S. in Chemical Engineering Option S	
	Monterrey	ISD	B.S. Digital Systems and Robotics Engineering	
	Ciudad de México Monterrey Puebla Santa Fe	ITC	B.S. in Computer Science and Technology	

The updated information on the institutional accreditations and academic programs of Tecnológico de Monterrey is available on the institutional website: http://tec.mx, following the path Nosotros > Más sobre la institución > Acreditaciones.

Educational Model Tec 21

The educational model of Tecnológico de Monterrey comprises a set of structured components through which the institution fulfills its students' educational goals. It integrates the aims of the Institutional Vision and the values it promotes, the pedagogical practices that make it operational, and the supporting mechanisms and resources.

Characteristics of the Educational Model

- Academic content that encompasses an education in science, technology, humanism, ethics and citizenship.
- Use of teaching techniques that provide a practical approach to our students' education, leading to the analysis and proposal of answers to complex real-world and business-environment issues. Some of these teaching techniques are: Collaborative Learning, Problem-Based Learning, Project-Oriented Learning, Case Method, Service-Learning and Inquiry-Based Learning.
- Development of our students' capacity for self-directed research and learning, as a result of their active participation in the educational process. This will enable them to keep up-to-date throughout their professional lives.
- Use of the most advanced information technologies as learning support tools.
- A comprehensive educational approach complemented by co-curricular activities in student leadership, cultural diffusion and physical education.

Through the Educational Model TEC21 Initiative, our educational model adapts to the new times, seeking to drive the skills of the current generations to promote in their communities leadership, innovation and entrepreneurship for human flourishing.

Characteristics that Enrich Our Educational Model

Faculty who are innovative, up-to-date in their discipline and experienced in their professional practice (liaison), and who incorporate technology into the teaching-learning process.

Challenging, interactive learning experiences in new educational spaces with infrastructure focused on collaborative work, where classrooms are no longer a center of knowledge transmission but have become spaces designed specifically to foster learning.

Flexibility in how, when and where the teaching-learning process takes place.

The following is a description of the characteristics of the diverse programs through which Tecnológico de Monterrey educates its students; the academic processes that form the framework of their personal and professional development; the resources that support and facilitate these processes; and the quality assurance schemes for the Institution's overall academic operations.

Student Learning Development Process

The main characteristic of Tecnológico de Monterrey's educational process is the active role played by students in their own education. By becoming actively involved in this process, students develop the capacity for self-directed learning, which is indispensable for innovating and staying up to date throughout their professional lives. Moreover, while studying at the Institution, students develop a series of personal competencies that enable them to attain a comprehensive education. The following is a list of the main elements that distinguish Tecnológico de Monterrey educational process:

◆ Active Learning

The environment at Tecnológico de Monterrey is designed to offer students multiple opportunities to participate actively in their professional and personal preparation process. Through the institution-wide use of diverse teaching techniques, such as problem-based learning, project-oriented learning, collaborative learning, service-learning, case method and research-based learning, among others, students play a purposeful, structured role in the construction of their knowledge and the development of the competencies described in the graduate profile and the Mission. In this context, students can discover process and apply knowledge in a relevant, significant way both inside and outside the classroom.

◆ Self-regulated Learning

A key objective of Tecnológico de Monterrey's learning model is for students to develop the skills needed to achieve lifelong learning. Therefore, in their courses, they repeatedly face challenging, highly academically demanding educational situ- ations, which motivate them to gradually develop the capacity to regulate their learning, setting goals and reflecting on their achievements.

Throughout this process, the students are constantly guided and supported by their teachers and by the huge range of physical, technological and human resources offered by the Institution.

◆ Comprehensive Education

Comprehensive education is based on the idea of developing in students the diverse human dimensions. With this aim, the educational model contemplates the development of competencies for reflecting on, analyzing and evaluating the social, economic, political and ecological reality, from both personal and professional perspectives; respect for others and for the environment; acting with solidarity and responsibility to enhance the quality of life of the country and the world. Tecnológico de Monterrey's comprehensive education is based on its academic programs, cross- curriculum strategies and a variety of co-curricular activities.

◆ Teaching Techniques

Just as the greatest care is employed when designing the programs' curricula and selecting the content, Tecnológico de Monterrey's academic activity is characterized by the use of teaching techniques that add a practical and professional approach to the students' academic training, while developing their personal competencies. Although techniques to support teaching have always been used at Tecnológico de Monterrey, the Institution formalized a faculty training program in this area to strengthen the implementation of its educational model and strongly promote its application in each of the courses offered.

There are many teaching techniques and just as many ways of classifying them. In the same way, at an institutional level, the faculty select the techniques that they consider to be the most appropriate for their teaching objectives. The most commonly used techniques are:

- Collaborative Learning
- Problem-based Learning
- Project-oriented Learning
- Case Method
- Service-Learning
- Research-based Learning

◆ The Professor as a Learning Facilitator and Guide

The faculty profile underscores their outstanding preparation within their professional fields, as well as the intensive teacher training fomented by the Institution that enables the professors to design and guide carefully structured teaching processes in which students will achieve the maximum benefit of their participation.

Internationalization

Academic training is expanded with internationalization experiences through which students enrich their academic life with a more global thought.

The internationalization component helps students to enrich their academic life with more global experiences, through academic, cultural and linguistic exchange, and also to take a major step towards achieving personal maturity.

Students are offered the internationalization experience through:

- Participation in academic experiences in prestigious overseas universities and academic institutions for periods of two semesters, one semester, one intensive course or a specific academic trip.
- Socializing with and meeting students from other countries who are studying at one of Tecnológico de Monterrey's campuses.
- Attendance at conferences offered by qualified scholars from foreign universities who have been invited as visiting professors to Tecnológico de Monterrey or who participate in satellite sessions or online courses.
- Participation in projects conducted in association with groups of students from foreign universities through the facilities offered online.

Undergraduate Programs

Tecnológico de Monterrey offers a wide variety of undergraduate programs and specializations indifferent academic areas.

In view of the demands of an increasingly complex, globalized society and a changing, competitive environment, Tecnológico de Monterrey considers that the education offered by universities should go beyond vocational competencies. This implies providing students with a comprehensive education that will enable them, on graduating, to address the diverse professional, personal and citizenship challenges that will arise throughout their lives. The importance attached by Tecnológico de Monterrey to comprehensive education is clearly portrayed in its institutional Vision and Mission.

The undergraduate curricula include the following components:

a. General Education

In addition to the competences of their profession, each of the programs includes among its objectives the development of the following general education and Vision support competencies in students:

Self-knowledge and management

It creates a personal and professional wellbeing project through responsible reflection and integration of emotional and intellectual resources.

Innovative entrepreneurship

It generates innovative, versatile solutions in changing environments, which create value and have a positive impact on society.

Social intelligence

It generates effective collaboration and negotiation environments in multicultural contexts with respect for and appreciation of the diversity of knowledge and people.

Commitment to ethics and citizenship

It implements projects aimed at transforming the general environment and wellbeing, with moral awareness and social responsibility.

Reasoning to address complexity

It integrates different types of reasoning to analyze, summarize and solve problems, with an aptitude for lifelong learning.

Communication

It uses different languages and communication resources and strategies, in an effective, context-appropriate manner in professional and personal networks.

Digital transformation

It optimizes solutions to problems in their professional field, intelligently incorporating state-of-the-art digital technologies.

From August 2019 academic programs incorporate 15 mandatory credits and 15 variable credits creditable in different areas of knowledge with a specific formative purpose aligned to General Education and Vision Support purpose.

Variable courses options in different knowledge areas, with three academic credits each, to accredit the 15 variable credits in each area of knowledge shown in the following table:

Social and Behavioral Sciences Area (one course)	
Code	**Name**
EC1020	Microeconomic Incentives and Macro Results
EH1010	Keys to Happiness for Human Flourishing
H1058	Anthropology of the Body
P1012	Technological Change and Social Development
P1013	Mexican Politics: Evolution and Challenges
RI1016	Gender, Society and Human Rights
RI1018	Geopolitics and Technological Changes: The Future Today
SD1019	Health and Wellbeing

Humanities and Fine Arts Area (one course)	
Code	**Name**
A1005	Art Appreciation
AT1005	Image Culture
EH1013	Cultural Heritage of Mexico
H1057	The myths that inhabit us: from Prometheus to Marvel
IM1003	Multidisciplinary Appreciation of Music
RI1017	Historical Milestones of the 20th and 21th Centuries

Mathematics and Sciences (one course)	
Code	**Name**
IB1005	Foundation of Biological Systems
IB1006	Biomimetics and Sustainability
DS1009	Ecological Processes for Human Development
MA1042	Mathematics and Data Science for Decision Making

Ethics and Citizenship Area (one course)	
Code	**Name**
EC1019	Citizenship and Smart Cities
EH1011	Posthumanism, ethics and technology
EH1012	Ethics, sustainability and social responsibility
EH1014	Violence, Dignity, and Social Justice
H1059	Ethics and Psychology: From Self-Knowledge to Fullfillment
MB1002	Wellbeing and Sustainability
P1006	Global Citizenship: Diversity and Tolerance
P1014	Citizenship and Technology

Leadership, Entrepreneurship and Innovation Area (one course)	
Code	**Name**
DL1023	Innovation and Creative Processes
EC1018	Anticorruption in Government, Firms, and Society
EM1011	Entrepreneurship and Innovation
H1063	Argumentation, Debate, and the Art of Public Speaking
MB1001	Global Health Leadership

This list could be review by the teachers of the Tecnológico de Monterrey anytime, and could be modify without prior notice.

b. Basic Core Courses

The basic cores include courses that are shared among several programs from diverse areas of knowledge.

c. Discipline Courses

These courses are the core courses for each undergraduate program.

d. Relationships with Companies or Organizations

It is achieved through courses in which students carry out a project in a company or organization.

e. Elective Courses

They give students the opportunity to broaden their professional vision through elective courses or professional concentrations. Concentrations are educational options comprised of a set of courses and learning experiences that enrich students' education by providing them with knowledge and skills in an area that complements their program or is orientated towards consolidating the skills, attitudes and values established in the exit profile. Elective courses also allow students to participate in research, internationalization or business connection programs.

f. Comprehensive Education

Tecnológico de Monterrey foments the comprehensive education of its students by giving them the opportunity to participate in a variety of student activities that promote the development of the values, attitudes and skills stated in the institutional Vision and Mission.

g. Community Social Service

Tecnológico de Monterrey has instituted a Community Social Service program which forms part of the Social Service mandated by law in Mexico as a graduation requirement. The aim of this program is to help students to become aware of the country's social reality by participating in programs that generate social, economic and educational development in needy communities and institutions.

h. Concentrations

The professional concentrations furnish knowledge and skills in a discipline that complements the students' major, or in areas related to the degree program in order to enhance their learning.

Characteristics of the Concentrations

The total academic load is 48 units, distributed as follows:

- Four or five courses, each with an academic load of 8 units.
- One or two capstone projects, each with an academic load of 8 units and to be completed in an organization assigned in accordance with the area of concentration.
- The courses that comprise the concentrations provide credit for the variable courses (identified in the curricula as "Topics").
- Concentrations can be studied as of the fifth semester.

Students can choose from the concentrations offered by the Institution in various areas of knowledge.

Resources and Media

◆ Information and Communication Technologies

In an era of major advancements in the development and use of information and communication technologies, Tecnológico de Monterrey promotes their use with the twofold aim of bringing students into contact with these tools, as a competitive advantage in their professional education and, at the same time, making the most of all the support resources available to enrich the teaching-learning process.

Tecnológico de Monterrey Library Network

The Tecnológico de Monterrey Library (http://biblioteca.tec.mx) seeks to inspire our students, faculty, collaborators and alumni in a flexible, open and pleasant meeting point, while assuring access to information and driving the interdisciplinary generation of knowledge. Its objective is to contribute to learning, co-creation, innovation and investigation, fostering academic liaison and collaboration, while building memorable experiences.

The Library incorporates a system comprised of 46 on-campus libraries and a national library office. This system works under a collaboration model that makes it possible to integrate a network of library services for three education levels: High School, Undergraduate, and Graduate and Research.

Through the collection development program, the Tecnológico de Monterrey Library offers over 5 million volumes (2.5 million print and 2.8 million digital volumes), including articles, books, encyclopedias, videos, and journals and magazines that cover all the areas of knowledge in which the institution offers academic programs. In addition, every year the library system trains more than 70% of new students in information management skills development; receives over 15 thousand requests for attention, instruction and reference services to accompany our students in their learning process; and manages more than 1 million loan requests for print and digital books.

Online Programs

The Schools offer graduate programs through the Office of Online Programs. Tecnológico de Monterrey offers graduate, continuing education and social development programs in Mexico and some Latin American countries, using innovative educational models, learning networks and advanced information technologies, to contribute to the integration and development of Spanish-speaking communities.

The courses on line respond to diverse market needs. Faculty members who are experts in their fields, assisted by a team of instructional design and technology specialists, are in charge of developing these courses. Moreover, the faculty is supported by a team of tutors to manage the students' learning process.

The variety of services on line spans undergraduate courses to literacy programs for the members of the most underprivileged communities in the country, as well as a wide range of master's degrees and continuing education programs. It also offers teacher training programs for both Tecnológico de Monterrey professors and those from other educational systems in Mexico and at least ten other Latin American countries.

Student Life

Tecnológico de Monterrey, in its endeavor to promote the development and comprehensive education of its students, offers diverse programs, courses, workshops and student groups that provide spaces for the development of competencies, such as leadership, self-confidence, ethics and citizenship. These competencies help students to fulfill their personal and professional goals.

The formal student life actions include sports, cultural and student leadership activities, together with prevention and psycho-pedagogic counseling, which are offered through the healthy environment promotion program.

Vocational Guidance

A vocational guidance program run by expert specialists is available to students at the Tecnológico de Monterrey campuses upon request. The objective of this service is to provide high school and undergraduate students with the tools for making decisions regarding their life and career plans, such as choosing which major they are going to study, deciding whether to change majors or if they have doubts about continuing at the Institution. Students can take tests in this space to identify the skills, interests and personality characteristics that

coincide with the professional profiles of the different degree programs and which are important components in this decision-making process.

◆ Dormitories

In order to provide a comprehensive service, the Guadalajara, Monterrey, Puebla and Querétaro campuses offer dormitories that promote integration and participation in co-curricular activities, such as excursions, tournaments and trips, as well as the possibility of socializing with people from other parts of the world.

Academic Policies and Academic Regulations

Admissions

Tecnológico de Monterrey's admissions process focuses on selecting young people who have the potential to become internationally competitive leaders with a spirit of entrepreneurship and a sense of humanity, as well as the clear capacity and enthusiasm to enrich the academic and student life of the Tecnológico community. As a selective institution, every year there are more student applications than available places.

The Admission Committee is responsible for reviewing the profiles and academic records, since its members assign the admissions decisions through a comprehensive process of selection criteria, as follows:

- Application for admission
- Result of the Academic Aptitude Test
- Prior academic history
- Curriculum (academic, leadership, sports, cultural, personal accomplishments, etc.)
- Essay (which reflects the applicants' personal interests and displays their enthusiasm for belonging to our community)
- Letters of recommendation
- Result of the TOEFL or an alternative English language proficiency test
- Interview

For further details on the undergraduate admissions process, visit the Tecnológico de Monterrey website at https://tec.mx/

Credit Transfer

The credit transfer and equivalence agreements for students enrolled in Tecnológico de Monterrey with partial studies in an academic period, completed at another educational institution, are issued by the Mexican Department of Education based on a proposal made for each particular case by Tecnológico de Monterrey.

Tecnológico de Monterrey recognizes the results of the official examinations by area of knowledge of the International Baccalaureate (IB) and of the Advanced Placement Program (AP), for undergraduate course credit transfer.

Credit transfer applications must be completed during the admissions process for the selected undergraduate degree through the Credit and Credit Transfer Office of the corresponding campus.

The deadline for requesting credit transfer corresponds to the date specified to request a change of courses during the students' first semester at our Institution.

Evaluation and Continuance

Tecnológico de Monterrey considers that from 48 to 60 units per semester is an adequate academic load. It structures its curricula and enrollment rules around these figures.

The evaluation of the students' performance in each of their courses is carried out through partial evaluations and a final evaluation. The final evaluation is compulsory.

Grades are expressed in whole numbers, on a scale of one to one hundred. The minimum pass grade is seventy.

Regarding continuance at Tecnológico de Monterrey, students with Academic Support standing will be dismissed for unsatisfactory academic performance if they:

1. Do not enroll in or comply with the guidelines of the Academic Enhancement Program.
2. Fail 24 or more academic credits before completing fifty percent of the exploration area and/or undergraduate degree in which they are enrolled.

3. Fail 30 or more academic credits.

To calculate the academic credits of the failed educational units, all the educational units completed by students are taken into account, even if they have switched degrees or exploration areas.

The results of the educational units completed by students in all the academic periods, including intensive periods, are taken into account, except for the introductory-level educational units described in the introduction semester section, in accordance with the provisions of the Office of the Academic and Educational Innovation Vice Rector.

To determine this standing for students from the School of Medicine and Health Sciences, two trimester periods will be deemed equivalent to one semester academic period.

Graduation

In order to obtain an undergraduate degree at Tecnológico de Monterrey, students are required to have:

1. Completed high school in full before passing the first educational unit of the undergraduate curriculum.
2. Fulfilled, in accordance with the effective regulations, the academic prerequisites of the corresponding curriculum, by means of the initial evaluation or the introductory-level units.
3. Demonstrated the level of proficiency established by the Institution in the competencies defined in their curriculum.
4. Completed all the educational units of the corresponding curriculum, either by passing them at Tecnológico de Monterrey, or obtaining revalidation or equivalency agreements – according to the regulations corresponding to studies completed at other institutions - and, passing the remaining educational units at Tecnológico de Monterrey. Educational units completed at foreign universities with which agreements have been signed will be considered, for the purposes of this article, as having been completed at Tecnológico de Monterrey.
5. Completed and passed at Tecnológico de Monterrey at least 50% of the academic credits that comprise the curriculum. This rule can be flexible for programs that, through an agreement, are created in conjunction with other universities.
6. Completed their social service in compliance with the legal precepts in force and the regulations approved by the Rector of Tecnológico de Monterrey.
7. Taken the external exam authorized by the Office of the Academic and Educational Innovation Vice Rector, to evaluate the knowledge and skills acquired during their undergraduate program. This requirement applies solely to students from the undergraduate programs for which these exams exist. The result of this exam will be recorded on the student's transcript.
8. Students from the undergraduate programs for which this exam does not exist must take the capstone exams designed for this purpose. This requirement applies only to students from the undergraduate degrees for which these exams exist.
9. Demonstrated the level of proficiency in the English language established by Tecnológico de Monterrey in one of the tests authorized by the Office of the Academic and Educational Innovation Vice Rector.
10. Fulfilled any additional requirements established in their program and authorized by the Office of the Academic and Educational Innovation Vice Rector.

General Student Rules and Regulations

Since its foundation, Tecnológico de Monterrey defined the regulations that would guide its students regarding academic expectations and their conduct inside and outside the classroom.
The Institution, committed to its academic quality,

informs the students and the community of the regulations that govern it within the framework of the principles and values stated in the Mission.

The General Student Rules and Regulations can be consulted at the official web side. (http://Tec.mx/).

Financial Aid and Scholarships

Tecnológico de Monterrey offers three types of financial aid: scholarship, student loan, and a combination of both.

Scholarship

Exemption from paying a percentage of the tuition fees without the obligation of subsequent repayment by the beneficiary. Each scholarship program targets a specific student profile and has its own characteristics, franchises, and allocation and maintenance requirements.

Student loan

Percentage of the tuition fees, payment of which is deferred under the terms and conditions determined by the Institute.

Scholarship-student loan combination

The combination of the two aforementioned types of aid. The beneficiary undertakes to repay the portion corresponding to the percentage of the student loan, under the terms and conditions provided by the Institute.

The scholarship programs are classified as follows:

a. Socioeconomic. Socioeconomic scholarships are offered as an option for students who are willing and have the necessary abilities to complete their studies at Tecnológico de Monterrey successfully, but do not have sufficient funds to cover the inherent expenses. This type of aid is awarded on the basis of the proven economic situation of the applicant's family.

b. Academic talent. Its aim is to attract academically outstanding students to study at the Institute, regardless of the family's economic situation or nationality. The call for applications is made and the students with the highest grade averages and the best scores on their first Academic Aptitude Test are selected.

c. Student talent. Student talent scholarships are offered as an option for outstanding students who have performed exceptionally at the state, national or international level in artistic, athletic and leadership activities, according to the profiles established for each of the activities, regardless of the family's economic situation or nationality.

d. Entrepreneurial talent. The aim of this selective program is to motivate entrepreneurs who already have creative, innovative high- impact projects for the nation and the world, regardless of the family's economic situation or nationality.

e. Leaders of tomorrow. The aim of this program is to benefit academically outstanding, socially aware Mexican students who have demonstrated their leadership skills and the necessary abilities to complete an undergraduate degree at Tecnológico de Monterrey successfully, but do not have sufficient financial resources to cover the inherent costs of tuition fees.

f. External funds. These tuition scholarships are established by means of agreements with external organizations, while the resources or donations are managed by Tecnológico de Monterrey. The award and maintenance requirements for these scholarships can be defined by the external organization as long as they do not contravene those established by Tecnológico de Monterrey for its socioeconomic support programs. In addition, students who benefit from these scholarships can be awarded financial aid to cover their school and living expenses.

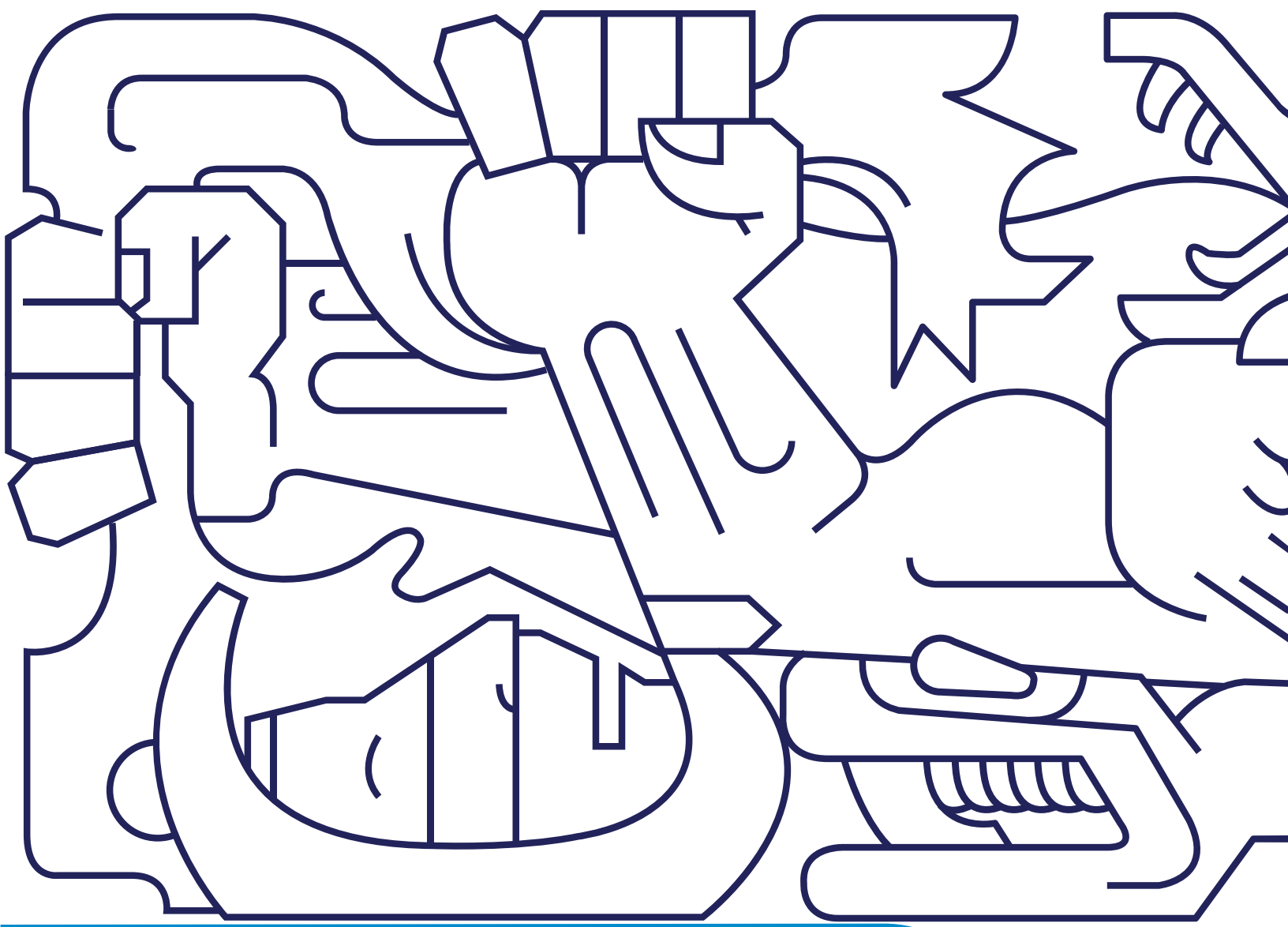
g. Socioeconomic scholarships for international students. This program awards scholarships to

international students who have the necessary abilities to complete an undergraduate degree successfully, but do not have sufficient financial resources to cover the inherent costs of tuition fees.

h. Creative Talent. It is a selective program that aims to recognize and support students who demonstrate outstanding creative talent to enhance their skills in different creative areas.

Fee Refunds

Students who withdraw from the courses in which they are enrolled will be refunded a percentage of the total corresponding fees in accordance with the cost of the program and the established policies, which are published on the official Tecnológico de Monterrey website (https://tec.mx/).



II. CURRICULA

Undergraduate Degree Profiles and Curricula

This section contains the undergraduate curricula offered by Tecnológico de Monterrey.

Information on these programs and the description of the courses they include are also available at www.itesm.mx

Tecnológico de Monterrey reserves the right to change the programs described in this document.

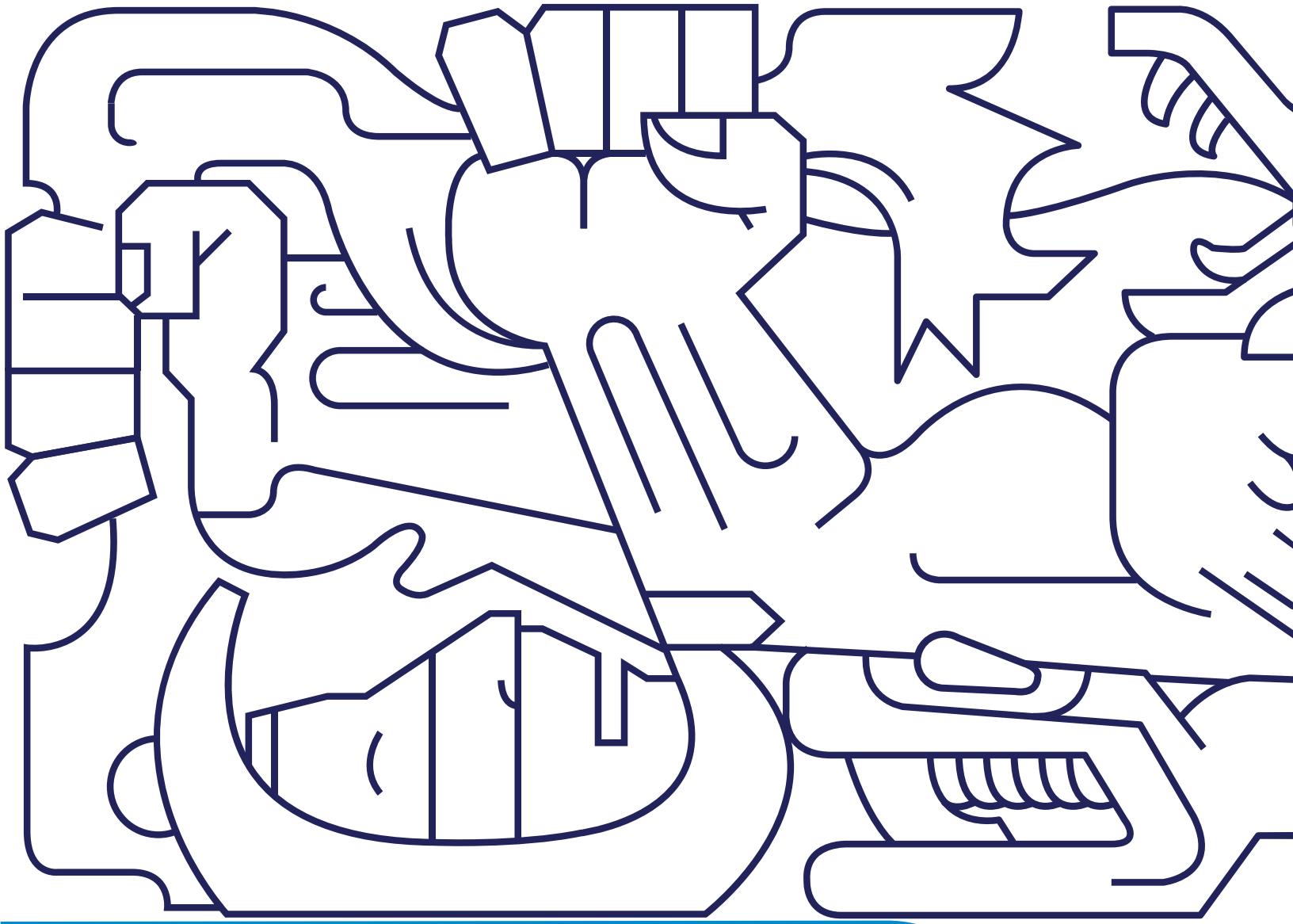
The course descriptions are presented by academic discipline. The letters in the course codes indicate the discipline associated to the course and can be used to locate the description of the courses in the corresponding section of this document.

Course code	Course	CA
CF1015	Financial Analysis	1

The letters of the code indicate the discipline to which the course belongs. In the example, the letters CF indicate that the course corresponds to the discipline Contabilidad Financiera y Administrativa. Mathematics. All the courses of a curriculum are described in the section Course Content by Academic Discipline.

The letter "CA" Rrepresents the number of semester credit hour of the course. One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work. Class-hours take place in 50 minutes sessions each one.

In this case, the course Financial Analysis consist of 1 academic unit.



School of Architecture, Art and Design

AMC Built Environment / Exploration

Program and Learning Outcomes

Built Environment is an exploration program that encompasses the first two semesters. At the end of this entry, the student may choose to continue in the following programs:

ARQ – B.A. Architecture

LUB – B.A. Built Environment

IC – Civil Engineering

Student Learning Outcomes

a) Design solutions to problems related to the natural and built environment, applying the principles of basic sciences.

b) Develops solutions to problems related to the natural and built environment, through the use of technology.

c) Solve problems related to the natural and built environment, under a systemic vision and applying standards, norms and principles of sustainability.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

AMC Built Environment / Exploration
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
AC1001	Computational Logic		1
AC1001B	Modeling of Physics: Statics		3
AC1002	Mathematical Thinking		3
AC1002B	Modeling of Physics: Dynamics		3
AR1002B	Exploration in the Habitat: From the Scale of the Element to the Territory		3
CV1009	Chemical Analysis of the Environment and Construction Materials		2
EG1001	Elective Course Mathematics and Science		3

Second Semester

Code	Description	Training Units	CA
AC1003	Analysis with Probability and Statistics		2
AC1003B	Constructive Systems		3
AC1004B	Spatial Information		3
AC1005B	Geographical Information Systems		3
CV1010	Fundamentals of Geology Applied to the Built Environment		1
CV1011	Evaluation of the Environmental Impact of Territorial Projects		1
CV1012	Application of Numerical Methods to the Built Environment		2
EG1002	Elective Course Humanities and Fine Arts		3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

ESC Creative Studies / Exploration

Program and Learning Outcomes

Creative Studies is an exploration program that encompasses the first two semesters. At the end of this entry, the student may choose to continue in the following programs:

ARQ – Architecture

LAD – B.A. Digital Art

LDI – B.A. Design

LC – B.A. Communication

LEI – B.A. Educational Innovation

LLE – B.A. Spanish Literature

LPE – B.A. Journalism

LTM – B.A. Music Technology and Production

Student Learning Outcomes

a) Design creative proposals based on the analysis of the social, cultural and arts context.

b) Analyze content and narratives using textual theories and methodologies.

c) Represents design solutions based on significant intentionality using visualization and materialization techniques.

d) Integrates technologies experimentally in the design and production of creative projects.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

ESC Creative Studies / Exploration
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1001B	Formal representation of space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

ARQ B.A. in Architecture

Program and Learning Outcomes

Professionals who will plan, design, construct and manage architectural and urban spaces that human beings need for their comprehensive development. Graduates, as designers of sustainable spaces and promoters of property opportunities, have a strong urban and environmental awareness and are proficient in design, representation, and construction technologies. Their critical attitude, humanistic awareness and social and ethical commitment are reflected in the environmental protection and economic and social improvement of their community.

Student Learning Outcomes

a) Generate architectural solutions based on research methods that respond to user needs, with a systemic approach.

b) Design architectural spaces, applying habitability, constructability, and sustainability criteria.

c) Develop construction projects based on design premises, safety criteria, legality, technical-construction rigor, and sustainability.

d) Manage architectural and real-estate projects from their beginning to their operation, applying a comprehensive vision of the habitat.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

ARQ B.A. in Architecture
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
AR1025	Creativity and Design		9
AR1026	Methodologies of Investigation for Projects of Design		6
EG1001	Elective Course Mathematics and Science		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1027	Methods of Design		6
AR1028	Technologies of Spatial Representation and of Image		9
EG1002	Elective Course Humanities and Fine Arts		3

Third Semester

		Training Units	CA
Code	**Description**		
AR2002B	Design and Construction of an Ephemeral Habitat		6
AR2035	The Conceptualization of Space, its Theory and its History		3
AR2036	Representation of Architecture and its Construction		3
EG1003	Elective Course Social and Behavioral Sciences		3
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
AR2004B	Architecture and Contexts		4
AR2007B	Community Facilities		8
AR2039	Research and Architectural Project		3
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3

Fifth Semester

		Training Units	CA
Code	**Description**		
AR2008B	Collective Housing		8
AR2009B	Single Family Home		4
AR2040	Constructibility		3
EG1005	Elective Course Ethics and Citizenship		3

Sixth Semester

		Training Units	CA
Code	**Description**		
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
OP3001B	Elective Multidisciplinary Professional		6
AR3007B	Entrepreneurship in the Field of Architecture		6
AR3008B	Architectural Management		6

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LAD B.A. in Digital Art

Program and Learning Outcomes

Professionals who are competent in the use of innovative digital technologies and capable of generating interactive digital and artistic content that drives the use of emerging technologies in areas such as education, entertainment, culture and science. Graduates have technical skills, with a humanistic and artistic focus, to generate art and technology projects in every area of application.

Student Learning Outcomes

a) Integrate the elements of an audiovisual narrative in the creation of digital content.

b) Develop the visual aesthetics of an art and technology project, according to the project requirements.

c) Produce art and technology projects, integrating the narrative, artistic concept and animation techniques.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LAD B.A. in Digital Art

Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1001B	Formal Representation of Space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

Third Semester

		Training Units	CA
Code	**Description**		
A2001B	Pre-Production of Animated Short Film		3
A2002B	Animated Short Film Production		3
A2012	Drawing		3
A2013	History of Animation		1
A2014	Fundamentals of Animation		2
EG1003	Elective Course Social and Behavioral Sciences		3
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
A2003B	Conceptual Art		4
A2004B	Fundamentals of Interaction		4
A2005B	Installation Art		4
A2015	Exploration of the Form		1
A2016	Introduction to 3D		2
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
OP3070	Elective Course Digital Art I		1
OP3071	Elective Course Digital Art II		1
OP3072	Elective Course Digital Art III		1
OP3073	Elective Course Digital Art IV		4
OP3074	Elective Course Digital Art V		4
OP3075	Elective Course Digital Art VI		4

Sixth Semester

Code	Description	Training Units	CA
AT3001B	Digital Art Project		18

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
AT3002B	Comprehensive Digital Art Project		12
OP3001B	Elective Multidisciplinary Professional		6

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work. Class-hours take place in 50 minutes sessions each one.

LDI B.A. in Design

Program and Learning Outcomes

Professionals who can identify design opportunities in any production, work and social setting, in order to generate creative, high perceived value products, services, experiences and business models, and integrate them into humanly desirable, economically viable and technologically feasible value proposals. Graduates perform successfully in companies from diverse manufacturing and/or service sectors and can generate and manage their own office to provide services for companies and individuals, creating different innovative proposals.

Student Learning Outcomes

a) Define innovation opportunities, applying individual- and context-focused design research methodologies.

b) Conceptualize design proposals based on the functional, constructive, expressive and sustainability requirements of the project.

c) Design desirable, viable, feasible, sustainable products, services, and experiences.

d) Design implementation strategies for products, services, or experiences in public and private contexts

Admission Profile

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Prerequisite for entry: high school or equivalent.

LDI B.A. in Design

Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

Code	Description	Training Units	CA
AR1001B	Formal Representation of Space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

Third Semester

Code	Description	Training Units	CA
DL2001B	Digital Product Communication		3
DL2002B	Object Configuration		3
DL2042	Visual Representation		3
DL2043	Matter and Expression		3
EG1003	Elective Course Social and Behavioral Sciences		3
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
DL2003B	Thinking and Creative Process		4
DL2004B	Specification of Products and Services		4
DL2005B	Design and Innovation		4
DL2044	Design Project Management		3
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3

Fifth Semester

	Training Units	CA
Code	**Description**	
EG1005	Elective Course Ethics and Citizenship	3
OP3076	Elective Course Design I	1
OP3077	Elective Course Design II	1
OP3078	Elective Course Design III	1
OP3079	Elective Course Design IV	4
OP3080	Elective Course Design V	4
OP3081	Elective Course Design VI	4

Sixth Semester

	Training Units	CA
Code	**Description**	
DL3001B	Design Project	18

Seventh Semester

	Training Units	CA
Code	**Description**	
VA3111	Elective I	3
VA3112	Elective II	3
VA3113	Elective III	3
VA3114	Elective IV	3
VA3115	Elective V	3
VA3116	Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
DL3002B	Comprehensive Design Project	12
OP3001B	Elective Multidisciplinary Professional	6

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LUB B.A. in Urbanism

Program and Learning Outcomes

Professionals who can analyze and comprehend the systemic reality of cities and their territory, visualize, and have the capacity to communicate their social, demographic, physical, environmental, legal-administrative, technological, financial and design characteristics, using cutting-edge methodological and technological tools to have a positive influence on decision making focused on solving and orientating urban issues on every scale. Graduates will work in public, private, social and academic sectors to solve the most pressing urban challenges, at the local and global levels; translate knowledge into innovative ideas and these ideas into strategic, practical solutions that have a direct impact on their territory on diverse scales: neighborhood, city, region, state and country.

Student Learning Outcomes

a) Propose solutions to habitat functioning problems, applying cutting-edge methods and technologies.

b) Generate innovative solutions for regenerating urban, rural and natural habitats, thus enhancing the quality of life.

c) Survey functional territorial scenarios, based on the systemic analysis of the future challenges of the territory.

d) Manage habitat projects, using territorial analysis tools and public policies in transdisciplinary teams.

Admission Profile

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Prerequisite for entry: high school or equivalent.

LUB B.A. in Urbanism

Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1003	Introductory Courses		34

First Semester

Code	Description	Training Units	CA
AR1002B	Exploration in the Habitat: From the Scale of the Element to the Territory		3
AR1003B	Modeling of Physics in the Built Environment		6
CV1007	Mathematics Based Reasoning		3
CV1008	Resolution of Problems with Computational Logic		1
CV1009	Chemical Analysis of the Environment and Construction Materials		2
EG1001	Elective Course Mathematics and Science		3

Second Semester

Code	Description	Training Units	CA
AR1004B	Modeling and Graphic Representation of a Building		3
AR1005B	Modeling and Graphic Representation of your Campus with Topography		3
AR1006B	Modeling and Graphic Representation of your Environment with Geomatics		3
CV1010	Fundamentals of Geology Applied to the Built Environment		1
CV1011	Evaluation of the Environmental Impact of Territorial Projects		1
CV1012	Application of Numerical Methods to the Built Environment		2
CV1013	Analysis of Natural and Social Phenomena with Probability and Statistics		2
EG1002	Elective Course Humanities and Fine Arts		3

Third Semester

Code	Description	Training Units	CA
AR2001B	Territorial Diagnosis		3
AR2003B	Ecobarrio		3
AR2037	Urban Law		1
BT2027	Urban Ecology		3
CV2041	Urban Infrastructure		2
EG1003	Elective Course Social and Behavioral Sciences		3
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
AR2005B	Competitive Cities: Innovation		4
AR2006B	Competitive Cities: Mobility		4
AR2010B	Competitive Cities: Quality of Life		4
AR2038	Cities of the Future		3
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3

Fifth Semester

	Training Units	CA
Code	**Description**	
AR3001B	Sustainable Metropolis: Mitigation	4
AR3002B	Sustainable Metropolis: Resilience	4
AR3004B	Sustainable Metropolis: Adaptation	4
EC2033	Urban Economy	3
EG1005	Elective Course Ethics and Citizenship	3

Sixth Semester

	Training Units	CA
Code	**Description**	
VA3111	Elective I	3
VA3112	Elective II	3
VA3113	Elective III	3
VA3114	Elective IV	3
VA3115	Elective V	3
VA3116	Elective VI	3

Seventh Semester

	Training Units	CA
Code	**Description**	
AR3003B	Management and Administration of Territorial Investment Projects	18

Eight Semester

	Training Units	CA
Code	**Description**	
AR3005B	Emerging Cities	6
AR3006B	Complexity and Debate	6
OP3001B	Elective Multidisciplinary Professional	6

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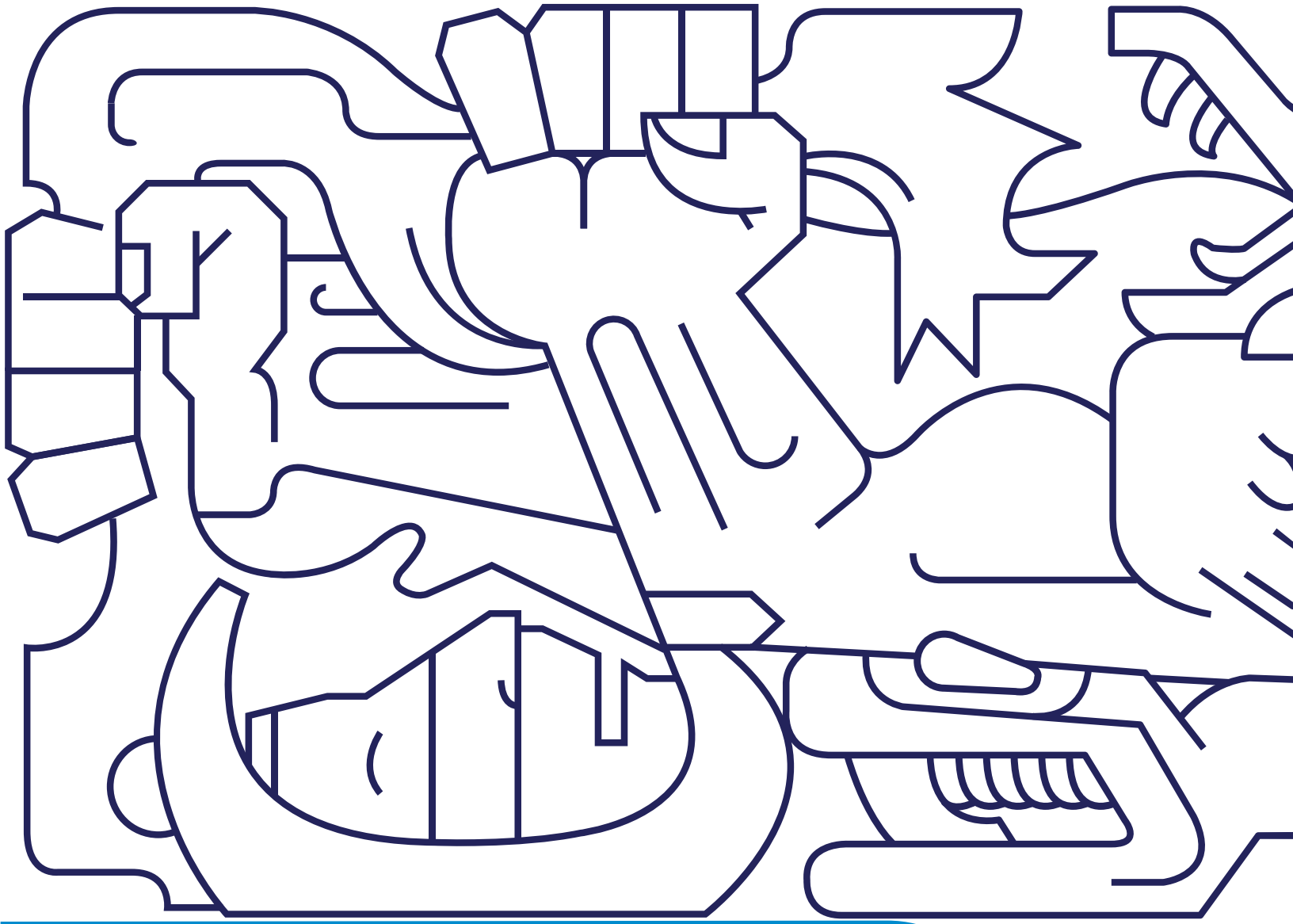
Class-hours take place in 50 minutes sessions each one.



School of Social Sciences and Government

CIS Law, Economics and International Relations / Exploration

Program and Learning Outcomes

Social Sciences is an exploration program that encompasses the first three semesters. At the end of this entry, the student may choose to continue in the following programs:

LEC – B.A. Economics

LRI – B.A. International Relations

LTP – B.A. Governance and Public Transformation

LED – B.A. Law (*)

(*) Students who wish to pursue the B.A. Law program must enroll in this degree at the end of the second semester.

Student Learning Outcomes

a) Analyze economic models that encourage the efficient use of resources and promote development, using quantitative tools.

b) Design strategies that promote a culture of legality and strengthen the Rule of Law, from a perspective of justice, equity and respect for human rights.

c) Analyze international conflicts and challenges of the global agenda, considering different theoretical perspectives and interests of multiple actors.

d) Evaluates the performance of political institutions in their environment, rigorously applying the main concepts of democracy.

e) Evaluate the ethical implications of decisions with public impact, based on elements of political philosophy and a rigorous investigation of the facts.

f) Debate of economic, legal and public policy dilemmas, using empirical evidence and promoting inclusion and the generation of consensus.

g) Proposes public impact projects, using analytical, transformation and public entrepreneurship models with technological innovations.

Admission Profile

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Academic background for admission: high school or equivalent.

CIS Law, Economics and International Relations / Exploration
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1003	Introductory Courses	34

First Semester

	Training Units	CA
Code	**Description**	
EC1001B	Transformation of Contemporary Mexico	3
EG1001	Elective Course Mathematics and Science	3
MA1022	Mathematical Thinking I	3
P1010	Political Philosophy for Contemporary Dilemmas	1
P1011	Introduction to Social Sciences	2
RI1001B	Global Challenges	3
TC1001B	Principles of Programming for the Social Sciences	3

Second Semester

	Training Units	CA
Code	**Description**	
D1001B	Introduction to Law	3
EC1002B	Entrepreneurship and Technology for Mexico's Transformation	3
EC1013	Macroeconomics	1
EC1014	Microeconomics	2
EG1002	Elective Course Humanities and Fine Arts	3
MA1023	Quantitative Methods I	2
MA1024	Mathematical Thinking II	1
TC1002B	Technological Tools for the Social Sciences	3

Third Semester

	Training Units	CA
Code	**Description**	
EC1003B	Macroeconomics and Economic Development	3
EC1015	Behavioral Economics	1
EC1016	Economic Decision Making	2
EG1003	Elective Course Social and Behavioral Sciences	3
MA1025	Quantitative Methods II	1
MA1026	Mathematical Thinking III	2
P1001B	Political Participation and Identity Sociology	3
VA1001B	Exploration Topic	3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LEC B.A. in Economics

Program and Learning Outcomes

Professionals who have a solid knowledge of economic theory, are competent in the use of quantitative tools to analyze economic models and specialized in the analysis and design of economic models that can be applied in the optimal assignment of physical, financial, and human resources in corporate, government, social and financial sectors. Their multidisciplinary, technological training enables them to provide strategic, innovative answers to economic problems so that society can achieve higher levels of economic development.

Student Learning Outcomes

a) Analyze individual, company and government economic decision models, based on the interpretation and analysis of economic variables.

b) Evaluate economic policy proposals, based on economic theory tools for generating greater growth and reducing poverty and inequality.

c) Generate solutions to problems that involve the efficient use of public and private resources, based on quantitative models.

d) Assess market failures in diverse contexts, examining their origin, impact and mitigation measures.

e) Analyze individual, company and government economic decision models, considering preferences, budgetary restrictions, and possible risk or uncertainty scenarios.

f) Propose solutions to relevant economic and financial problems, through the use of technological innovations to generate greater competitiveness and growth.

g) Develop economic research projects, using quantitative and qualitative models.

Admission Profile

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Prerequisite for entry: high school or equivalent.

LEC B.A. in Economics
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1003	Introductory Courses	34

First Semester

	Training Units	CA
Code	**Description**	
EC1001B	Transformation of Contemporary Mexico	3
EG1001	Elective Course Mathematics and Science	3
MA1022	Mathematical Thinking I	3
P1010	Political Philosophy for Contemporary Dilemmas	1
P1011	Introduction to Social Sciences	2
RI1001B	Global Challenges	3
TC1001B	Principles of Programming for the Social Sciences	3

Second Semester

	Training Units	CA
Code	**Description**	
D1001B	Introduction to Law	3
EC1002B	Entrepreneurship and Technology for Mexico's Transformation	3
EC1013	Macroeconomics	1
EC1014	Microeconomics	2
EG1002	Elective Course Humanities and Fine Arts	3
MA1023	Quantitative Methods I	2
MA1024	Mathematical Thinking II	1
TC1002B	Technological Tools for the Social Sciences	3

Third Semester

	Training Units	CA
Code	**Description**	
EC1003B	Macroeconomics and Economic Development	3
EC1015	Behavioral Economics	1
EC1016	Economic Decision Making	2
EG1003	Elective Course Social and Behavioral Sciences	3
MA1025	Quantitative Methods II	1
MA1026	Mathematical Thinking III	2
P1001B	Political Participation and Identity Sociology	3
VA1001B	Exploration Topic	3

Fourth Semester

	Training Units	CA
Code	**Description**	
EC2001B	Money and Financial Capital	4
EC2003B	Consumer and Producer Incentives	4
EC2004B	Origin and Future of the Macroeconomic Approach	4

EC2029	Econometrics Fundamentals	1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
MA2012	Statistics Fundamentals	1
MA2013	Mathematical Thinking IV	1

Fifth Semester

		Training Units	CA
Code	**Description**		
EC2005B	Economic Competition		4
EC2006B	Strategic Decisions in Markets and Institutions		4
EC2007B	Dynamics of National and Regional Growth		4
EC2030	Econometrics I		1
EC2031	Econometrics II		1
EC2032	Multivariate		1
EG1005	Elective Course Ethics and Citizenship		3

Sixth Semester

		Training Units	CA
Code	**Description**		
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
EC3002B	Solution and Evaluation of Economic Problems		12
OP3001B	Elective Multidisciplinary Professional		6

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LED B.A. in Law

Program and Learning Outcomes

Legal experts who are capable of effectively solving the challenges for the Law posed by a globalized world in constant social, scientific, and technological change. It also guarantees that, when practicing the law, graduates will have the necessary competencies to achieve the fair and effective application of existing regulatory systems, and to design and apply innovations in the field of law and its diverse professional dimensions, such as administration of justice, enterprise, public service, international jurisdiction, legal research, and the free practice of the law. Finally, the program also seeks to incorporate into society socially responsible professionals with an international vision who will contribute to the culture of legality through ethical, highly specialized professional practices.

Student Learning Outcomes

a) Generate the ideal legal instruments for the execution of business activities, considering political, economic, and social contexts.

b) Formulate legal prevention and litigation strategies, which consider the promotion and defense of human rights.

c) Participate as legal operators in jurisdictional processes, in accordance with the Constitution, current regulations and moral principles.

d) Oversee legal civil or mercantile relationships developed between individuals, at the family level, regarding their assets or in contractual relationships.

e) Propose conflict-resolution strategies, derived from the articulation of the State's areas of responsibility, in its three branches.

f) Promote appropriate legal actions regarding the behavior of civil servants and in anti-corruption systems, based on the applicable legal principles and standards.

g) Formulate legal options for solving transnational controversies, through the effective application of international and comparative law.

Admission Profile

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Prerequisite for entry: high school or equivalent.

LED B.A. in Law
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
EC1001B	Transformation of Contemporary Mexico		3
EG1001	Elective Course Mathematics and Science		3
MA1022	Mathematical Thinking I		3
P1010	Political Philosophy for Contemporary Dilemmas		1
P1011	Introduction to Social Sciences		2
RI1001B	Global Challenges		3
TC1001B	Principles of Programming for the Social Sciences		3

Second Semester

		Training Units	CA
Code	**Description**		
D1001B	Introduction to Law		3
EC1002B	Entrepreneurship and Technology for Mexico's Transformation		3
EC1013	Macroeconomics		1
EC1014	Microeconomics		2
EG1002	Elective Course Humanities and Fine Arts		3
MA1023	Quantitative Methods I		2
MA1024	Mathematical Thinking II		1
TC1002B	Technological Tools for the Social Sciences		3

Third Semester

		Training Units	CA
Code	**Description**		
D2001B	Real and Personal Property		3
D2002B	Constitutional Law		3
D2031	Legal Argumentation		1
D2032	Personhood and Legal Transactions		1
D2033	Legal Argumentation Seminar		1
D2034	Seminar on Personhood and Legal Transactions		1
D2035	Seminar on Theory of Law		1
D2036	Theory of Law		1
EG1003	Elective Course Social and Behavioral Sciences		3
VA1001B	Exploration Topic		3

Fourth Semester

	Training Units	CA
Code	**Description**	
D2003B	Criminal Law and Crimes in Particular	4
D2004B	Human Rights and their Judicial Interpretation	4
D2005B	Conflict Resolution and General Process Theory	4
D2037	Law of Obligations I	1
D2038	Law of Obligations II	1
D2039	Seminar on the Law of Obligations I	1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3

Fifth Semester

	Training Units	CA
Code	**Description**	
D2006B	Civil and Commercial Contracts	4
D2007B	Administrative Law I	4
D2008B	Family and Inheritance Law	4
D2040	Labor Law I	1
D2041	Labor Law II	1
D2042	Seminar on the Law of Obligations II	1
EG1005	Elective Course Ethics and Citizenship	3

Sixth Semester

	Training Units	CA
Code	**Description**	
D3001B	Constitutional Remedies I	4
D3002B	Administrative Law II	4
D3003B	Fiscal and Administrative Procedural Law	4
D3039	Tax Law	1
D3040	Labor Procedural Law	1
D3041	Company and Regulatory Compliance	1
D3042	Oral Trials	1
D3043	Accusatory Criminal System	1
D3044	Corporations	1

Seventh Semester

	Training Units	CA
Code	**Description**	
D3004B	Constitutional Remedies II	4
D3005B	Private International Law and International Commercial Arbitration	4
D3006B	Fiscal and Administrative Procedural Law	4
D3045	Intellectual Property Law	1
D3046	Public International Law	1
D3047	Professional Responsibility	1
D3048	Legal English	1
D3049	Public International Law Seminar	1
D3050	Security Interests and Commercial Paper	1

Eight Semester

	Training Units	CA
Code	**Description**	
VA3111	Elective I	3
VA3112	Elective II	3
VA3113	Elective III	3
VA3114	Elective IV	3
VA3115	Elective V	3
VA3116	Elective VI	3

Ninth Semester

	Training Units	CA
Code	**Description**	
D3007B	Applied Legal Research	12
OP3001B	Elective Multidisciplinary Professional	6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LRI B.A. in International Relations

Program and Learning Outcomes

Professionals with a rigorous theoretical and methodological education that will enable them to generate inputs for decision making in diverse spaces of the international system, fostering a culture of peace, international cooperation, and sustainable development. They will design and promote international policies, by means of traditional diplomacy, public diplomacy and paradiplomacy tools, thereby contributing to a more democratic, effective global governance and peaceful conflict resolution. They will also act with moral responsibility by designing and planning innovative international projects in international organizations, public administration, and civil society organizations.

Student Learning Outcomes

a) Facilitate international conflict management agreements, from the local to global levels, considering the needs and interests of diverse actors.

b) Use forecasting tools to diagnose emerging challenges that will impact the international system.

c) Formulate international cooperation and worldwide governance strategies for global challenges, favoring ethical, democratic, sustainable solutions.

d) Create sustainable development projects from the scientific perspective of international relations, seeking innovative courses of action for the planet's sustainability.

e) Propose solutions to complex social issues with an international impact, integrating the perspective of global and regional public goods.

f) Foment a culture of inclusion and respect for diversity, designing communication strategies from a multiculturality standpoint.

g) Generate positioning strategies for Mexico or other countries on the international stage, consolidating their contribution to the construction of a fairer world order.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LRI B.A. in International Relations

Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1003	Introductory Courses		34

First Semester

Code	Description	Training Units	CA
EC1001B	Transformation of Contemporary Mexico		3
EG1001	Elective Course Mathematics and Science		3
MA1022	Mathematical Thinking I		3
P1010	Political Philosophy for Contemporary Dilemmas		1
P1011	Introduction to Social Sciences		2
RI1001B	Global Challenges		3
TC1001B	Principles of Programming for the Social Sciences		3

Second Semester

Code	Description	Training Units	CA
D1001B	Introduction to Law		3
EC1002B	Entrepreneurship and Technology for Mexico's Transformation		3
EC1013	Macroeconomics		1
EC1014	Microeconomics		2
EG1002	Elective Course Humanities and Fine Arts		3
MA1023	Quantitative Methods I		2
MA1024	Mathematical Thinking II		1
TC1002B	Technological Tools for the Social Sciences		3

Third Semester

Code	Description	Training Units	CA
EC1003B	Macroeconomics and Economic Development		3
EC1015	Behavioral Economics		1
EC1016	Economic Decision Making		2
EG1003	Elective Course Social and Behavioral Sciences		3
MA1025	Quantitative Methods II		1
MA1026	Mathematical Thinking III		2
P1001B	Political Participation and Identity Sociology		3
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
RI2001B	Historical Analysis of the International System		4
RI2002B	Regional Scenarios in the Contemporary World		4

RI2003B	Future Scenarios on the International Political Economy	4
RI2039	Classical Theories of International Relations	1
RI2040	Contemporary Theories of International Relations	2

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
RI2004B	Conflict and Negotiation		4
RI2005B	Cooperation and Global Governance		4
RI2006B	Governance for Global Public Goods in the Risk Society		4
RI2041	Legal Aspects of International Relations		1
RI2042	International Organizations		1
RI2043	Risk Governance in the Contemporary Global Agenda		1

Sixth Semester

		Training Units	CA
Code	**Description**		
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
OP3001B	Elective Multidisciplinary Professional		6
RI3002B	Foreign Policy Analysis		12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LTP B.A. in Governance and Public Transformation

Program and Learning Outcomes

Professionals who will implement a suitable theoretical framework for analyzing public issues, be able to apply advanced analysis tools to analyze and propose solutions to complex public issues and understand the advantages of and obstacles to cooperation. They will generate an impact through public entrepreneurship and technology, know the challenges and potential public benefits of new technologies, and have a multidisciplinary vision of public problems. They will also be capable of making public decisions based on scientific evidence and have a multisectoral vision of governance and public transformation, with a strong internationalization component.

Student Learning Outcomes

a) Trigger high-impact public and governance transformations, using disruptive technological tools efficiently.

b) Generate public entrepreneurship models, in which the agents involved influence analysis, design and implementation processes for public and social initiatives.

c) Formulate proposals for public policies that withstand complex contexts, employing advanced analytical methods.

d) Conduct research on political and social issues, from a multidisciplinary perspective and using quantitative and qualitative methods.

e) Create reform proposals that will improve the quality of democracy, based on the analysis and diagnosis of public elections, representation, and civic participation issues.

f) Propose reforms aimed at public transformation, grounded in the analysis of the functioning, performance and impact of political institutions.

g) Generate political analysis that explains the interaction between political, social and economic phenomena at the local, national and international levels, and their impact on the public agenda.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LTP B.A. in Governance and Public Transformation
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1003	Introductory Courses	34

First Semester

	Training Units	CA
Code	**Description**	
EC1001B	Transformation of Contemporary Mexico	3
EG1001	Elective Course Mathematics and Science	3
MA1022	Mathematical Thinking I	3
P1010	Political Philosophy for Contemporary Dilemmas	1
P1011	Introduction to Social Sciences	2
RI1001B	Global Challenges	3
TC1001B	Principles of Programming for the Social Sciences	3

Second Semester

	Training Units	CA
Code	**Description**	
D1001B	Introduction to Law	3
EC1002B	Entrepreneurship and Technology for Mexico's Transformation	3
EC1013	Macroeconomics	1
EC1014	Microeconomics	2
EG1002	Elective Course Humanities and Fine Arts	3
MA1023	Quantitative Methods I	2
MA1024	Mathematical Thinking II	1
TC1002B	Technological Tools for the Social Sciences	3

Third Semester

	Training Units	CA
Code	**Description**	
EC1003B	Macroeconomics and Economic Development	3
EC1015	Behavioral Economics	1
EC1016	Economic Decision Making	2
EG1003	Elective Course Social and Behavioral Sciences	3
MA1025	Quantitative Methods II	1
MA1026	Mathematical Thinking III	2
P1001B	Political Participation and Identity Sociology	3
VA1001B	Exploration Topic	3

Fourth Semester

	Training Units	CA
Code	**Description**	
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
P2001B	Public Opinion	4
P2002B	Institutions, Regulation and Public Policy	4
TC2001B	Data Science for Decision Making I	4
TC3066	Econometric Methods and Public Policy	3

Fifth Semester

	Training Units	CA
Code	**Description**	
EC2002B	Behavioral Economics and Political Neuroscience	4
EG1005	Elective Course Ethics and Citizenship	3
P2003B	Technology Policy for Development	4
P2013	Public Choice and Comparative Political Institutions	3
TC2002B	Data Science for Decision Making II	4

Sixth Semester

	Training Units	CA
Code	**Description**	
EC3001B	Decision Analysis Under Conditions of Uncertainty	8
P2020	The Political Economy of Technological Change and Development	3
P3001B	Government, Private Sector, Technology and New Markets	4
TC3065	Experiments and Causal Inference for Public Policy	3

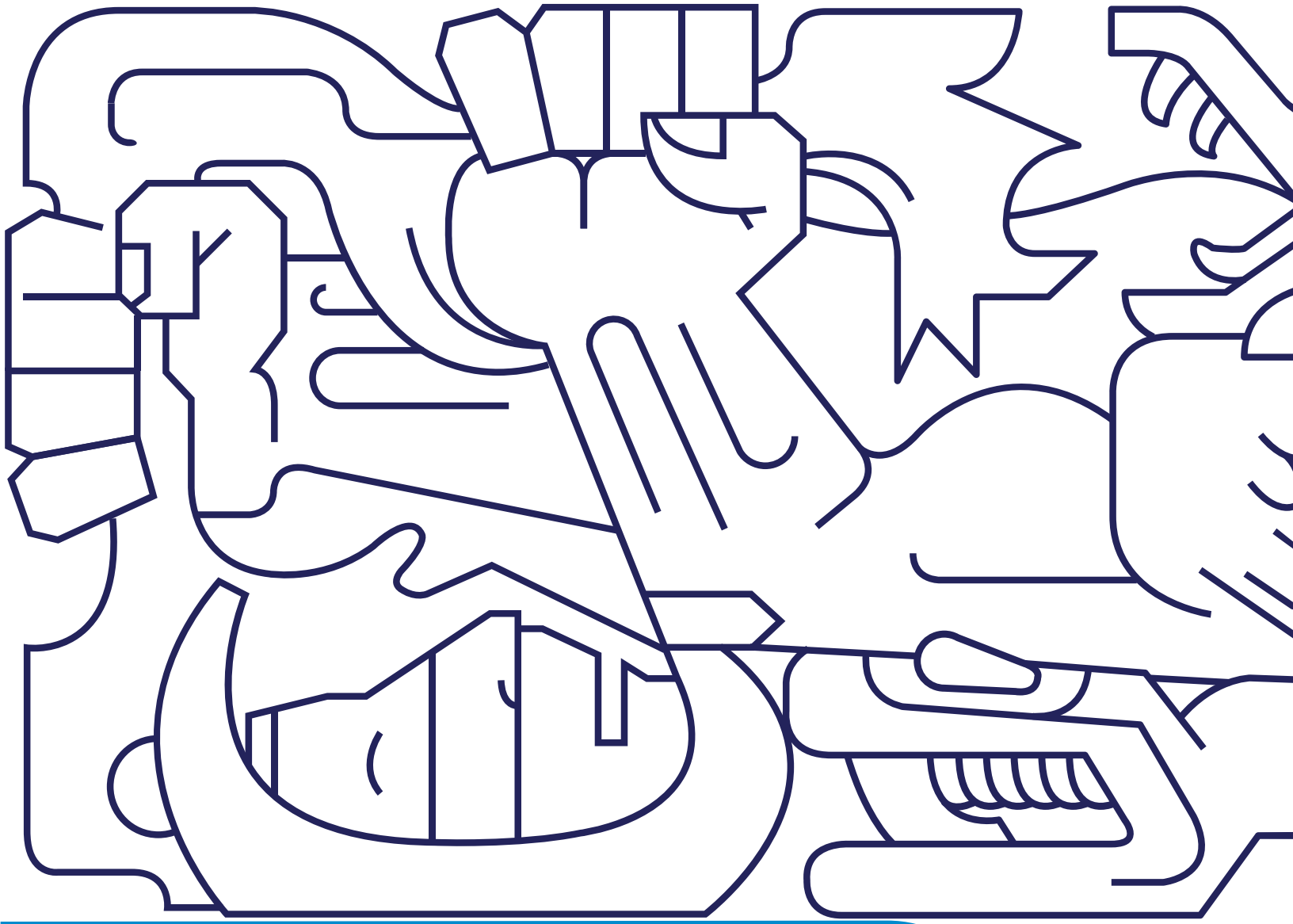
Seventh Semester

	Training Units	CA
Code	**Description**	
VA3111	Elective I	3
VA3112	Elective II	3
VA3113	Elective III	3
VA3114	Elective IV	3
VA3115	Elective V	3
VA3116	Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
OP3001B	Elective Multidisciplinary Professional	6
P3002B	Design and Implementation of Public Innovations	12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.



School of Humanities and Education

ESC Creative Studies / Exploration

Program and Learning Outcomes

Creative Studies is an exploration program that encompasses the first two semesters. At the end of this entry, the student may choose to continue in the following programs:

ARQ – Architecture

LAD – B.A. Digital Art

LDI – B.A. Design

LC – B.A. Communication

LEI – B.A. Educational Innovation

LLE – B.A. Spanish Literature

LPE – B.A. Journalism

LTM – B.A. Music Technology and Production

Student Learning Outcomes

a) Design creative proposals based on the analysis of the social, cultural and arts context.

b) Analyze content and narratives using textual theories and methodologies.

c) Represents design solutions based on significant intentionality using visualization and materialization techniques.

d) Integrates technologies experimentally in the design and production of creative projects.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

ESC Creative Studies / Exploration
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1003	Introductory Courses		34

First Semester

Code	Description	Training Units	CA
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

Code	Description	Training Units	CA
AR1001B	Formal representation of space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LC B.A. in Communication

Program and Learning Outcomes

Professionals with a solid multidisciplinary grounding that enables them to innovate in audiovisual media industries and strategic communication environments. Our graduates design and produce audiovisual content and narratives in diverse formats, and interactive media platforms, applying their knowledge and skills in the use of cutting-edge digital technologies (audio, film, graphic design, photography, and video), in order to respond in the most appropriate way to the changing challenges of society, the creative industries and communication needs in public and private institutions. They also solve specific public needs through the creation of effective communication strategies based on the appropriate implementation of methodological tools and large-scale data analysis to identify trends and users.

Student Learning Outcomes

a) Creates audiovisual content for different platforms in global and local contexts, with criteria of transmedia convergence.

b) Manages media projects based on criteria of innovation, technological applications, sustainability and social impact, making efficient use of available resources.

c) Produces effective strategic communication plans.

d) Integrates research on social and cultural communicative phenomena, based on specialized theories and methodologies.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LC B.A. in Communication
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1001B	Formal Representation of Space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

Third Semester

		Training Units	CA
Code	**Description**		
AV2001B	Production of Audio, Video and Digital Design		3
CO2001B	Use of Technology in Educational Research		3
CO2011	Communication Theories		3
EG1003	Elective Course Social and Behavioral Sciences		3
EH2006	From Humanism to Post-Humanism		3
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
AV2002B	Scriptwriting and Audiovisual Narrative Production		8
AV2016	Advertising and Commercial Photography		3
CR2001B	Applied Strategic Communication		4
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3

Fifth Semester

Code	Description	Training Units	CA
AV2003B	Documentary Film Narrative		4
CO2002B	Communication, Digital Marketing and Data Mining		4
CO2012	Cultural Studies and Media		3
EG1005	Elective Course Ethics and Citizenship		3
MI2003B	Convergent Journalism Production		4

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
CO3001B	Communication Capstone Project		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LEI B.A. in Educational Innovation

Program and Learning Outcomes

Professionals with a solid multidisciplinary grounding that enables them to innovate in diverse education settings and contexts, and in public and private institutions. Our graduates design, produce, implement, and manage educational and learning strategies, models and solutions that respond to the new social, economic, technological and political demands, in public and private institutions, in order to address the changing challenges of society in the most appropriate way. Our graduates design, produce and execute comprehensive learning research and experiences related to the development, implementation, and evaluation of educational solutions for public, private, governmental and non-governmental institutions, companies and organizations that meet the needs of each segment. They also work in educational solutions development centers, educational research centers, NGOs, the government, and companies linked to the development of learning technologies, focusing on meeting current market needs in both formal education and business training through active learning.

Student Learning Outcomes

a) Analyzes educational and training processes based on theoretical and methodological foundations.

b) Develops applied educational research projects based on scientific foundations, methodologies and protocols.

c) Develops processes for transforming learning environments, considering pedagogical, technological, administrative and physical space aspects.

d) Implement technology-based educational solutions in learning contexts for people and organizations.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LEI B.A. in Educational Innovation
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1001B	Formal Representation of Space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

Third Semester

		Training Units	CA
Code	**Description**		
ED2001	Fundamentals of Pedagogy		3
ED2001B	Analysis of Educational Problems		3
ED2002	Methodologies of Educational Research		3
ED2002B	Pedagogical Foundations Applied to Learning Solutions		3
EG1003	Elective Course Social and Behavioral Sciences		3
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
ED2003	Introduction to Educational Administration		3
ED2003B	Development of Educational Projects Based on Technology		4
ED2004B	Exploration of Technological Trends in Education		4
ED2005B	Use of Technology in Educational Research		4
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3

Fifth Semester

	Training Units	CA
Code	**Description**	
ED2004	Global and Comparative Education	3
ED2006B	Designing Solutions for Educational Challenges	8
ED2007B	Project Development within the Current Educational Policies Framework	4
EG1005	Elective Course Ethics and Citizenship	3

Sixth Semester

	Training Units	CA
Code	**Description**	
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

Seventh Semester

	Training Units	CA
Code	**Description**	
VA3111	Elective I	3
VA3112	Elective II	3
VA3113	Elective III	3
VA3114	Elective IV	3
VA3115	Elective V	3
VA3116	Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
ED3001B	Educational Innovation Capstone Project	12
OP3001B	Elective Multidisciplinary Professional	6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LLE B.A. in Spanish Literature

Program and Learning Outcomes

Professionals with a solid, comprehensive literary grounding in literature written in Spanish. The study of Spanish language and literature, editing and proofreading processes, and the latest technologies complement this preparation and enable graduates to work in research, education, editing and publishing, and cultural promotion, in public and private institutions.

Student Learning Outcomes

a) Produce critiques based on specialized knowledge of literary phenomena.

b) Create texts in diverse contexts, integrating Spanish language resources with expert proficiency.

c) Conduct research on Spanish language and literature, applying different theoretical and methodological parameters.

d) Manage cultural projects using diverse technologies and innovation, sustainability and social-impact criteria.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LLE B.A. in Spanish Literature
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1001B	Formal Representation of Space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
H2001B	Discourse Analysis		3
H2002B	Classical Texts		3
H2050	Critical Analysis of Texts		3
H2051	Spanish Language Structures and Analysis		3
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
H2003B	Golden Age Literature		4
H2004B	Medieval Spanish Literature		4
H2005B	Hispanic Colonial Literature		4
H2052	Literary Theory		3

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
H2006B	Ibero-American Narrative of the 19th and 20th Centuries		4
H2007B	Ibero-American Poetry of the 19th and 20th Centuries		4
H2008B	Spanish American Theater and Essay of 19th and 20th Centuries		4
H2053	Development of Editorial Models and Prototypes		3

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
H3001B	Language and Literature Integrating Project		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LPE B.A. in Journalism

Program and Learning Outcomes

Professionals with a solid multidisciplinary grounding that enables them to innovate in the fields of information media and strategic communication. Our graduates design, produce and implement comprehensive communication and information strategies for the journalism industry and for public and private institutions in today's dynamic global setting. Graduates can work as journalists, creators of news content, information analysts and news media business entrepreneurs.

Student Learning Outcomes

a) Conduct journalistic research of social, political, economic and cultural phenomena, based on theories and methods of the social sciences and humanities.

b) Produce news content based on journalistic techniques and procedures.

c) Practice journalism, applying the principles of the right to information, freedom of expression and media audiences' rights within the framework of fundamental rights.

d) Apply innovative, specialized technologies with transmedia convergence criteria in news production.

e) Generate journalistic business models based on innovation, sustainability and social impact criteria.

f) Analyze journalistic information that contributes to strategic decision making in institutions and organizations.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LPE B.A. in Journalism
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1001B	Formal Representation of Space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

Third Semester

		Training Units	CA
Code	**Description**		
CO2011	Communication Theories		3
EG1003	Elective Course Social and Behavioral Sciences		3
MI2001B	Research Methods in Journalism		6
SO2001	Social and Political Studies		3
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
MI2002B	News Content Production		8
MI2007	Journalistic Practice, Right to Information and Public Opinion		3
RI2001B	Historical Analysis of the International System		4

Fifth Semester

	Training Units	CA
Code	**Description**	
AV2004B	Multimodal Convergent Narrative Production	8
EG1005	Elective Course Ethics and Citizenship	3
MI2003B	Convergent Journalism Production	4
MI2008	Fundamentals of Hypermedia and Transmedia Journalism	3

Sixth Semester

	Training Units	CA
Code	**Description**	
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

Seventh Semester

	Training Units	CA
Code	**Description**	
VA3111	Elective I	3
VA3112	Elective II	3
VA3113	Elective III	3
VA3114	Elective IV	3
VA3115	Elective V	3
VA3116	Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
MI3001B	Journalism Capstone Project	12
OP3001B	Elective Multidisciplinary Professional	6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LTM B.A. in Music Technology and Production

Program and Learning Outcomes

Professionals with a solid multidisciplinary grounding that enables them to innovate in the music, audiovisual production, and digital sound industries. Their knowledge and skills in the use of cutting-edge technologies enables them to use musical language creatively to generate sound proposals and solutions in the fields of audiovisual and interactive media, cinema, videogames, mobile device and online applications for mobile devices, and marketing in relation to the music and entertainment industry.

Student Learning Outcomes

a) Create audio content on diverse technological platforms with transmedia convergence criteria.

b) Produce sound solutions for the audiovisual industry with international audio engineering standards.

c) Implement electroacoustics systems with professional quality standards and efficiency.

d) Develop musical technology solutions that solve issues in the entertainment industry environment.

e) Analyze, from a musical perspective, western music genres, styles, and forms.

f) Design business projects within the music industry.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LTM B.A. in Music Technology and Production
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
A1004	Visual and Sound Culture		3
AV1002B	Photographic Techniques and Discourses		3
CO1001B	Human Factors Research Methodologies		3
DL1022	Methodologies of Creative Thinking		3
EG1001	Elective Course Mathematics and Science		3
EH1001B	Creative Immersion and Experimentation		3

Second Semester

		Training Units	CA
Code	**Description**		
AR1001B	Formal Representation of Space		3
AV1001B	Audiovisual Narrative		3
EG1002	Elective Course Humanities and Fine Arts		3
EH1008	Cultural Imaginaries of Mexico		3
EH1009	Semiotics and Contemporary Narratologies		3
H1001B	Symbolic Structures in Image, Literature and Music		3

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
F2010B	Fundamentals of Acoustics		3
TM2001	Music Theory and Music Styles		3
TM2001B	Auditory and Instrumental Training		3
TM2002	Music Business		3
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
TM2002B	Applied Technology in Sound Production		4
TM2003	Digital Sound Production and Mixing Techniques		3
TM2003B	Sound Recording Techniques		4
TM2004B	Music Production		4

Fifth Semester

	Training Units	CA
Code	**Description**	
EG1005	Elective Course Ethics and Citizenship	3
TM2004	Sound Postproduction for Film and Video	3
TM2005B	Interactive Applications Design for Music Technology	4
TM2006B	Music for Audiovisual Products	4
TM2007B	Audiovisual Production and Marketing	4

Sixth Semester

	Training Units	CA
Code	**Description**	
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

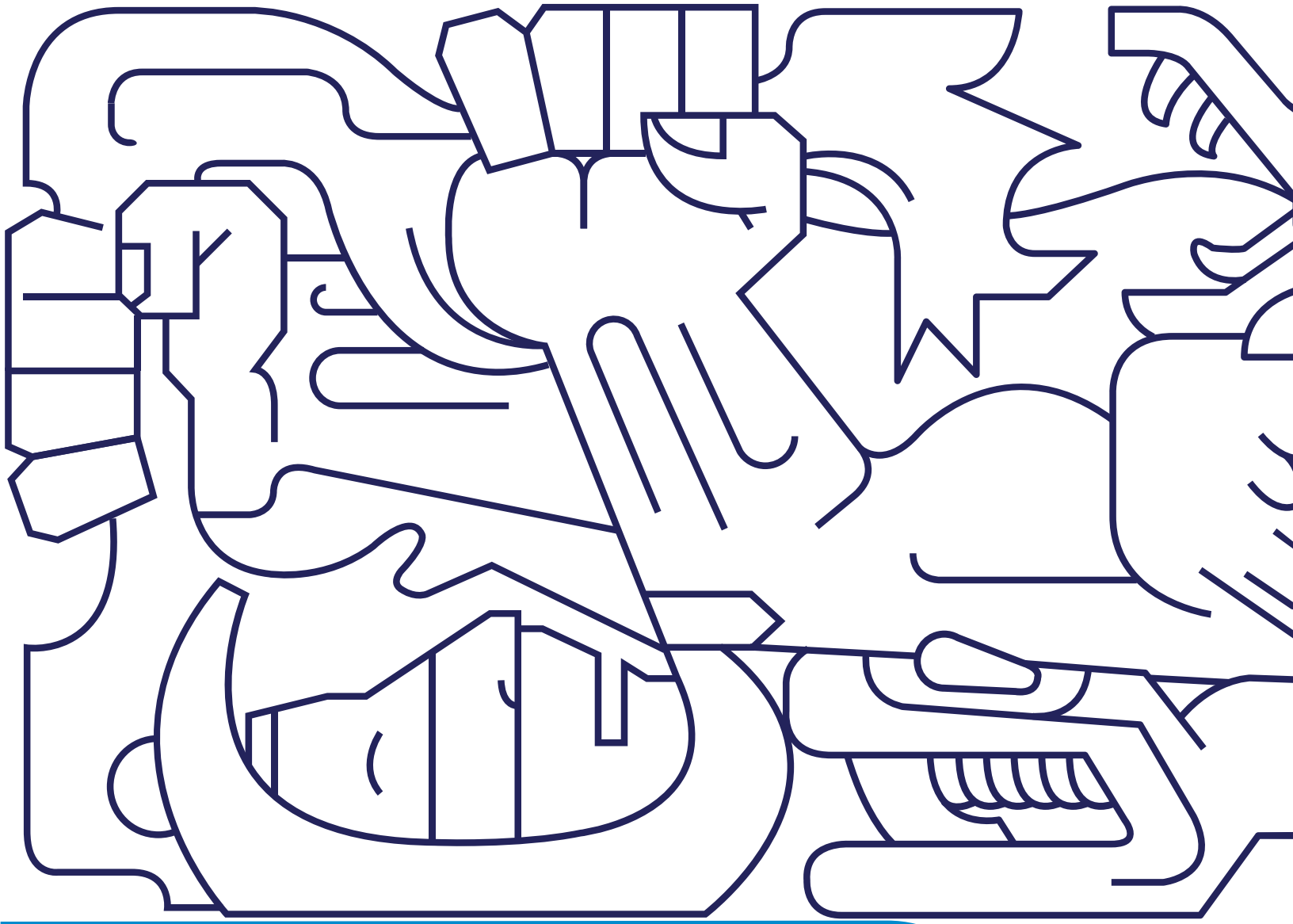
Seventh Semester

	Training Units	CA
Code	**Description**	
VA3111	Elective I	3
VA3112	Elective II	3
VA3113	Elective III	3
VA3114	Elective IV	3
VA3115	Elective V	3
VA3116	Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
OP3001B	Elective Multidisciplinary Professional	6
TM3001B	Music Technology and Production Capstone Project	12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.



Schools of Engineering and Sciences

Bioengineering and Chemical Process

IBQ Engineering - Bioengineering and Chemical Process (avenue) / Exploration

Program and Learning Outcomes

Bioengineering and Chemical Processes is an engineering exploration program that encompasses the first three semesters. At the end of this entry, the student may choose to continue in the following programs:

IDS – Sustainable Development Engineering (*)

IBT – Biotechnology Engineering

IQ – Chemical Engineering

IAL – Food Engineering

IAG – Agriculture Biosystems Engineering

(*) Students who wish to pursue the Sustainable Development Engineering program must enroll in this degree at the end of the second semester.

Student Learning Outcomes

a) Foundations the functioning of chemical and biological systems based on principles of natural sciences, mathematics and computing.

b) Analyze data from chemical and biological systems in the decision-making process, using mathematics tools and information technologies.

c) Solve problems of different levels of complexity of chemical and biological processes, applying various methodologies in controlled and uncertain environments.

d) Apply international standards and principles of sustainability in solving chemical and biological problems.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

IBQ Engineering - Bioengineering and Chemical Process (avenue) / Exploration
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1002	Introductory Courses	36

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1002B	Motion Modeling in Bioengineering and Chemical Process	3
F1003B	Modeling Conservation Laws in Bioengineering and Chemical Processes	3
MA1028	Mathematical Thinking I	2
Q1028	Foundation of the Structure and Transformation of Matter	1
Q1029	Analysis of Properties and Transformation of Matter	1
TC1028	Computational Thinking for Engineering	2

Second Semester

	Training Units	CA
Code	**Description**	
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1010B	Thermodynamic Modeling in Bioengineering and Chemical Processes	3
F1011B	Modeling of Electrical Systems in Bioengineering and Chemical Processes	3
F1012B	Modeling of Electromagnetic Systems in Bioengineering and Chemical Processes	3
MA1029	Intermediate Mathematical Modeling	2
Q1021	Chemical Experimentation and Statistical Thinking I	1
Q1022	Analysis of the Transformation of Matter in Chemical Processes	1
Q1023	Chemical Experimentation and Statistical Thinking II	1

Third Semester

	Training Units	CA
Code	**Description**	
BT1014	Foundation and Interpretation of Molecular Biology	1
EG1003	Elective Course Social and Behavioral Sciences	3
IQ1001B	Application of the Principles of Conservation of Matter in Chemical and Biological Processes	3
IQ1002B	Application of the Principles of Conservation of Energy to Chemical and Biological Processes	3
Q1024	Application of Chemical Analysis	1
Q1025	Experimentation in Analytical Chemistry	1
Q1026	Structural Analysis of Organic Molecules and their Properties	2
Q1027	Foundation of the Structure and Properties of Biomolecules	1
VA1001B	Exploration Topic	3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IAG B.S. in Agricultural Biosystems Engineering

Program and Learning Outcomes

Professionals who will apply their knowledge and skills to manage the components of agricultural production systems, considering the principles of engineering, technological innovation, and sustainability in natural resource management. Graduates can create and manage their own company, offer technical consulting services in the public and private sectors, or pursue graduate studies.

Student Learning Outcomes

a) Integrate the elements of a productive biosystem, based on sustainability criteria.

b) Manage productive biosystems, complying with international quality and food safety standards.

c) Integrate cutting-edge technologies in the field of productive biosystems.

d) Evaluate the use of sustainable technologies in productive biosystems that minimize their environmental impact.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IAG B.S. in Agricultural Biosystems Engineering
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1002B	Motion Modeling in Bioengineering and Chemical Process		3
F1003B	Modeling Conservation Laws in Bioengineering and Chemical Processes		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

Code	Description	Training Units	CA
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1010B	Thermodynamic Modeling in Bioengineering and Chemical Processes		3
F1011B	Modeling of Electrical Systems in Bioengineering and Chemical Processes		3
F1012B	Modeling of Electromagnetic Systems in Bioengineering and Chemical Processes		3
MA1029	Intermediate Mathematical Modeling		2
Q1021	Chemical Experimentation and Statistical Thinking I		1
Q1022	Analysis of the Transformation of Matter in Chemical Processes		1
Q1023	Chemical Experimentation and Statistical Thinking II		1

Third Semester

Code	Description	Training Units	CA
BT1014	Foundation and Interpretation of Molecular Biology		1
EG1003	Elective Course Social and Behavioral Sciences		3
IQ1001B	Application of the Principles of Conservation of Matter in Chemical and Biological Processes		3
IQ1002B	Application of the Principles of Conservation of Energy to Chemical and Biological Processes		3
Q1024	Application of Chemical Analysis		1
Q1025	Experimentation in Analytical Chemistry		1
Q1026	Structural Analysis of Organic Molecules and their Properties		2
Q1027	Foundation of the Structure and Properties of Biomolecules		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
AG2001B	Analysis of Productive Biosystems		4
AG2002B	Evaluation of Nutrition and Health in Biosystems		4
AG2029	Foundation of Productive Biosystems		1
AG2030	Integration of Bioproductive Processes		1
DS2001B	Conservation of Natural Resources in Biosystems		4
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
IN2033	Management of the Productive Biosystem		1

Fifth Semester

Code	Description	Training Units	CA
AG2003B	Integration of Sustainable Technologies in Biosystems		4
BT2001B	Improvement of Biosystems with Genetics and Biotechnology		4
EG1005	Elective Course Ethics and Citizenship		3
IN2034	Productivity Evaluation		1
IN2035	Advanced Production Management		1
IN2036	Application of Metrology in Productive Biosystems		1
MR2001B	Development of Control and Automation Elements in Biosystems		4

Sixth Semester

Code	Description	Training Units	CA
AG3001B	Bioproduction in Controlled Environments		18

Seventh Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

Code	Description	Training Units	CA
AG3002B	Digital Transformation of Productive Biosystems		6
AG3003B	Comprehensive and Eco-Efficient Management		6
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IAL B.S. in Food Engineering

Program and Learning Outcomes

Professionals who will apply science and technology to solve food industry problems; design foods and beverages – with an emphasis on healthy, individualized foods; develop, optimize, and manage sustainable processes and food safety systems for food preservation and transformation; and adhere to and apply food industry standards and guidelines. Graduates are characterized by their entrepreneurial, innovative spirit, leadership in their milieu and ethical behavior.

Student Learning Outcomes

a) Develop foods that contribute to the treatment or prevention of chronic-degenerative diseases and obesity, adhering to current consumer culture and legislation.

b) Evaluate the efficiency of food preservation and transformation processes based on the principles of sustainability.

c) Evaluate the safety of food preservation and transformation processes.

d) Design foods for an individual based on genetic-related diet restrictions or needs.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IAL B.S. in Food Engineering
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1002B	Motion Modeling in Bioengineering and Chemical Process		3
F1003B	Modeling Conservation Laws in Bioengineering and Chemical Processes		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

Code	Description	Training Units	CA
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1010B	Thermodynamic Modeling in Bioengineering and Chemical Processes		3
F1011B	Modeling of Electrical Systems in Bioengineering and Chemical Processes		3
F1012B	Modeling of Electromagnetic Systems in Bioengineering and Chemical Processes		3
MA1029	Intermediate Mathematical Modeling		2
Q1021	Chemical Experimentation and Statistical Thinking I		1
Q1022	Analysis of the Transformation of Matter in Chemical Processes		1
Q1023	Chemical Experimentation and Statistical Thinking II		1

Third Semester

Code	Description	Training Units	CA
BT1014	Foundation and Interpretation of Molecular Biology		1
EG1003	Elective Course Social and Behavioral Sciences		3
IQ1001B	Application of the Principles of Conservation of Matter in Chemical and Biological Processes		3
IQ1002B	Application of the Principles of Conservation of Energy to Chemical and Biological Processes		3
Q1024	Application of Chemical Analysis		1
Q1025	Experimentation in Analytical Chemistry		1
Q1026	Structural Analysis of Organic Molecules and their Properties		2
Q1027	Foundation of the Structure and Properties of Biomolecules		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
TA2001B	Healthy Food Design		4
TA2002B	Planning of Food Distribution Systems		4
TA2003B	Feasibility Evaluation of New Products		4
TA2017	Sustainable Design of Food Processes		1
TA2018	Optimization of Processes and Safety Systems		1
TA2019	Food Design through the Analysis of Physicochemical Changes		1

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
TA2004B	Design of Sustainable Processes		4
TA2005B	Consumer Analysis and Food Market		4
TA2006B	Design of Process Management and Safety Systems		4
TA2020	Administration of Processes and Safety Systems		1
TA2021	Application of Sensory Analysis in Food		1
TA2022	Simulation of Food Transformation Processes		1

Sixth Semester

Code	Description	Training Units	CA
TA3001B	Sustainable Development of Healthy and Personalized Foods		18

Seventh Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

Code	Description	Training Units	CA
OP3001B	Elective Multidisciplinary Professional		6
TA3002B	Design and Administration of Food Production and Distribution Processes		12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IBT B.S. in Biotechnology Engineering

Program and Learning Outcomes

Professionals with an interdisciplinary vision and a focus on the creation, development, production and innovation of products or services, applying and optimizing biological systems and/or their components through the use of specialized biology, genetic engineering, chemistry and biochemistry tools, in order to solve diverse social, industrial and environmental problems either by generating ideas and research or developing products or services, or through biotechnology entrepreneurship, based on ethics and sustainability. Graduates perform successfully in research or diverse industrial sectors, such as pharmaceutics, health, food, agriculture, environment and bioenergy.

Student Learning Outcomes

a) Develop technologies and biosystems using biological or molecular data based on the needs of industry and society.

b) Design bioreactors capable of sustaining the specific needs of cells in the generation of products of interest.

c) Design purification processes for biotechnology products based on market specifications and the principles of sustainability.

d) Generate biotechnological knowledge and innovation management strategies aimed at creating or enhancing technology-based products, services, or companies.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IBT B.S. in Biotechnology Engineering
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1002	Introductory Courses	36

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1002B	Motion Modeling in Bioengineering and Chemical Process	3
F1003B	Modeling Conservation Laws in Bioengineering and Chemical Processes	3
MA1028	Mathematical Thinking I	2
Q1019	Analysis of the Structure, Properties and Transformation of Matter	2
TC1028	Computational Thinking for Engineering	2

Second Semester

	Training Units	CA
Code	**Description**	
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1010B	Thermodynamic Modeling in Bioengineering and Chemical Processes	3
F1011B	Modeling of Electrical Systems in Bioengineering and Chemical Processes	3
F1012B	Modeling of Electromagnetic Systems in Bioengineering and Chemical Processes	3
MA1029	Intermediate Mathematical Modeling	2
Q1021	Chemical Experimentation and Statistical Thinking I	1
Q1022	Analysis of the Transformation of Matter in Chemical Processes	1
Q1023	Chemical Experimentation and Statistical Thinking II	1

Third Semester

	Training Units	CA
Code	**Description**	
BT1014	Foundation and Interpretation of Molecular Biology	1
EG1003	Elective Course Social and Behavioral Sciences	3
IQ1001B	Application of the Principles of Conservation of Matter in Chemical and Biological Processes	3
IQ1002B	Application of the Principles of Conservation of Energy to Chemical and Biological Processes	3
Q1024	Application of Chemical Analysis	1
Q1025	Experimentation in Analytical Chemistry	1
Q1026	Structural Analysis of Organic Molecules and their Properties	2
Q1027	Foundation of the Structure and Properties of Biomolecules	1
VA1001B	Exploration Topic	3

Fourth Semester

	Training Units	CA
Code	**Description**	
BT2002B	Preparation of Biotechnological Products	4
BT2003B	Synthesis of Biofactories	8
BT2019	Analysis and Study of Biosystems	1
BT2020	Foundation and Application of Molecular Bases	2
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3

Fifth Semester

	Training Units	CA
Code	**Description**	
BT2004B	In Vitro Experimentation	8
BT2005B	Integration of Transfer Operations	4
BT2026	Analysis of Transport Phenomena	3
EG1005	Elective Course Ethics and Citizenship	3

Sixth Semester

	Training Units	CA
Code	**Description**	
BT2006B	Design of Bioreactors	4
BT2007B	Design of Bioseparation Strategies	4
BT2008B	Planning of Biotechnological Processes	4
BT2024	Application and Analysis of Omic Technologies	3
BT2025	Prospection of Bioprocesses	3

Seventh Semester

	Training Units	CA
Code	**Description**	
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
BT3002B	Design of Biotechnological Processes and Bioproducts	12
OP3001B	Elective Multidisciplinary Professional	6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IDS B.S. in Sustainable Development Engineering

Program and Learning Outcomes

Professionals who will engage in the generation and efficient use of energy, protection of natural resources and identification of innovative business opportunities. Graduates generate and implement comprehensive proposals for investment in energy issues, sustainable resource use and waste management, considering the need to generate wealth, and including social responsibility and public policy aspects.

Student Learning Outcomes

a) Applies the engineering design process to generate comprehensive energy and sustainability solutions at different scales, according to a particular socioeconomic context.

b) Identifies opportunities for improvement in production processes considering the value chain, favoring the efficient use of natural and energy resources.

c) Evaluates the availability and restoration of natural resources, generating alternative uses that favor the creation of business models.

d) Designs innovative corporate sustainability strategies to ensure the competitiveness and resilience of institutions.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IDS B.S. in Sustainable Development Engineering
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1002B	Motion Modeling in Bioengineering and Chemical Process		3
F1003B	Modeling Conservation Laws in Bioengineering and Chemical Processes		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

Code	Description	Training Units	CA
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1010B	Thermodynamic Modeling in Bioengineering and Chemical Processes		3
F1011B	Modeling of Electrical Systems in Bioengineering and Chemical Processes		3
F1012B	Modeling of Electromagnetic Systems in Bioengineering and Chemical Processes		3
MA1029	Intermediate Mathematical Modeling		2
Q1021	Chemical Experimentation and Statistical Thinking I		1
Q1022	Analysis of the Transformation of Matter in Chemical Processes		1
Q1023	Chemical Experimentation and Statistical Thinking II		1

Third Semester

Code	Description	Training Units	CA
DS1008	Evaluation of Natural Capital and Sustainability Principles		1
EG1003	Elective Course Social and Behavioral Sciences		3
IQ1001B	Application of the Principles of Conservation of Matter in Chemical and Biological Processes		3
IQ1002B	Application of the Principles of Conservation of Energy to Chemical and Biological Processes		3
MA1035	Engineering Modeling Using Dynamic Systems		2
Q1026	Structural Analysis of Organic Molecules and their Properties		2
TE1020	Analysis of Electrical circuits		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
DS2002B	Implementation of Resource Management Programs		4
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
IQ2001B	Integration of Energy Processes		4
IQ2002B	Sizing of Energy Processes		4

IQ2009	Thermodynamic Foundation of Energy Processes	1
IQ2010	Analysis and Design of Processes Based on Momentum Transfer	1
IQ2011	Analysis and Design of Processes Based on Heat Transfer	1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
IQ2003B	Evaluation of Energy Processes		8
IQ2004B	Energy Performance Evaluation of Industrial Processes		4
IQ2012	Application of the Principles of Energy Efficiency		2
IQ2013	Analysis of Processes and Circular Economy		1

Sixth Semester

		Training Units	CA
Code	**Description**		
DS2002	Innovation of Corporate Sustainability Models		2
IQ2005B	Advanced Sizing and Monitoring of Energy Processes		8
IQ2006B	Innovation of the Processes in Your Value Chain		6
IQ2014	Improvement of Productive Processes Applying Principles of Circular Economy		2

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
DS3001B	Design of Corporate Sustainability Strategies		6
IQ3001B	Design and Implementation of Energy Sustainability Models		6
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IQ B.S. in Chemical Engineering

Program and Learning Outcomes

Professionals who are competent in the design, operation, and innovation of chemical processes, based on the sustainable use of materials and energy. Their solid training, together with the knowledge, handling and application of specialized tools, enables them to work in industrial technical processes, and technology development and pollution control areas. Graduates perform successfully in the chemical industry, manufacturing industry, government agencies and other institutions, and can identify and develop national and international business opportunities for themselves or for their employer. They conduct research activities on advanced chemical engineering studies or related areas; identify and evaluate process improvement and business opportunities; and plan, assess and execute projects to achieve the efficient, sustainable use of material and energy resources through technological alternatives.

Student Learning Outcomes

a) Design chemical processes based on sustainable principles in the use of material and energy resources.

b) Improve chemical processes through engineering analysis and systemic thinking.

c) Integrate technologies into chemical processes based on quality, efficiency and safety parameters.

d) Develop business plans in the chemical industry, considering market opportunities.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IQ B.S. in Chemical Engineering
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1002B	Motion Modeling in Bioengineering and Chemical Process		3
F1003B	Modeling Conservation Laws in Bioengineering and Chemical Processes		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1010B	Thermodynamic Modeling in Bioengineering and Chemical Processes		3
F1011B	Modeling of Electrical Systems in Bioengineering and Chemical Processes		3
F1012B	Modeling of Electromagnetic Systems in Bioengineering and Chemical Processes		3
MA1029	Intermediate Mathematical Modeling		2
Q1021	Chemical Experimentation and Statistical Thinking I		1
Q1022	Analysis of the Transformation of Matter in Chemical Processes		1
Q1023	Chemical Experimentation and Statistical Thinking II		1

Third Semester

		Training Units	CA
Code	**Description**		
BT1014	Foundation and Interpretation of Molecular Biology		1
EG1003	Elective Course Social and Behavioral Sciences		3
IQ1001B	Application of the Principles of Conservation of Matter in Chemical and Biological Processes		3
IQ1002B	Application of the Principles of Conservation of Energy to Chemical and Biological Processes		3
Q1024	Application of Chemical Analysis		1
Q1025	Experimentation in Analytical Chemistry		1
Q1026	Structural Analysis of Organic Molecules and their Properties		2
Q1027	Foundation of the Structure and Properties of Biomolecules		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
IQ2007B	Design of Fluid Flow Systems		4
IQ2008B	Design of Systems for Heat Transfer		4
IQ2009B	Analysis of Integrated Systems of Fluid Flow and Heat Transfer		4
IQ2015	Modeling of Processes Based on Transport Phenomena		3

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
IQ2010B	Design of Separation Processes		4
IQ2011B	Design of Chemical Reactors		4
IQ2012B	Analysis of Integrated Separation and Reaction Processes		4
IQ2016	Prediction of the Equilibrium of Phases and Chemical Equilibrium Applying Thermodynamics		3

Sixth Semester

Code	Description	Training Units	CA
IQ2013B	Comprehensive Design of Chemical Processes		12
IQ2017	Design of Chemical Processes		3
MR2021	Automation and Control of Chemical Processes		3

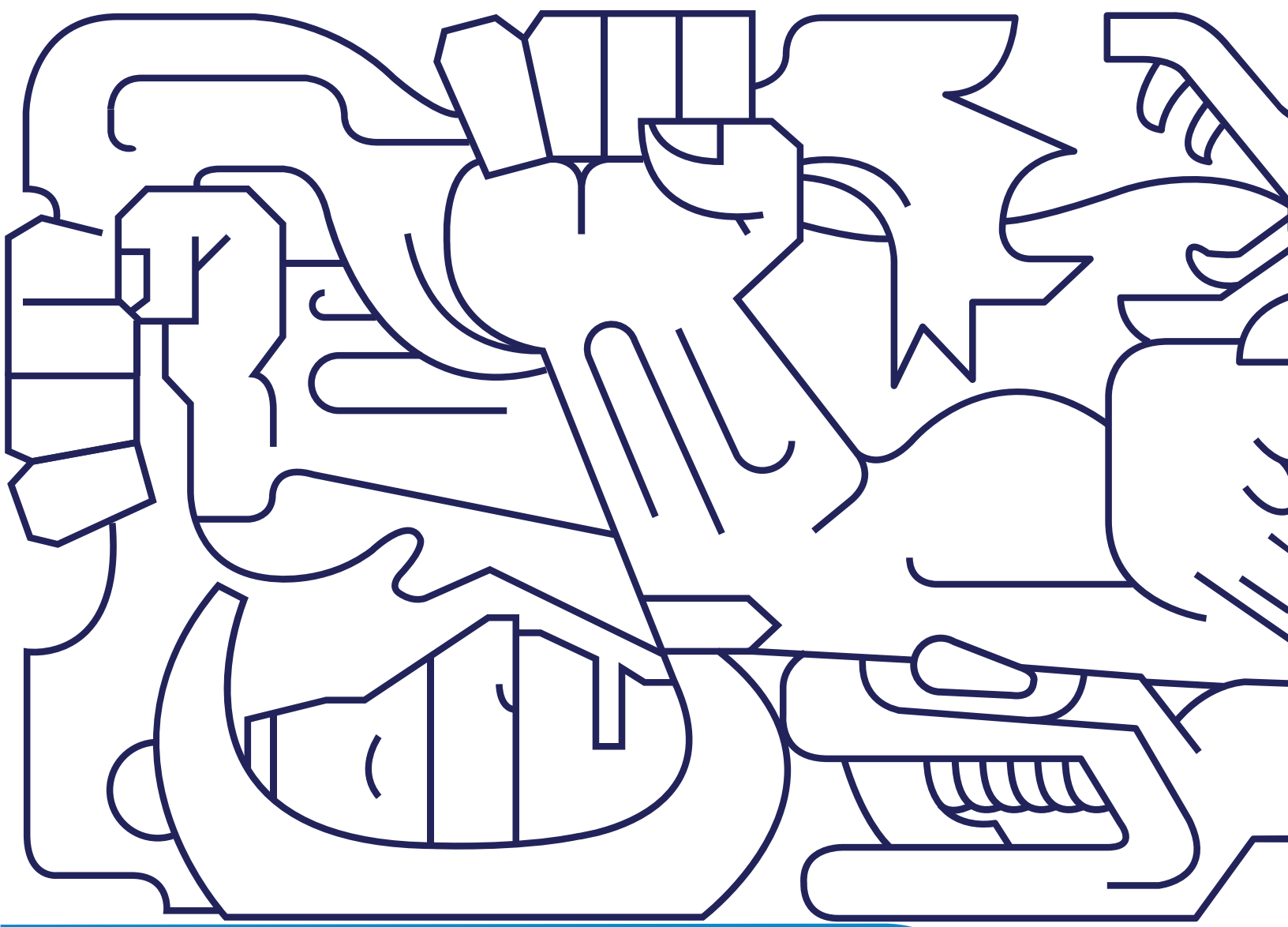
Seventh Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

Code	Description	Training Units	CA
IQ3002B	Application of Process Engineering in Industrial Projects		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.



Schools of Engineering and Sciences

Applied Science

ICI Engineering - Applied Sciences (avenue) / Exploration

Program and Learning Outcomes

Applied Sciences is an engineering exploration program that encompasses the first three semesters. At the end of this entry, the student may choose to continue in the following programs:

IFI – Engineering Physics

IDM – Data Science and Mathematics Engineering

INA – Nanotechnology Engineering (*)

(*) Students who wish to pursue the Nanotechnology Engineering program must enroll in this degree at the end of the second semester.

Student Learning Outcomes

a) Basis the behavior of natural phenomena based on physical, chemical, biological, mathematical and computational principles.

b) Analyze data from natural phenomena in the decision-making process, using mathematics tools and information technologies.

c) Solve problems of different levels of complexity related to natural and exact sciences through the application of various methodologies in controlled and uncertain environments.

d) Apply standards, norms and principles of sustainability in solving problems related to the phenomena of natural and exact sciences.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

ICI Engineering - Applied Sciences (avenue) / Exploration
Plan 2019

Introductory Semester

Code	Description	Training Units CA
VA1002	Introductory Courses	36

First Semester

Code	Description	Training Units CA
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1008B	Modeling Movement in Science	3
F1009B	Modeling in Science with Conservation Laws	3
MA1028	Mathematical Thinking I	2
Q1028	Foundation of the Structure and Transformation of Matter	1
Q1029	Analysis of Properties and Transformation of Matter	1
TC1028	Computational Thinking for Engineering	2

Second Semester

Code	Description	Training Units CA
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1018B	Thermodynamic Modeling for Sciences	3
F1019B	Analysis of Electrical Systems in Sciences	3
F1020B	Modeling of Electromagnetic Systems in Sciences	3
MA1029	Intermediate Mathematical Modeling	2
MA1030	Matrix Modeling	1
MA1031	Statistical Analysis	1
Q1021	Chemical Experimentation and Statistical Thinking I	1

Third Semester

Code	Description	Training Units CA
EG1003	Elective Course Social and Behavioral Sciences	3
F1009	Analysis of Mathematical Methods for Physics	3
F1010	Modeling with Differential Equations	2
MA1001B	Statistical Modeling for Decision Making	3
MA1002B	Systems Modeling with Differential Equations	3
MA1036	Fundamentals of Linear Algebra	1
VA1001B	Exploration Topic	3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IDM B.S. in Data Science and Mathematics Engineering

Program and Learning Outcomes

Professionals with a solid grounding in statistics, applied mathematics and artificial intelligence algorithms, with a particular focus on mathematical modeling and computer simulation, enabling them to solve design, optimization, and decision-making problems, based on data analysis. Graduates apply complex mathematical cryptography models that will contribute to data and computer systems security. They also apply Numerical Analysis and Cognitive Computation to grow the productivity and competitiveness of companies and the wellbeing of society. They can pursue graduate studies in science and engineering or conduct research at highly prestigious international universities and/or centers.

Student Learning Outcomes

a) Build deterministic or stochastic mathematical models, supported by cutting-edge computer tools.

b) Design linear and non-linear optimization models for complex problems, using computer tools.

c) Analyze and process structured and non-structured data using mathematical, statistical, artificial intelligence models and techniques in keeping with data science.

d) Use artificial intelligence and cognitive computing methods to solve optimization problems.

e) Design complex mathematical models that will contribute to data and computer systems security.

f) Communicate scientific and technological information in mathematical application settings to diverse audiences.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IDM B.S. in Data Science and Mathematics Engineering
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1002	Introductory Courses	36

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1008B	Modeling Movement in Science	3
F1009B	Modeling in Science with Conservation Laws	3
MA1028	Mathematical Thinking I	2
Q1020	Analysis of the Structure and Properties of Matter	1
TC1029	Computational Thinking and Programming	3

Second Semester

	Training Units	CA
Code	**Description**	
BT1013	Computational Biology Analysis	1
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1019B	Analysis of Electrical Systems in Sciences	3
F1020B	Modeling of Electromagnetic Systems in Sciences	3
MA1029	Intermediate Mathematical Modeling	2
MA1031	Statistical Analysis	1
TC1003B	Modeling of Engineering with Computational Mathematics	3
TC1030	Object-Oriented Programming	1

Third Semester

	Training Units	CA
Code	**Description**	
EG1003	Elective Course Social and Behavioral Sciences	3
F1009	Analysis of Mathematical Methods for Physics	3
F1010	Modeling with Differential Equations	2
MA1001B	Statistical Modeling for Decision Making	3
MA1002B	Systems Modeling with Differential Equations	3
MA1036	Fundamentals of Linear Algebra	1
VA1001B	Exploration Topic	3

Fourth Semester

	Training Units	CA
Code	**Description**	
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
MA2001B	Deterministic Optimization	4
MA2002B	Cryptography and Security Analysis	4

TC2004B	Data Science Analysis	4
TC2032	Design of Intelligent Agents	1
TC2033	Analysis of Systems Based on Knowledge	1
TC2034	Modeling Learning with Artificial Intelligence	1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
MA2003B	Application of Multivariate Methods in Data Science		4
MA2004B	Stochastic Optimization		4
MA2005B	Application of Cryptography and Security		4
MA2014	Analysis of Reasoning and Uncertainty Methods		1
MA2015	Design of Bio-Inspired Mathematical Algorithms		1
TC2035	Neural Network Design and Deep Learning		1

Sixth Semester

		Training Units	CA
Code	**Description**		
MA2006B	Use of Modern Algebras for Security and Cryptography		6
MA2007B	Use of Geometry and Topology for Data Science		6
MA2008B	Numerical Analysis for Non-Linear Optimization		6

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
MA3001B	Development of Mathematical Engineering Projects		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IFI B.S. in Engineering Physics

Program and Learning Outcomes

Professionals with a strong grounding in physics and mathematics, computer tools and research skills, and knowledge of innovative engineering topics that make it possible to develop solutions in diverse fields of science and engineering. Graduates perform successfully in companies from the productive sector where energy efficiency is priority. Moreover, with their leadership, initiative, and entrepreneurial capacity, they can contribute to renewable energy projects. Their preparation enables them to pursue graduate studies in science and engineering or conduct research at highly prestigious international universities and/or centers.

Student Learning Outcomes

a) Solve complex problems related to physical phenomena using innovative procedures.

b) Build mathematical and computer models of physical systems, using the principles of basic science and technology resources.

c) Characterize physical phenomena from basic and applied science, by conducting experiments or making prototypes.

d) Identify physical phenomena that will potentially generate opportunities for innovation in science and technology.

e) Communicate scientific and technological information in the field of physics and engineering physics to diverse audiences.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IFI B.S. in Engineering Physics
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1008B	Modeling Movement in Science		3
F1009B	Modeling in Science with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1018B	Thermodynamic Modeling for Sciences		3
F1019B	Analysis of Electrical Systems in Sciences		3
F1020B	Modeling of Electromagnetic Systems in Sciences		3
MA1029	Intermediate Mathematical Modeling		2
MA1030	Matrix Modeling		1
MA1031	Statistical Analysis		1
Q1021	Chemical Experimentation and Statistical Thinking I		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
F1009	Analysis of Mathematical Methods for Physics		3
F1010	Modeling with Differential Equations		2
MA1001B	Statistical Modeling for Decision Making		3
MA1002B	Systems Modeling with Differential Equations		3
MA1036	Fundamentals of Linear Algebra		1
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
F2002B	Analysis of Classical Mechanics		4

F2003B	Numerical Modeling of Deterministic Physical Systems	4
F2004B	Application of Alternative Sources Of Energy	4
F2017	Fundamentals of Electrodynamics	3

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
F2005B	Analysis of Optical Phenomena		4
F2006B	Numerical Modeling of Stochastic and Nature-Based Systems		4
F2007B	Analysis of Thermodynamic and Statistical Systems		4
F2018	Analysis of Quantum Systems		3

Sixth Semester

		Training Units	CA
Code	**Description**		
F2008B	Experimental Characterization of Optical Systems		6
F2009B	Experimental Characterization of Materials		6
TE2001B	Experimental Characterization by Electronic Instrumentation		6

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
F3001B	Physical Engineering Integration		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

INA B.S. in Nanotechnology Engineering

Program and Learning Outcomes

Professionals who are competent in the areas of synthesis and characterization of chemical substances and nanomaterials, as well as in the development of comprehensive solutions in nanodevices for industrial production processes through innovation, technological development and scientific research that enables the generation and transfer of knowledge that forms the basis for innovation in new generation technologies and nanotechnology, both in Mexico and abroad, using sustainable development as a reference framework.

Student Learning Outcomes

a) Effectively communicates scientific and technological information to a variety of audiences orally, in writing, and graphically.

b) Evaluates the most relevant physicochemical properties that determine the performance of substances, molecular systems, materials, and nanoscale devices in a nanotechnological product.

c) Designs chemical and physical methods to produce a substance, nanomaterial, or nanostructure with the most appropriate properties for a specific application.

d) Develop value-added nanotechnological products by applying fundamental principles of chemistry, nanoscience, and engineering in the context of a specific market.

e) Solves complex problems associated with molecular systems, chemical substances, materials, and nanoscale devices with technological tools.

f) Applies scientific research methodologies in the field of chemistry and nanotechnology with a multidisciplinary approach.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

INA B.S. in Nanotechnology Engineering
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1008B	Modeling Movement in Science		3
F1009B	Modeling in Science with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1018B	Thermodynamic Modeling for Sciences		3
F1019B	Analysis of Electrical Systems in Sciences		3
F1020B	Modeling of Electromagnetic Systems in Sciences		3
MA1029	Intermediate Mathematical Modeling		2
Q1021	Chemical Experimentation and Statistical Thinking I		1
Q1022	Analysis of the Transformation of Matter in Chemical Processes		1
Q1023	Chemical Experimentation and Statistical Thinking II		1

Third Semester

		Training Units	CA
Code	**Description**		
BT1014	Foundation and Interpretation of Molecular Biology		1
EG1003	Elective Course Social and Behavioral Sciences		3
Q1001B	Fundamental Properties of Nanomaterials and Materials		3
Q1002B	Obtaining Nanomaterials, Organic and Bioinorganic Materials		3
Q1024	Application of Chemical Analysis		1
Q1025	Experimentation in Analytical Chemistry		1
Q1026	Structural Analysis of Organic Molecules and their Properties		2
Q1027	Foundation of the Structure and Properties of Biomolecules		1
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
NT2001B	Manufacture of Nanostructures by Chemical Methods		4

NT2002B	Manufacture of Nano and Micro-Structures by Physical Methods	4
Q2001B	Physicochemical Foundation of the Properties of Nanostructures	4
Q2024	Characterization of Materials and Nanomaterials	2
Q2025	Foundation of Medical Chemistry and Nanomedicine	1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
F2001B	Development of Photonic Nanosystems		4
F2015	Foundation of the Solid State of Matter		1
F2016	Fundamentation of Electromagnetism		1
NT2003B	Development of Fluidic and Mechanical Nanosystems		4
Q2002B	Modeling of Molecular Systems		4
Q2026	Formulation of Nanotechnological Products		1

Sixth Semester

		Training Units	CA
Code	**Description**		
NT2001	Design of Nanotechnological Devices		1
NT2002	Prototype Generation and Process Scaling		1
NT2004B	Development of Integral Solutions with Nanodevices		5
NT2005B	Development of Integral Prototyping and Scaling Solutions		5
Q2003B	Development of Integral Solutions in Research and Experimental Design		5
Q2027	Research and Experimental Design		1

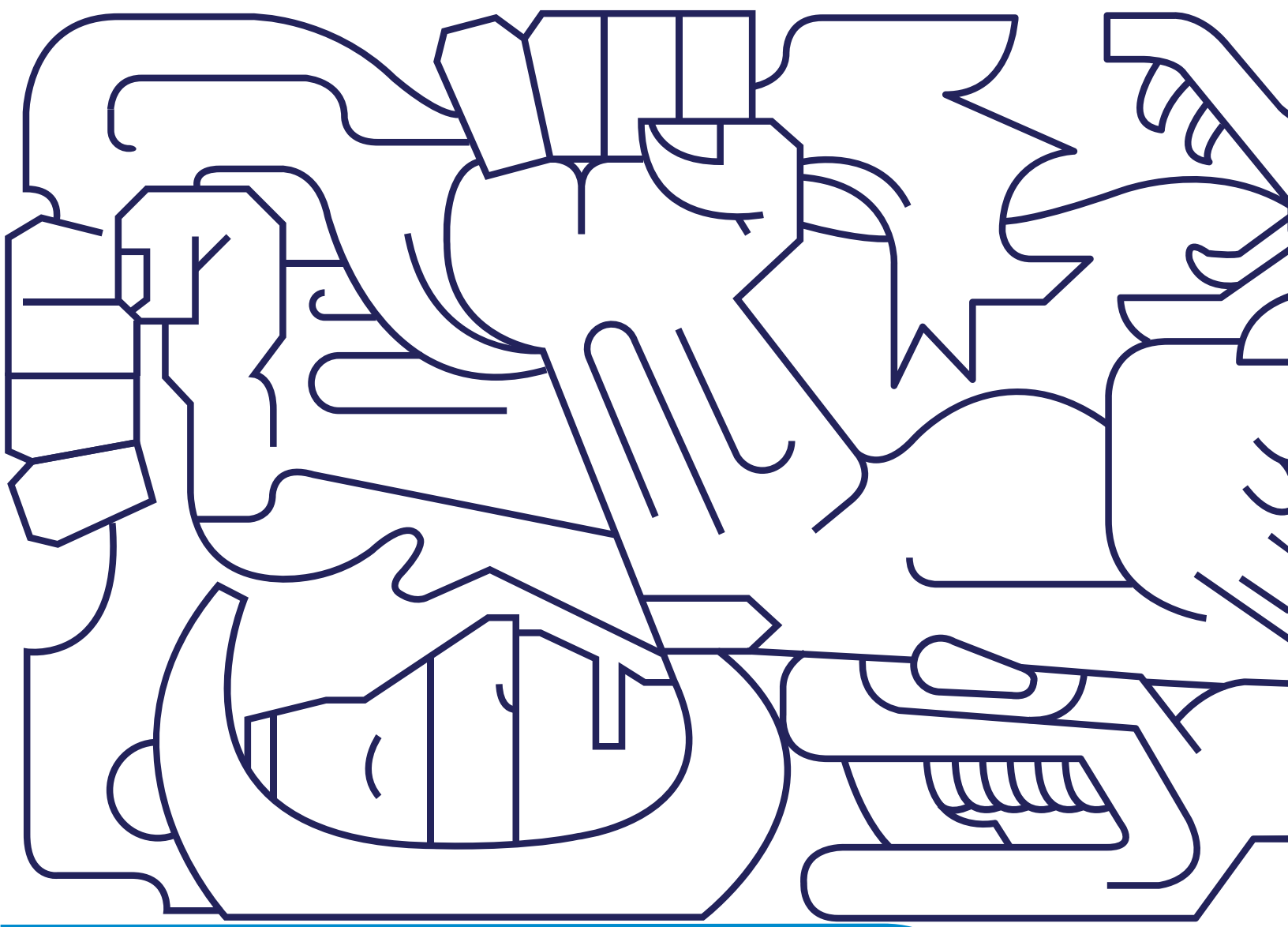
Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
OP3001B	Elective Multidisciplinary Professional		6
Q3001B	Development of Integrating Projects in Nanotechnology		12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.



Schools of Engineering and Sciences

Computer Science and Information Technologies

ICT Engineering - Computer Science and Information Technologies (avenue) / Exploration

Program and Learning Outcomes

Computer Science and Information Technologies is an engineering exploration program that encompasses the first three semesters. At the end of this entry, the student may choose to continue in the following programs:

IRS – Robotics and Digital Systems (*)

ITD – Business Digital Transformation

ITC – Computer Science and Technology

(*) Students who wish to pursue the Robotics and Digital Systems Engineering program must enroll in this degree at the end of the second semester.

Student Learning Outcomes

a) Foundations the behavior of computational processes and information technologies based on principles of natural sciences and mathematics.

b) Generates computational data analysis models that allow decision making.

c) Solve problems of different levels of complexity through the application of computational methodologies and information technologies in controlled and uncertain environments.

d) Applies standards, norms and principles of sustainability in the development of computer systems and information technologies.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

ICT Engineering - Computer Science and Information Technologies (avenue) / Exploration

Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1002	Introductory Courses	36

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1004B	Computational Modeling of Movement	3
F1005B	Computational Modeling Applying Conservation Laws	3
MA1028	Mathematical Thinking I	2
Q1028	Foundation of the Structure and Transformation of Matter	1
TC1028	Computational Thinking for Engineering	2
TC1033	Object Oriented Computational Thinking	1

Second Semester

	Training Units	CA
Code	**Description**	
BT1013	Computational Biology Analysis	1
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1013B	Computational Modeling of Electrical Systems	3
F1014B	Computational Modeling of Electromagnetic Systems	3
MA1029	Intermediate Mathematical Modeling	2
MA1031	Statistical Analysis	1
TC1003B	Modeling of Engineering with Computational Mathematics	3
TC1030	Object-Oriented Programming	1

Third Semester

	Training Units	CA
Code	**Description**	
EG1003	Elective Course Social and Behavioral Sciences	3
MA1033	Analysis of Differential Equations	1
TC1004B	Implementation of the Internet of Things	6
TC1031	Programming of Data Structures and Fundamental Algorithms	3
TC1032	Modeling of Minimum Systems and Computational Architectures	1
TI1015	Analysis of Software Requirements	1
VA1001B	Exploration Topic	3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IRS B.S. in Robotics and Digital Systems Engineering

Program and Learning Outcomes

Professionals with a solid grounding in the areas of digital design and computer and electronics engineering, with a focus on robotics applications. Graduates generate technological solutions for individuals and organizations through electronic and robotic devices and their corresponding embedded software systems.

Student Learning Outcomes

a) Develop embedded systems, complying with quality, security, and performance standards.

b) Develop the intelligence components that enable robots to solve problems autonomously.

c) Create hardware and software interfaces that enable intelligent interaction between digital devices.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IRS B.S. in Robotics and Digital Systems Engineering
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1004B	Computational Modeling of Movement		3
F1005B	Computational Modeling Applying Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1020	Analysis of the Structure and Properties of Matter		1
TC1029	Computational Thinking and Programming		3

Second Semester

		Training Units	CA
Code	**Description**		
BT1013	Computational Biology Analysis		1
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1013B	Computational Modeling of Electrical Systems		3
F1014B	Computational Modeling of Electromagnetic Systems		3
MA1029	Intermediate Mathematical Modeling		2
MA1031	Statistical Analysis		1
TC1003B	Modeling of Engineering with Computational Mathematics		3
TC1030	Object-Oriented Programming		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
MA1033	Analysis of Differential Equations		1
TC1004B	Implementation of the Internet of Things		6
TC1031	Programming of Data Structures and Fundamental Algorithms		3
TC1032	Modeling of Minimum Systems and Computational Architectures		1
TE1019	Foundation of Electrical and Electronic Engineering		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
MA2016	Foundation of Advanced Mathematics		1
TE2002B	Design with Programmable Logic		4
TE2003B	System Design on Chip		8
TE2044	Electronic Foundation		1
TE2045	Design of Electronic Circuits		1

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
MR2002B	Analysis of Control Systems		4
TC2036	Implementation of Secure Networks		2
TE2004B	Design of Advanced Embedded Systems		8
TE2046	Analysis of Signals and Systems		1

Sixth Semester

Code	Description	Training Units	CA
TE3001B	Robotics Foundation		6
TE3002B	Implementation of Intelligent Robotics		12

Seventh Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

Code	Description	Training Units	CA
OP3001B	Elective Multidisciplinary Professional		6
TE3003B	Integration of Robotics and Intelligent Systems		12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

ITC B.S. in Computer Science and Technology

Program and Learning Outcomes

Professionals capable of responding to society's advancement by developing software that will support technological innovation to improve society's quality of life, increase organizational competitiveness and support the country's sustainable development. Generate technological products that drive problem solving in daily, scientific and industrial settings and in those that integrate Computer Science, Software Engineering and Computer Infrastructure competencies and skills. Their strengths lie in the analysis, design and implementation of algorithms, computer modeling, intelligent systems, software development and computer network implementation.

Student Learning Outcomes

a) Solve problems by generating efficient computer algorithms with computer science models and tools.

b) Develop software, applying the process and quality standards of Software Engineering.

c) Implement cutting-edge computer infrastructure that meets informatics interconnection, operation, and security requirements.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

ITC B.S. in Computer Science and Technology
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1004B	Computational Modeling of Movement		3
F1005B	Computational Modeling Applying Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1020	Analysis of the Structure and Properties of Matter		1
TC1029	Computational Thinking and Programming		3

Second Semester

Code	Description	Training Units	CA
BT1013	Computational Biology Analysis		1
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1013B	Computational Modeling of Electrical Systems		3
F1014B	Computational Modeling of Electromagnetic Systems		3
MA1029	Intermediate Mathematical Modeling		2
MA1031	Statistical Analysis		1
TC1003B	Modeling of Engineering with Computational Mathematics		3
TC1030	Object-Oriented Programming		1

Third Semester

Code	Description	Training Units	CA
EG1003	Elective Course Social and Behavioral Sciences		3
MA1033	Analysis of Differential Equations		1
TC1004B	Implementation of the Internet of Things		6
TC1031	Programming of Data Structures and Fundamental Algorithms		3
TC1032	Modeling of Minimum Systems and Computational Architectures		1
TI1015	Analysis of Software Requirements		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
TC2005B	Software Construction and Decision Making		8
TC2006B	Device Interconnection		4
TC2037	Implementation of Computational Methods		3

Fifth Semester

	Training Units	CA
Code	**Description**	
EG1005	Elective Course Ethics and Citizenship	3
TC2007B	Integration of Computer Security in Networks and Software Systems	8
TC2008B	Modeling of Multi-Agent Systems with Computer Graphics	4
TC2038	Analysis and Design of Advanced Algorithms	3

Sixth Semester

	Training Units	CA
Code	**Description**	
TC3001B	Software Development	18

Seventh Semester

	Training Units	CA
Code	**Description**	
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
OP3001B	Elective Multidisciplinary Professional	6
TC3002B	Development of Advanced Applications of Computer Science	6
TC3003B	Implementation of Wide Area Networks and Distributed Services	6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

ITD B.S. in Business Digital Transformation

Program and Learning Outcomes

Professionals who understand the current needs of businesses and organizations, and the technological trends that can help to drive future opportunities. These engineers assess and design information architecture, process digitization and investment proposals in technological solutions. They are specialists in managing change in organizations by incorporating cutting-edge technologies and applying business intelligence and data analytics for generating value in businesses. Their work is related to understanding business strategy, the scope of technologies and the complexity of human interactions.

Student Learning Outcomes

a) Integrate IT solutions into organizational business processes, in keeping with the strategic vision, driving value generation.

b) Develop strategies for data, information and knowledge flow and governability in an organization, supporting the improvement of processes and strategic decision making.

c) Develop digital transformation projects in organizations, applying innovative, effective methodologies for change management and service integration, among others.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

ITD B.S. in Business Digital Transformation
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1002	Introductory Courses	36

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1004B	Computational Modeling of Movement	3
F1005B	Computational Modeling Applying Conservation Laws	3
MA1028	Mathematical Thinking I	2
Q1020	Analysis of the Structure and Properties of Matter	1
TC1029	Computational Thinking and Programming	3

Second Semester

	Training Units	CA
Code	**Description**	
BT1013	Computational Biology Analysis	1
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1013B	Computational Modeling of Electrical Systems	3
F1014B	Computational Modeling of Electromagnetic Systems	3
MA1029	Intermediate Mathematical Modeling	2
MA1031	Statistical Analysis	1
TC1003B	Modeling of Engineering with Computational Mathematics	3
TC1030	Object-Oriented Programming	1

Third Semester

	Training Units	CA
Code	**Description**	
EG1003	Elective Course Social and Behavioral Sciences	3
MA1033	Analysis of Differential Equations	1
TC1004B	Implementation of the Internet of Things	6
TC1031	Programming of Data Structures and Fundamental Algorithms	3
TC1032	Modeling of Minimum Systems and Computational Architectures	1
TI1015	Analysis of Software Requirements	1
VA1001B	Exploration Topic	3

Fourth Semester

	Training Units	CA
Code	**Description**	
AD2029	Modeling, Structure and Operation of Business	1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
TI2002B	Evaluation of Business Architectures	4

TI2003B	Technology Assessment for Business	4
TI2004B	Exploration and Interpretation of Data	4
TI2018	Design of Architectures, Use and Data Management	1
TI2019	Project Evaluation and Administration	1

Fifth Semester

		Training Units	CA
Code	**Description**		
AD2008B	Change Management		4
AD2030	Analysis of Organizational Behavior		1
EG1005	Elective Course Ethics and Citizenship		3
FZ2025	Analysis of Economic Activities		1
TI2005B	Process Design and Business Architectures		4
TI2006B	Analytical Support for Decision Making		4
TI2020	Implementation of Technology in Processes		1

Sixth Semester

		Training Units	CA
Code	**Description**		
TI3001B	Strategic Management and Governance of Information Technologies		6
TI3002B	Innovation and Design of Digital Transformation Initiatives		6
TI3003B	Application of Analytics and Data Governance		6

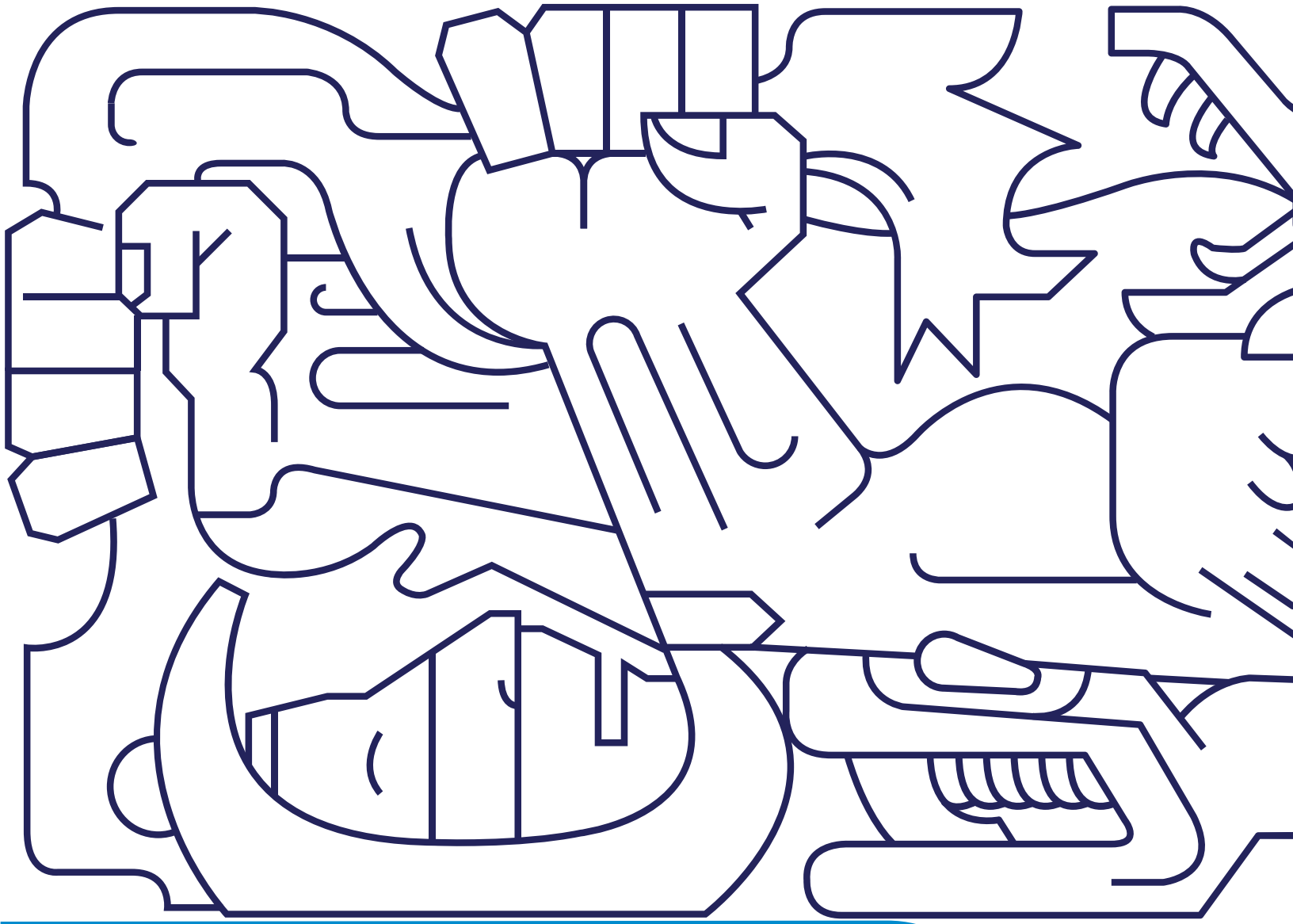
Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
OP3001B	Elective Multidisciplinary Professional		6
TI3004B	Digital Transformation of the Organization		12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.



Schools of Engineering and Sciences

Innovation and Transformation

AMC Built Environment / Exploration

Program and Learning Outcomes

Built Environment is an exploration program that encompasses the first two semesters. At the end of this entry, the student may choose to continue in the following programs:

ARQ – B.A. Architecture

LUB – B.A. Built Environment

IC – Civil Engineering

Student Learning Outcomes

a) Design solutions to problems related to the natural and built environment, applying the principles of basic sciences.

b) Develops solutions to problems related to the natural and built environment, through the use of technology.

c) Solve problems related to the natural and built environment, under a systemic vision and applying standards, norms and principles of sustainability.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

AMC Built Environment / Exploration
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
AC1001	Computational Logic		1
AC1001B	Modeling of Physics: Statics		3
AC1002	Mathematical Thinking		3
AC1002B	Modeling of Physics: Dynamics		3
AR1002B	Exploration in the Habitat: From the Scale of the Element to the Territory		3
CV1009	Chemical Analysis of the Environment and Construction Materials		2
EG1001	Elective Course Mathematics and Science		3

Second Semester

Code	Description	Training Units	CA
AC1003	Analysis with Probability and Statistics		2
AC1003B	Constructive Systems		3
AC1004B	Spatial Information		3
AC1005B	Geographical Information Systems		3
CV1010	Fundamentals of Geology Applied to the Built Environment		1
CV1011	Evaluation of the Environmental Impact of Territorial Projects		1
CV1012	Application of Numerical Methods to the Built Environment		2
EG1002	Elective Course Humanities and Fine Arts		3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IIT Engineering - Innovation and Transformation (avenue) / Exploration

Program and Learning Outcomes

Innovation and Transformation is an engineering exploration program that encompasses the first three semesters. At the end of this entry, the student may choose to continue in the following programs:

IC – Civil Engineering (*)

IE – Electronics Engineering

IID – Innovation and Development Engineering

IIS – Industrial and Systems Engineering

BIE – B.S. Industrial Engineering with minor in Systems Engineering

IM – Mechanical Engineering

IMD – Biomedical Engineering (**)

IMT – Mechatronics Engineering

BME – B.S. Mechatronics Engineering

(*) Students who wish to pursue the Civil Engineering program must enroll in this degree at the end of the second semester.

(**) Students who wish to pursue the Biomedical Engineering program must enroll in this degree at the end of the second semester.

Student Learning Outcomes

a) Foundations the operation of engineering systems and devices based on principles of natural sciences, mathematics and computing.

b) Analyze data from engineering systems and devices in the decision-making process, using mathematics tools and information technologies.

c) Solve problems of different levels of complexity of engineering systems and devices through the application of various methodologies in controlled and uncertain environments.

d) Applies standards, norms and principles of sustainability in solving problems related to the operation of engineering systems and devices.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

IIT Engineering - Innovation and Transformation (avenue) / Exploration
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1006B	Modeling the Movement in Engineering		3
F1007B	Modeling in Engineering with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1028	Foundation of the Structure and Transformation of Matter		1
Q1029	Analysis of Properties and Transformation of Matter		1
TC1028	Computational Thinking for Engineering		2

Second Semester

Code	Description	Training Units	CA
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1015B	Thermodynamic Modeling for Engineering		3
F1016B	Modeling of Electrical Systems in Engineering		3
F1017B	Modeling of Electromagnetic Systems in Engineering		3
MA1029	Intermediate Mathematical Modeling		2
MA1030	Matrix Modeling		1
MA1031	Statistical Analysis		1
Q1021	Chemical Experimentation and Statistical Thinking I		1

Third Semester

Code	Description	Training Units	CA
EG1003	Elective Course Social and Behavioral Sciences		3
IN1001B	Design and Analysis of Experiments in Engineering Innovation		3
IN1002B	Introduction to Data Science Projects		3
M1011	Static Balance Analysis		2
MA1034	Process Modeling Using Linear Algebra		1
MA1035	Engineering Modeling Using Dynamic Systems		2
TE1020	Analysis of Electrical circuits		1
VA1001B	Exploration Topic		3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IC B.S. in Civil Engineering

Program and Learning Outcomes

Professionals who plan, design and/or manage construction projects for transportation infrastructure (highways, bridges, railway tracks, ports, airports), buildings (housing, offices, industrial bays) and water management (reservoirs and catchment and control works, drinking water supply and drainage networks, storm drains, treatment plants) with a high level of commitment to the environment and moral and social responsibility. Graduates are entrepreneurs who lead public or private civil engineering projects, using the most innovative practices and technologies in their professional field.

Student Learning Outcomes

a) Design transport and service infrastructure systems, based on the needs of a given region, current regulations and development plans.

b) Design structural systems applying advanced methods, regulatory frameworks, technical specifications, and efficiency and sustainability criteria.

c) Manage construction projects efficiently.

d) Design hydraulic infrastructure systems, based on the established standards and considering the comprehensive management of the natural environment.

e) Conduct geotechnical studies, in accordance with scientific criteria and current legislation.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IC B.S. in Civil Engineering
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1006B	Modeling the Movement in Engineering		3
F1007B	Modeling in Engineering with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1015B	Thermodynamic Modeling for Engineering		3
F1016B	Modeling of Electrical Systems in Engineering		3
F1017B	Modeling of Electromagnetic Systems in Engineering		3
MA1029	Intermediate Mathematical Modeling		2
MA1030	Matrix Modeling		1
MA1031	Statistical Analysis		1
Q1021	Chemical Experimentation and Statistical Thinking I		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
IN1001B	Design and Analysis of Experiments in Engineering Innovation		3
IN1002B	Introduction to Data Science Projects		3
M1011	Static Balance Analysis		2
MA1034	Process Modeling Using Linear Algebra		1
MA1035	Engineering Modeling Using Dynamic Systems		2
TE1020	Analysis of Electrical circuits		1
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
CV2001B	Analysis of the Interaction of the Built Environment and the Environment		4
CV2002B	Evaluation of the Behavior of Materials In Structures		4

CV2003B	Analysis of the Behavior of Hydraulic Systems	4
CV2035	Modeling Information in Construction	1
CV2036	Cost Management	1
CV2037	Planning and Control of Work	1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3

Fifth Semester

		Training Units	CA
Code	**Description**		
CV2004B	Evaluation of the Behavior of Structural Systems		4
CV2005B	Design of Hydraulic Systems for the Sustainable Use of Water		4
CV2006B	Design of Roads for Development		4
CV2038	Project Management		1
CV2039	Management of Construction Operations		1
CV2040	Business Management in the Construction Industry		1
EG1005	Elective Course Ethics and Citizenship		3

Sixth Semester

		Training Units	CA
Code	**Description**		
CV2007B	Modeling of Water Sanitation Techniques		6
CV2008B	Design of Efficient Mobility of People and Goods		6
CV2009B	Structural Design with Reinforced Concrete and Steel		6

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
CV3001B	Integration of Civil Engineering Projects		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IE B.S. in Electronics Engineering

Program and Learning Outcomes

Professionals who have the capacity to create, design and generate technology through the use of sensors and smart devices employed in areas such as telecommunications, autonomous systems, electrical energy transformation, robots, automobiles and medical accessories, in order to grow the productivity and competitiveness of companies and the wellbeing of society. Graduates perform successfully in companies in the electricity, electronics, telecommunications, and energy sectors. Their preparation enables them to pursue graduate studies in science and engineering or conduct research at highly prestigious international universities and/or centers.

Student Learning Outcomes

a) Develop smart electronic devices that comply with quality, reliability and cost standards.

b) Design telecommunications systems based on sustainable, efficient, reliable performance requirements.

c) Develop efficient energy conversion and conditioner systems in power electronics.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IE B.S. in Electronics Engineering
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1002	Introductory Courses	36

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1006B	Modeling the Movement in Engineering	3
F1007B	Modeling in Engineering with Conservation Laws	3
MA1028	Mathematical Thinking I	2
Q1019	Analysis of the Structure, Properties and Transformation of Matter	2
TC1028	Computational Thinking for Engineering	2

Second Semester

	Training Units	CA
Code	**Description**	
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1015B	Thermodynamic Modeling for Engineering	3
F1016B	Modeling of Electrical Systems in Engineering	3
F1017B	Modeling of Electromagnetic Systems in Engineering	3
MA1029	Intermediate Mathematical Modeling	2
MA1030	Matrix Modeling	1
MA1031	Statistical Analysis	1
Q1021	Chemical Experimentation and Statistical Thinking I	1

Third Semester

	Training Units	CA
Code	**Description**	
EG1003	Elective Course Social and Behavioral Sciences	3
IN1001B	Design and Analysis of Experiments in Engineering Innovation	3
IN1002B	Introduction to Data Science Projects	3
M1011	Static Balance Analysis	2
MA1034	Process Modeling Using Linear Algebra	1
MA1035	Engineering Modeling Using Dynamic Systems	2
TE1020	Analysis of Electrical circuits	1
VA1001B	Exploration Topic	3

Fourth Semester

Code	Description	Training Units CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
TE2005B	Application of Electromagnetic Theory	4
TE2006B	Evaluation of Electrical Circuits	4
TE2007B	Application of Electronic Devices	4
TE2047	Analysis of Electrical Circuits of Alternating Current	1
TE2048	Analysis of Logical Systems and Digital Circuits	1
TE2049	Foundation of Solid State and Optoelectronics Physics	1

Fifth Semester

Code	Description	Training Units CA
EG1005	Elective Course Ethics and Citizenship	3
TC2009B	Design Based on Microcontrollers and Computational Architecture	4
TC2039	Development of digital systems	1
TE2008B	Evaluation of Electronic Devices	4
TE2009B	Foundation of Electronic Control Systems and Devices	4
TE2046	Analysis of Signals and Systems	1
TE2050	Design of Electronic Circuits	1

Sixth Semester

Code	Description	Training Units CA
TE2010B	Conceptualization and Application of Digital Signal Processing Systems	6
TE2011B	Design of Communications Systems	6
TE2012B	Analysis of Energy Systems	6

Seventh Semester

Code	Description	Training Units CA
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

Eight Semester

Code	Description	Training Units CA
OP3001B	Elective Multidisciplinary Professional	6
TE3004B	Development and Administration of Telecommunications and Energy Systems	12

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IID B.S. in Innovation and Development Engineering

Program and Learning Outcomes

Professionals who systematically identify innovation opportunities and create comprehensive innovative, sustainable technology-based solutions in emerging fields of engineering. They are proficient in systemic, leading-edge innovation with a disciplinary approach, constantly generating new ways of creating value for the organizations and ecosystems in which they participate. They have the capacity to lead technology transfer processes and manage technological innovation portfolios, programs, and projects, in accordance with organizational strategies.

Student Learning Outcomes

a) Creates technology-based solutions using systemic and interdisciplinary innovation methodologies.

b) Designs new technology-based business models using cutting-edge analytical and methodological tools.

c) Manage innovative projects and programs by applying methodological tools.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IID B.S. in Innovation and Development Engineering
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1006B	Modeling the Movement in Engineering		3
F1007B	Modeling in Engineering with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1015B	Thermodynamic Modeling for Engineering		3
F1016B	Modeling of Electrical Systems in Engineering		3
F1017B	Modeling of Electromagnetic Systems in Engineering		3
MA1029	Intermediate Mathematical Modeling		2
MA1031	Statistical Analysis		1
OP1007	Engineering Fundamentals Elective		1
Q1021	Chemical Experimentation and Statistical Thinking I		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
IN1001B	Design and Analysis of Experiments in Engineering Innovation		3
IN1002B	Introduction to Data Science Projects		3
M1011	Static Balance Analysis		2
MA1034	Process Modeling Using Linear Algebra		1
MA1035	Engineering Modeling Using Dynamic Systems		2
TE1020	Analysis of Electrical circuits		1
VA1001B	Exploration Topic		3

Fourth Semester

	Training Units	CA
Code	**Description**	
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
NN2001B	Design and Creation of Innovative Solutions	12
NN2007	Study of Methodologies for Innovation	1
OP2019	Engineering Concentration Elective I	1
OP2026	Engineering Concentration Elective II	1

Fifth Semester

	Training Units	CA
Code	**Description**	
EG1005	Elective Course Ethics and Citizenship	3
NN2002B	Design and Evaluation of Technological Ventures	12
NN2008	Feasibility and Viability Analysis of Innovation Projects	1
OP2027	Engineering Concentration Elective III	1
OP2028	Engineering Concentration Elective IV	1

Sixth Semester

	Training Units	CA
Code	**Description**	
NN3001B	Strategic Management of Technological Innovation	18

Seventh Semester

	Training Units	CA
Code	**Description**	
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

Eight Semester

	Training Units	CA
Code	**Description**	
NN3002B	Development of an Innovation Integrator Project	12
OP3001B	Elective Multidisciplinary Professional	6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IIS B.S. in Industrial Engineering with minor in Systems Engineering

Program and Learning Outcomes

Professionals who will solve complex problems in all types of organizations, improving, optimizing and innovating processes and systems to ensure their sustainability. They lead processes of change in globalized, dynamic settings and can integrate methodological tools to grow productivity and competitiveness, applying project management, mathematical modeling, analytical tools, statistical methods and information technologies.

Student Learning Outcomes

a) Innovate organizational processes with a systemic vision of sustainability.

b) Generate comprehensive solutions to complex problems, applying systemic-vision and participatory-approach methodologies.

c) Manage multidisciplinary projects, integrating technical, economic and market aspects aligned with organizational goals.

d) Make comprehensive decisions on processes, using abundant data and advanced statistical tools.

e) Enhance the competitiveness of key systems and processes in organizations, implementing quality, productivity, and optimization methodologies.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IIS B.S. in Industrial Engineering with minor in Systems Engineering
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1002	Introductory Courses	36

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
F1001B	Engineering and Science Modeling	3
F1006B	Modeling the Movement in Engineering	3
F1007B	Modeling in Engineering with Conservation Laws	3
MA1028	Mathematical Thinking I	2
Q1019	Analysis of the Structure, Properties and Transformation of Matter	2
TC1028	Computational Thinking for Engineering	2

Second Semester

	Training Units	CA
Code	**Description**	
EG1002	Elective Course Humanities and Fine Arts	3
F1008	Physical Experimentation and Statistical Thinking	1
F1015B	Thermodynamic Modeling for Engineering	3
F1016B	Modeling of Electrical Systems in Engineering	3
F1017B	Modeling of Electromagnetic Systems in Engineering	3
MA1029	Intermediate Mathematical Modeling	2
MA1030	Matrix Modeling	1
MA1031	Statistical Analysis	1
Q1021	Chemical Experimentation and Statistical Thinking I	1

Third Semester

	Training Units	CA
Code	**Description**	
EG1003	Elective Course Social and Behavioral Sciences	3
IN1001B	Design and Analysis of Experiments in Engineering Innovation	3
IN1002B	Introduction to Data Science Projects	3
M1011	Static Balance Analysis	2
MA1034	Process Modeling Using Linear Algebra	1
MA1035	Engineering Modeling Using Dynamic Systems	2
TE1020	Analysis of Electrical circuits	1
VA1001B	Exploration Topic	3

Fourth Semester

	Training Units	CA
Code	**Description**	
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
IN2001B	Implementation of the Systemic Vision in the Development of a Project	4

IN2002B	Improvement of an Organizational Process with Statistical Methods	4
IN2003B	Conceptualization of Processes with Innovative Approach	4
IN2032	Statistical Data Analysis	1
IN2037	Design of Cyberphysical Systems	1
IN2038	Economic Evaluation of Projects	1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
IN2004B	Generation of Value with Data Analytics		4
IN2005B	Organizational Competitiveness Evaluation		4
IN2006B	Analysis of the Viability of Projects from a Systemic Perspective		4
IN2039	Visualization of Data for Decision Making		1
IN2040	Optimization of Organizational Processes		1
IN2041	Application of Heuristics and Metaheuristics in Process Optimization		1

Sixth Semester

		Training Units	CA
Code	**Description**		
IN2007B	Disruptive Design of Organizational Processes		5
IN2008B	Ensuring Operational Excellence		5
IN2009B	Improvement of an Adaptive Value Chain		5
IN2042	Value Chain Modeling		1
IN2043	Discrete, Continuous and by Agents Simulation		1
IN2044	Design of a Consultancy and Change Management Process		1

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
IN3001B	Design of an Intelligent Organizational System		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IM B.S. in Mechanical Engineering

Program and Learning Outcomes

Professionals who are competent in the design and innovation of electromechanical systems, with skills to select appropriate materials for product manufacturing; select, design and integrate conventional and advanced manufacturing processes; formulate maintenance schemes; conduct failure analysis; integrate mechanical energy transformation systems; and innovatively integrate manufacturing and project management into productive processes. All these aspects take sustainable development into consideration. Graduates perform successfully in companies from diverse industrial sectors or pursue graduate studies.

Student Learning Outcomes

a) Develop electromechanical products or systems according to the application requirements.

b) Develop manufacturing processes, integrating aspects of management, productivity, quality, costs, and current standards.

c) Design electromechanical maintenance schemes, integrating current restrictions and standards.

d) Analyze failures using the principles and tools of mechanical engineering and current standards, to establish improvement actions.

e) Develop mechanical energy transformation and generation systems, considering thermofluids and electrical aspects.

f) Manage mechanical engineering projects from a multidisciplinary perspective, applying the appropriate methodologies.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IM B.S. in Mechanical Engineering
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1002	Introductory Courses		36

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1006B	Modeling the Movement in Engineering		3
F1007B	Modeling in Engineering with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

Code	Description	Training Units	CA
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1015B	Thermodynamic Modeling for Engineering		3
F1016B	Modeling of Electrical Systems in Engineering		3
F1017B	Modeling of Electromagnetic Systems in Engineering		3
MA1029	Intermediate Mathematical Modeling		2
MA1030	Matrix Modeling		1
MA1031	Statistical Analysis		1
Q1021	Chemical Experimentation and Statistical Thinking I		1

Third Semester

Code	Description	Training Units	CA
EG1003	Elective Course Social and Behavioral Sciences		3
IN1001B	Design and Analysis of Experiments in Engineering Innovation		3
IN1002B	Introduction to Data Science Projects		3
M1011	Static Balance Analysis		2
MA1034	Process Modeling Using Linear Algebra		1
MA1035	Engineering Modeling Using Dynamic Systems		2
TE1020	Analysis of Electrical circuits		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
M2002B	Design of Products Subjected to Static Charges		8
M2003B	Dynamic Design		4
M2033	Analysis of Stresses and Deformations		1
M2034	Analysis of the Movement of Rigid Bodies		1
M2035	Fundamentals of the Behavior and Applications of Materials		1

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
M2004B	Design of Mechanisms		8
M2005B	Design of Thermofluidic Systems		4
M2036	Fundamentals of Fluid Mechanics		1
M2037	Analysis of Energy Transformation Processes		1
M2038	Basis and Modeling of Heat Transfer		1

Sixth Semester

Code	Description	Training Units	CA
M2006B	Design of Thermal Machines		6
M2007B	Analysis and Prevention of Faults		6
M2008B	Design of Machine Elements		6

Seventh Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

Code	Description	Training Units	CA
M3001B	Machine Design		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

IMD B.S. in Biomedical Engineering

Program and Learning Outcomes

Professionals with a solid grounding in biological and medical sciences and who generate, implement, and assess technological solutions that successfully address the needs of the health industry. They will also be able to develop medical methods, devices, systems, and services, adhering to current legislation and acting in an ethical manner. Their professional preparation will enable them to work in multidisciplinary work teams and enroll in graduate degree programs.

Student Learning Outcomes

a) Support the functioning of living organisms and their interaction with biomedical devices, based on the principles of biomedical and chemical-biological sciences.

b) Interpret medical-biological system quantitative measures, in healthcare environments.

c) Generate solutions for problems related to biological and health systems, integrating principles of engineering, basic science, and medical science.

d) Develop biomaterials and biomedical devices that serve the different healthcare stages, using state-of-the-art technology tools.

e) Develop healthcare management, evaluation, and technology transfer processes, considering regulatory aspects.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

IMD B.S. in Biomedical Engineering

Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1006B	Modeling the Movement in Engineering		3
F1007B	Modeling in Engineering with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1015B	Thermodynamic Modeling for Engineering		3
F1016B	Modeling of Electrical Systems in Engineering		3
F1017B	Modeling of Electromagnetic Systems in Engineering		3
MA1029	Intermediate Mathematical Modeling		2
MA1030	Matrix Modeling		1
MA1031	Statistical Analysis		1
Q1021	Chemical Experimentation and Statistical Thinking I		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
IN1002B	Introduction to Data Science Projects		3
MA1034	Process Modeling Using Linear Algebra		1
MA1035	Engineering Modeling Using Dynamic Systems		2
SD1001	Musculoskeletal System		1
SD1002B	Metabolism and Energy		3
SD1003	Oxygen Supply and Consumption		1
TE1020	Analysis of Electrical circuits		1
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
BI2001B	Design of Analog Bioinstrumentation Systems		4
BI2002B	Design of Digital Bioinstrumentation Systems		4

BI2003B	Chemical, Biological and Molecular Analysis in Biomedical Engineering	4
BI2010	Analysis of Signals and Biomedical Systems	2
BI2011	Application of Information Technologies in Health	1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3

Fifth Semester

		Training Units	CA
Code	**Description**		
BI2004B	Analysis and Design In Biomechanics		4
BI2005B	Application of Bioinstrumentation and Biomedical Technologies		4
BI2006B	Management and Validation of Biomedical Technologies		4
BI2012	Development of Biomaterials for Medical Applications		1
BI2013	Modeling and Control of Biomedical Systems		1
EG1005	Elective Course Ethics and Citizenship		3
SD1012	Nervous System		1

Sixth Semester

		Training Units	CA
Code	**Description**		
BI2007B	Analysis of Imaging Systems		3
BI2008B	Development of Medical Solutions with Tissue Engineering and Bioprinting		3
BI2009B	Processing of Medical Images For Diagnosis		3
BI2010B	Design and Development in Neuroengineering		3
BI2011B	Clinical Engineering Implementation		3
BI2012B	Analysis of Biofluid Mechanics		3

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
BI3001B	Design, Development and Evaluation of Medical Devices		12
OP3001B	Elective Multidisciplinary Professional		6

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work. Class-hours take place in 50 minutes sessions each one.

IMT B.S. in Mechatronics Engineering

Program and Learning Outcomes

Professionals with a solid grounding in mechatronics, and the synergy and integration of mechanics, electronics, programming, and control, capable of integrating, designing and manufacturing devices, machines and automatic systems. Their applications include industrial automation, industrial robots, general purpose robots, medical devices, automotive devices, and aerospace devices, among others. Graduates work in companies that use automated production systems, as consultants, starting their own businesses or pursuing graduate studies.

Student Learning Outcomes

a) Integrate mechanical, electronic, control and software components, complying with functional, economic and security requirements.

b) Design state-of-the-art mechatronic systems, addressing technological needs in diverse settings.

c) Automate systems and processes, complying with performance criteria and current legislation.

d) Formulate proposals for mechatronic systems, complying with specifications.

Admission Profile

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Prerequisite for entry: high school or equivalent.

IMT B.S. in Mechatronics Engineering
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1002	Introductory Courses		36

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
F1001B	Engineering and Science Modeling		3
F1006B	Modeling the Movement in Engineering		3
F1007B	Modeling in Engineering with Conservation Laws		3
MA1028	Mathematical Thinking I		2
Q1019	Analysis of the Structure, Properties and Transformation of Matter		2
TC1028	Computational Thinking for Engineering		2

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
F1008	Physical Experimentation and Statistical Thinking		1
F1015B	Thermodynamic Modeling for Engineering		3
F1016B	Modeling of Electrical Systems in Engineering		3
F1017B	Modeling of Electromagnetic Systems in Engineering		3
MA1029	Intermediate Mathematical Modeling		2
MA1030	Matrix Modeling		1
MA1031	Statistical Analysis		1
Q1021	Chemical Experimentation and Statistical Thinking I		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
IN1001B	Design and Analysis of Experiments in Engineering Innovation		3
IN1002B	Introduction to Data Science Projects		3
M1011	Static Balance Analysis		2
MA1034	Process Modeling Using Linear Algebra		1
MA1035	Engineering Modeling Using Dynamic Systems		2
TE1020	Analysis of Electrical circuits		1
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
M2001B	Analysis of Materials and Manufacturing		4

M2005	Analysis of Mechanisms	1
MR2003B	Mechatronic Integration	4
MR2004B	Implementation of Mechatronic Systems	4
MR2022	Analysis of Elements of Mechatronics	1
MR2023	Modeling and Automation	1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
MR2005B	Troubleshooting Processes		4
MR2006B	Industrial Automation		8
MR2024	Mechatronic Design		1
MR2025	Design of Control Systems		2

Sixth Semester

		Training Units	CA
Code	**Description**		
MR2007B	Automation of Manufacturing Systems		12
MR3001B	Design and Development of Robots		6

Seventh Semester

		Training Units	CA
Code	**Description**		
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

		Training Units	CA
Code	**Description**		
MR3002B	Design and Implementation of Mechatronic Systems		12
OP3001B	Elective Multidisciplinary Professional		6

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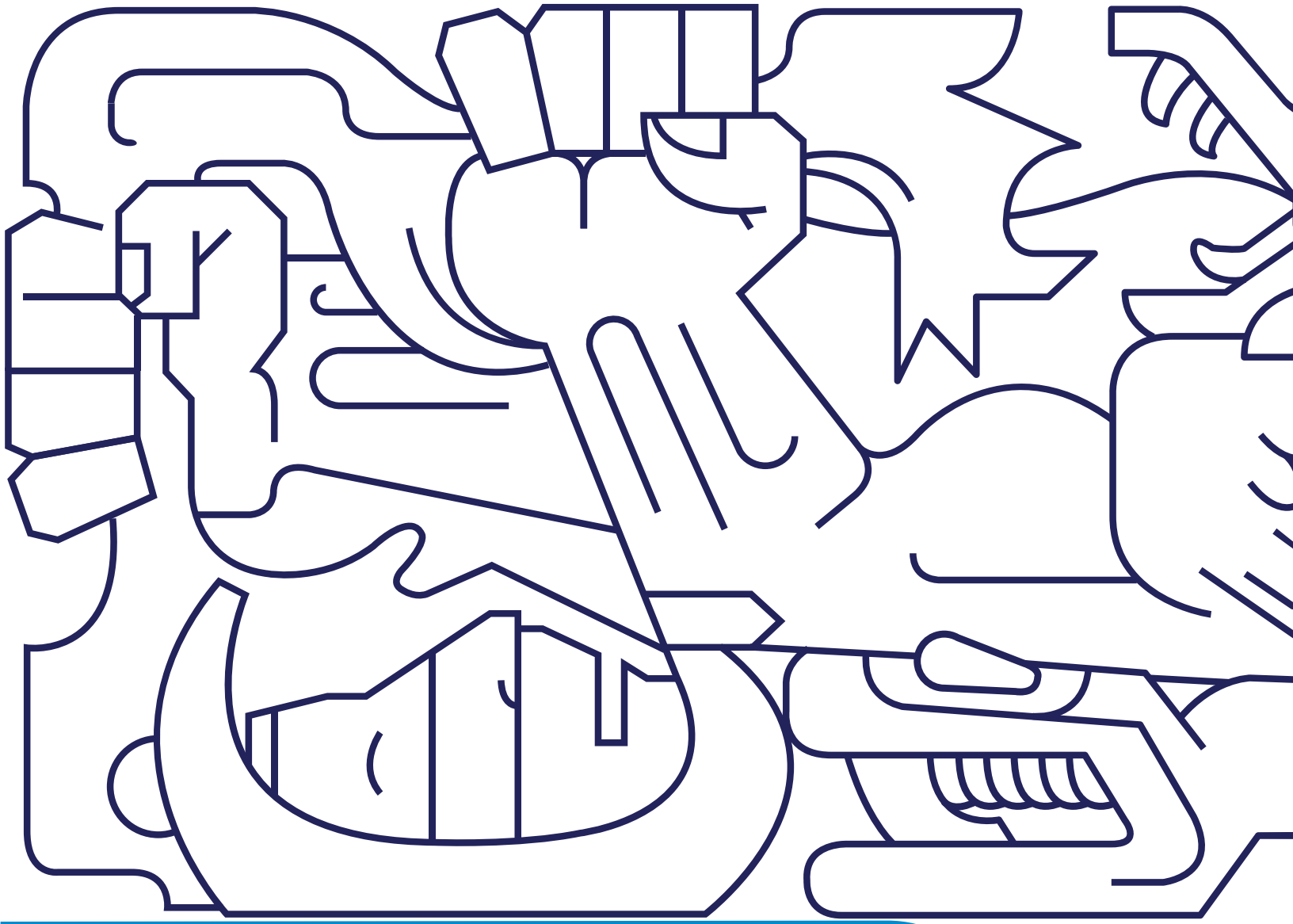
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.



School of Medicine and Health Sciences

SLD Health Sciences / Exploration

Program and Learning Outcomes

Health is an exploration program that encompasses the first three semesters. At the end of this entry, the student may choose to continue in the following programs:

LBC – B.A. Bioscience

LNB – B.A. Nutrition and Wellbeing

LPS – B.S. Clinical Psychology and Health

MO – Medical and Surgical Dentist

Student Learning Outcomes

a) Apply updated knowledge and scientific methods to generate innovative proposals to prevalent health problems, with critical thinking and a multidisciplinary perspective.

b) Comprehensively addresses people and groups in the early detection of illnesses, risk factors or first aid situations, generating change actions that promote healthy lifestyles.

c) Performs with professionalism in the interaction with patients, families and multidisciplinary teams, in community and healthcare settings, local and global.

d) Manages the processes and resources required in the different phases of clinical care, addressing the dimensions of quality for the interest group and health personnel.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Academic background for admission: high school or equivalent.

SLD Health Sciences / Exploration
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1004	Introductory Courses		30

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
SD1001	Musculoskeletal System		1
SD1001B	Health Basics		3
SD1002	Digestive System		1
SD1002B	Metabolism and Energy		3
SD1003	Oxygen Supply and Consumption		1
SD1003B	Cellular and Molecular Mechanisms		3
SD1004	Energy Management		1
SD1005	Human Genetics		1
SD1006	Endocrine System		1

Second Semester

Code	Description	Training Units	CA
EG1002	Elective Course Humanities and Fine Arts		3
SD1004B	Life Cycle: Fertilization and Pregnancy		3
SD1005B	Life Cycle: Childhood and Adolescence		3
SD1006B	Life Cycle: Adulthood		3
SD1007	Embryology		1
SD1008	Human Reproduction		1
SD1009	Growth and Development		1
SD1010	Emotional and Behavioral Development		1
SD1011	Renal Morphophysiology		1
SD1012	Nervous System		1

Third Semester

Code	Description	Training Units	CA
EG1003	Elective Course Social and Behavioral Sciences		3
SD1007B	Healthy Environments for the Elderly		3
SD1008B	Innovation in Public Health		3
SD1013	Management and Innovation in Health		1
SD1014	Research Methods		1
SD1015	Human Microbiota		1
SD1016	Public Health and Biostatistics		1
SD1017	Blood and Hematopoiesis		1
SD1018	Introduction to Clinical Practice		1
VA1001B	Exploration Topic		3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LBC B.A. in Biosciences

Program and Learning Outcomes

Professionals who will generate innovative proposals for the creation of new healthcare options, based on research or entrepreneurship projects. They collaborate effectively in interdisciplinary teams on solutions that will impact society, combining scientific evidence in biomedical science and cutting-edge technologies. They are also capable of managing resources in an ethical, professional manner, in accordance with the basic principles of health and the official regulations governing the National Health System.

Student Learning Outcomes

a) Develop biomedical and translational research projects related to solving health issues, adhering to current national and international regulations.

b) Propose experimental and non-experimental strategies to study health problems, considering the appropriate methodology and statistical analysis.

c) Implement biochemical, cell and molecular methods to study and diagnose infectious and non-infectious diseases, considering the latest advancements in science and technology.

d) Manage the processes and resources required to conduct biomedical research, in keeping with current legislation.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LBC B.A. in Biosciences
Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1004	Introductory Courses	30

First Semester

	Training Units	CA
Code	**Description**	
EG1001	Elective Course Mathematics and Science	3
SD1001	Musculoskeletal System	1
SD1001B	Health Basics	3
SD1002	Digestive System	1
SD1002B	Metabolism and Energy	3
SD1003	Oxygen Supply and Consumption	1
SD1003B	Cellular and Molecular Mechanisms	3
SD1004	Energy Management	1
SD1005	Human Genetics	1
SD1006	Endocrine System	1

Second Semester

	Training Units	CA
Code	**Description**	
EG1002	Elective Course Humanities and Fine Arts	3
SD1004B	Life Cycle: Fertilization and Pregnancy	3
SD1005B	Life Cycle: Childhood and Adolescence	3
SD1006B	Life Cycle: Adulthood	3
SD1007	Embryology	1
SD1008	Human Reproduction	1
SD1009	Growth and Development	1
SD1010	Emotional and Behavioral Development	1
SD1011	Renal Morphophysiology	1
SD1012	Nervous System	1

Third Semester

	Training Units	CA
Code	**Description**	
EG1003	Elective Course Social and Behavioral Sciences	3
SD1007B	Healthy Environments for the Elderly	3
SD1008B	Innovation in Public Health	3
SD1013	Management and Innovation in Health	1

SD1014	Research Methods	1
SD1015	Human Microbiota	1
SD1016	Public Health and Biostatistics	1
SD1017	Blood and Hematopoiesis	1
SD1018	Introduction to Clinical Practice	1
VA1001B	Exploration Topic	3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
MB2001B	Basic Histopathology		4
MB2002B	Immunobiology		4
MB2003B	Heritage and Development		4
MB2059	Normal and Pathological Microstructure		1
MB2060	Pathogenic Microbiota		1
MB2061	Medical Genetics		1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
MB2004B	Bases of the Nervous and Endocrine System		4
MB2005B	Pharmacotherapy		4
MB2006B	Physical Examination		4
MB2062	Endocrine and Neural Ecosystem		1
MB2063	Bioactive Molecules and Therapeutic Principles		1
MB2064	Physiopathological Processes		1

Sixth Semester

		Training Units	CA
Code	**Description**		
MB2012B	Endocrine and Metabolic Disorders		4
MB2013B	Neurological Disorders		4
MB2069	Infectious Disease Pathophysiology		1
MB2070	Antimicrobials' Pharmacology		1
MB2077	Endocrine Pathophysiology		1
MB2078	Pathology of Biocontrol and Reproduction Systems		1
MB2079	Nervous System Pathophysiology		1
MB2080	Pharmacology of Biocontrol and Reproduction Systems		1
SD2001B	Multidisciplinary Model of Health Care		4

Seventh Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

Code	Description	Training Units	CA
BI3002B	Traslational Research Project		6
BI3003B	Project Management in Innovative Research		6
BI3004B	Biosciences Entrepreneurship		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LNB B.A. in Nutrition and Wellness

Program and Learning Outcomes

Professionals who prevent, diagnose and treat health-related problems. They will be leaders in the field of nutrition with field-related professional competencies aimed at promoting and improving health, through the physical, psychological, and social wellbeing of individuals.

Student Learning Outcomes

a) Implement comprehensive wellbeing strategies that transform individual or community lifestyles.

b) Address the nutritional care of healthy and sick individuals, resolving nutritional and physical activity needs through nutritional medical therapy.

c) Develop food products and services that will benefit the health of the population.

d) Develop populational nutrition projects that will contribute to solving public health problems.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LNB B.A. in Nutrition and Wellness
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1004	Introductory Courses		30

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
SD1001	Musculoskeletal System		1
SD1001B	Health Basics		3
SD1002	Digestive System		1
SD1002B	Metabolism and Energy		3
SD1003	Oxygen Supply and Consumption		1
SD1003B	Cellular and Molecular Mechanisms		3
SD1004	Energy Management		1
SD1005	Human Genetics		1
SD1006	Endocrine System		1

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
SD1004B	Life Cycle: Fertilization and Pregnancy		3
SD1005B	Life Cycle: Childhood and Adolescence		3
SD1006B	Life Cycle: Adulthood		3
SD1007	Embryology		1
SD1008	Human Reproduction		1
SD1009	Growth and Development		1
SD1010	Emotional and Behavioral Development		1
SD1011	Renal Morphophysiology		1
SD1012	Nervous System		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
SD1007B	Healthy Environments for the Elderly		3
SD1008B	Innovation in Public Health		3
SD1013	Management and Innovation in Health		1
SD1014	Research Methods		1
SD1015	Human Microbiota		1
SD1016	Public Health and Biostatistics		1
SD1017	Blood and Hematopoiesis		1
SD1018	Introduction to Clinical Practice		1
VA1001B	Exploration Topic		3

Fourth Semester

	Training Units	CA
Code	**Description**	
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
NU2001B	Nutritional Diagnosis	4
NU2002B	Nutritional Intervention	4
NU2003B	Nutrition Care Process	4
NU2018	Nutritional Biochemical and Clinical Assessment	1
NU2021	Exercise Physiology	1
NU2027	Methodology and Design of Physical Exercise Programs	1

Fifth Semester

	Training Units	CA
Code	**Description**	
EG1005	Elective Course Ethics and Citizenship	3
NU2004B	Food Service Management	4
NU2005B	Food Science	4
NU2006B	Food Technology	4
NU2028	Nutrigenetics: Personalized Nutrition	1
NU2029	Nutrigenomics and Epigenetics: Personalized Nutrition	1
NU2030	Nutraceuticals and Functional Foods	1

Sixth Semester

	Training Units	CA
Code	**Description**	
NU2007B	Nutritional Diagnosis in Population	4
NU2008B	Nutrition Programs Design	4
NU2031	Nutritional Therapy in Adult Obesity	1
NU2032	Nutrition and Physical Performance	1
NU2033	Nutritional Therapy in Metabolic Syndrome	1
NU2034	Obesity and Metabolic Syndrome in Childhood and Adolescence	1
NU2035	Integrative Nutrition	1
NU2036	Culture and Psychology of Food	1
SD2001B	Multidisciplinary Model of Health Care	4

First Trimester

	Training Units	
Code	**Description**	**CA**
NC3001B	Clinical Nutrition in Wellness	1.8
NC3002B	Clinical Nutrition for Adolescents and Adults	1.8
NC3021	Exercise and Disease Management	1
NC3022	Models and Techniques for Behavior Modification	1
NC3023	Supplementation	1
NC3024	Eating Disorders	1
SD3001	Bioetics	1
SD3001B	Multidisciplinary Healthcare	1.8
SD3002	Quality Healthcare and Patient Safety	1

Second Trimester

	Training Units	
Code	**Description**	**CA**
OP3010B	Clinical Elective I	2
OP3011B	Clinical Elective II	2
OP3012B	Clinical Elective III	2
OP3057	Professional Elective I	1
OP3058	Professional Elective II	1
OP3060	Professional Elective III	1

Third Trimester

	Training Units	
Code	**Description**	**CA**
NC3003B	Clinical Nutrition in Internal Medicine	1.6
NC3004B	Clinical Nutrition in Internal Medicine and Geriatrics	1.8
NC3005B	Clinical Nutrition in Surgery	1.8
NC3025	Pathophysiology in Internal Medicine	1
NC3026	Medical Nutrition Therapy in Internal Medicine I	1
NC3027	Nutrition Support Fundamentals	1
NC3028	Medical Nutrition Therapy for Metabolic Stress	1
NC3029	Medical Nutrition Therapy in Internal Medicine II	1
NC3030	Pathophysiology in Surgery	1
NC3031	Drug-Nutrient Interaction	1

Fourth Trimester

	Training Units	
Code	**Description**	**CA**
NC3006B	Pediatric Clinical Nutrition	1.6
NC3007B	Clinical Nutrition in Pediatrics and Critically Ill Pediatric Patient	1.8
NC3008B	Clinical Nutrition in Gynecology	1.8
NC3032	Pathophysiology in Pediatrics	1
NC3033	Entrepreneurship and Management in Health	1
NC3034	Medical Nutrition Therapy in Pediatrics I	1
NC3035	Nutritional Support in Pediatrics	1
NC3036	Medical Nutrition Therapy in Pediatrics II	1
NC3037	Pathophysiology in Gynecology	1
NC3038	Medical Nutrition Therapy in Gynecology	1

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LPS B.S. in Clinical Psychology and Health

Program and Learning Outcomes

Professionals who will apply psychology to promote mental health and understand its impact on overall well-being; carry out actions to prevent diseases and mental disorders that affect the behavior of the individual and groups; participate in the design and management of biopsychosocial health programs in multidisciplinary teams; and treat individuals, groups and social units.

Student Learning Outcomes

a) Develops strategies for prevention and promotion of mental health in individuals and groups, considering the principles of conduct of the psychologist's code of ethics.

b) Diagnoses the mental health status of individuals or groups, in collaboration with other health professionals, according to the principles and standards of conduct of the psychologist's code of ethics.

c) Conducts psychological care in individuals or groups, selecting the appropriate approach for the patient, based on the psychologist's code of ethics.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LPS B.S. in Clinical Psychology and Health
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1004	Introductory Courses		30

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
SD1001	Musculoskeletal System		1
SD1001B	Health Basics		3
SD1002	Digestive System		1
SD1002B	Metabolism and Energy		3
SD1003	Oxygen Supply and Consumption		1
SD1003B	Cellular and Molecular Mechanisms		3
SD1004	Energy Management		1
SD1005	Human Genetics		1
SD1006	Endocrine System		1

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
SD1004B	Life Cycle: Fertilization and Pregnancy		3
SD1005B	Life Cycle: Childhood and Adolescence		3
SD1006B	Life Cycle: Adulthood		3
SD1007	Embryology		1
SD1008	Human Reproduction		1
SD1009	Growth and Development		1
SD1010	Emotional and Behavioral Development		1
SD1011	Renal Morphophysiology		1
SD1012	Nervous System		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
SD1007B	Healthy Environments for the Elderly		3
SD1008B	Innovation in Public Health		3
SD1013	Management and Innovation in Health		1
SD1014	Research Methods		1
SD1015	Human Microbiota		1
SD1016	Public Health and Biostatistics		1
SD1017	Blood and Hematopoiesis		1
SD1018	Introduction to Clinical Practice		1
VA1001B	Exploration Topic		3

Fourth Semester

	Training Units	CA
Code	**Description**	
CC2001B	Community Psychology	4
CC2002B	Psychosocial Interventions	4
CC2003B	Psychosocial Assessment	4
CC2026	General Psychology	1
CC2027	Personality Theories	1
CC2028	Psychology of the Adolescent, Adult and Older Adult	1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3

Fifth Semester

	Training Units	CA
Code	**Description**	
CC2004B	Clinical Assessment in Psychology	4
CC2005B	Diagnosis and Psychological Interventions	4
CC2006B	Psychosocial Transformation	4
CC2029	Psychodiagnosis	1
CC2030	Psychological Reports	1
CC2031	Design of Psychological Assessment Instruments	1
EG1005	Elective Course Ethics and Citizenship	3

Sixth Semester

	Training Units	CA
Code	**Description**	
CC2007B	Health Psychology	4
CC2008B	Psychotherapeutic Models	4
CC2032	Clinical Psychology in Primary Care	1
CC2033	Psychophysiology	1
CC2034	Clinical Psychology	1
CC2035	Psychopharmacology	1
CC2036	Psychopathology	1
CC2037	Clinical Child Psychology	1
SD2001B	Multidisciplinary Model of Health Care	4

First Trimester

	Training Units	
Code	**Description**	**CA**
CC3001B	Clinical Neuropsychology	5.3
CC3018	Occipital and Parietal Lobe Syndromes	1
CC3019	Temporal and Frontal Lobe Syndromes	1
CC3020	Neuropsychological Stimulation and Rehabilitation	1
CC3021	Neurobiology of Behavior	1
CC3022	Neurological Disorders	1
CC3023	Neuropsychiatric Disorders	1

Second Trimester

	Training Units	
Code	**Description**	**CA**
CC3002B	Clinical Psychology Practice	5.3
CC3024	Basics of Clinical Child Psychology	1
CC3025	Intervention Techniques in Children	1
CC3026	Mental Disorders in Childhood	1
CC3027	Clinical Intervention with Adolescents	1
CC3028	Psychotherapeutic Intervention Models	1
CC3029	Psychotherapy in Adults	1

Third Trimester

	Training Units	
Code	**Description**	**CA**
OP3010B	Clinical Elective I	2
OP3011B	Clinical Elective II	2
OP3012B	Clinical Elective III	2
OP3057	Professional Elective I	1
OP3058	Professional Elective II	1
OP3060	Professional Elective III	1

Fourth Trimester

	Training Units	
Code	**Description**	**CA**
CC3003B	Psychological Care in Hospitals	3.6
CC3030	Biology and Psychology of Patients with Chronic Diseases	1
CC3031	Evidence-based Clinical Psychological Interventions	1
CC3032	Grief in Chronic Illness	1
CC3033	Formal and Informal Caregivers	1
SD3001	Bioetics	1
SD3001B	Multidisciplinary Healthcare	1.8
SD3002	Quality Healthcare and Patient Safety	1

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

MC Physician & Surgeon

Program and Learning Outcomes

Professionals to be leaders and innovators in the field of health. They are sensitive to the needs of society, resolving health problems with a strong humanitarian approach and respect for the habits, values and beliefs of other healthcare workers, patients and their families, and work as part of a health team with professionalism and ethical standards, according to the basic principles of medicine and official Health System regulations.

Student Learning Outcomes

a) Promote the health and well-being of human beings and their surroundings, emphasizing timely disease prevention.

b) Apply the best scientific evidence available in the approach to, and handling of, patients.

c) Address human health problems, integrating the relevant information to establish diagnosis, treatment and rehabilitation plans.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

MC Physician & Surgeon
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1004	Introductory Courses		30

First Semester

Code	Description	Training Units	CA
EG1001	Elective Course Mathematics and Science		3
SD1001	Musculoskeletal System		1
SD1001B	Health Basics		3
SD1002	Digestive System		1
SD1002B	Metabolism and Energy		3
SD1003	Oxygen Supply and Consumption		1
SD1003B	Cellular and Molecular Mechanisms		3
SD1004	Energy Management		1
SD1005	Human Genetics		1
SD1006	Endocrine System		1

Second Semester

Code	Description	Training Units	CA
EG1002	Elective Course Humanities and Fine Arts		3
SD1004B	Life Cycle: Fertilization and Pregnancy		3
SD1005B	Life Cycle: Childhood and Adolescence		3
SD1006B	Life Cycle: Adulthood		3
SD1007	Embryology		1
SD1008	Human Reproduction		1
SD1009	Growth and Development		1
SD1010	Emotional and Behavioral Development		1
SD1011	Renal Morphophysiology		1
SD1012	Nervous System		1

Third Semester

Code	Description	Training Units	CA
EG1003	Elective Course Social and Behavioral Sciences		3
SD1007B	Healthy Environments for the Elderly		3
SD1008B	Innovation in Public Health		3
SD1013	Management and Innovation in Health		1
SD1014	Research Methods		1
SD1015	Human Microbiota		1
SD1016	Public Health and Biostatistics		1
SD1017	Blood and Hematopoiesis		1
SD1018	Introduction to Clinical Practice		1
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
MB2001B	Basic Histopathology		4
MB2002B	Immunobiology		4
MB2003B	Heritage and Development		4
MB2059	Normal and Pathological Microstructure		1
MB2060	Pathogenic Microbiota		1
MB2061	Medical Genetics		1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
MB2004B	Bases of the Nervous and Endocrine System		4
MB2005B	Pharmacotherapy		4
MB2006B	Physical Examination		4
MB2062	Endocrine and Neural Ecosystem		1
MB2063	Bioactive Molecules and Therapeutic Principles		1
MB2064	Physiopathological Processes		1

Sixth Semester

		Training Units	CA
Code	**Description**		
MB2007B	Immune Disorders		4
MB2008B	Digestive Disorders		4
MB2065	Immune and Hematological Disorders' Pathophysiology		1
MB2066	Body Systems' Pathology		1
MB2067	Digestive System's Pathophysiology		1
MB2068	Body Systems' Pharmacology		1
MB2069	Infectious Disease Pathophysiology		1
MB2070	Antimicrobials' Pharmacology		1
SD2001B	Multidisciplinary Model of Health Care		4

Seventh Semester

		Training Units	CA
Code	**Description**		
MB2009B	Cardiovascular Disorders		4
MB2010B	Respiratory Diseases		4
MB2011B	Kidney Disorders		4
MB2071	Pathophysiology of the Cardiovascular System		1
MB2072	Pathology of the Vital Processes		1
MB2073	Pathophysiology of the Respiratory System		1
MB2074	Pharmacology of Vital Processes		1
MB2075	Pathophysiology of the Renal System		1
MB2076	Legal and Prehospital Medicine		1

Eight Semester

	Training Units	CA
Code	**Description**	
MB2012B	Endocrine and Metabolic Disorders	4
MB2013B	Neurological Disorders	4
MB2014B	Innovation in Primary Care	4
MB2077	Endocrine Pathophysiology	1
MB2078	Pathology of Biocontrol and Reproduction Systems	1
MB2079	Nervous System Pathophysiology	1
MB2080	Pharmacology of Biocontrol and Reproduction Systems	1
MB2081	Pathophysiology of Reproduction and Pregnancy	1
MB2082	Family Medicine	1

First Trimester

	Training Units	
Code	**Description**	**CA**
MC3001B	Gynecology and Obstetrics Clinic	8
MC3134	Urology and Surgical Oncology	1
MC3135	Obstetrics and Gynecology	2

Second Trimester

	Training Units	
Code	**Description**	**CA**
MC3002B	Pediatrics Clinic	8
MC3136	Infectology and Dermatology	1
MC3137	Pediatrics	2

Third Trimester

	Training Units	
Code	**Description**	**CA**
MC3003B	Internal Medicine Clinic	8
MC3138	Cardiology and Metabolic Diseases	1
MC3139	Internal Medicine	2

Fourth Trimester

	Training Units	
Code	**Description**	**CA**
MC3004B	Surgery Clinic	8
MC3140	Ophthalmology and Otorhinolaryngology	1
MC3141	Surgery	2

Fifth Trimester

	Training Units	
Code	**Description**	**CA**
MC3005B	Traumatology, Orthopedics and Rehabilitation Clinic	2.7
MC3006B	Emergency and Radiology Clinic	2.7
MC3142	Traumatology, Orthopedics and Rehabilitation	1
MC3143	Emergency and Radiology	1
MC3147	Legal Issues of Medical Practice	1
SD3001	Bioetics	1
SD3001B	Multidisciplinary Healthcare	1.8
SD3002	Quality Healthcare and Patient Safety	1

Sixth Trimester

	Training Units	
Code	**Description**	**CA**
MC3007B	Neurology and Neurosurgery Clinic	2.7
MC3008B	Geriatrics and Palliative Care Clinic	2.7
MC3009B	Psychiatry Clinic	2.7
MC3144	Neurology and Neurosurgery	1
MC3145	Geriatrics and Palliative Care	1
MC3146	Psychiatry	1

Seventh Trimester

	Training Units	
Code	**Description**	**CA**
OP3002B	Clinical Elective I	2.7
OP3003B	Clinical Elective II	2.7
OP3004B	Clinical Elective III	2.7
OP3057	Professional Elective I	1
OP3058	Professional Elective II	1
OP3060	Professional Elective III	1

Eight Trimester

	Training Units	
Code	**Description**	**CA**
OP3005B	Clinic in Elective Specialty I	2.7
OP3006B	Clinic in Elective SpecialtyII	2.7
OP3007B	Clinic in Elective Specialty III	2.7
OP3067	Elective Specialty I	1
OP3068	Elective Specialty II	1
OP3069	Elective Specialty III	1

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

MO Medical and Surgical Dentist

Program and Learning Outcomes

Professionals with a broad and solid knowledge of health sciences, and the skills and abilities to diagnose, prevent and treat patients with oral problems and diseases, through the use of innovative techniques and procedures and an interdisciplinary approach, in order to help preserve the integral well-being of human beings.

Student Learning Outcomes

a) Promote oral health in individuals and the community, through innovative strategies for the prevention of oral problems.

b) Apply evidence-based medical knowledge of oral health and dentistry in analyzing, diagnosing and comprehensively managing dentistry patients.

c) Perform dental treatments and oral rehabilitation for healthy patients with special needs, through a patient-centered care model.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

MO Medical and Surgical Dentist
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1004	Introductory Courses		30

First Semester

		Training Units	CA
Code	**Description**		
EG1001	Elective Course Mathematics and Science		3
SD1001	Musculoskeletal System		1
SD1001B	Health Basics		3
SD1002	Digestive System		1
SD1002B	Metabolism and Energy		3
SD1003	Oxygen Supply and Consumption		1
SD1003B	Cellular and Molecular Mechanisms		3
SD1004	Energy Management		1
SD1005	Human Genetics		1
SD1006	Endocrine System		1

Second Semester

		Training Units	CA
Code	**Description**		
EG1002	Elective Course Humanities and Fine Arts		3
SD1004B	Life Cycle: Fertilization and Pregnancy		3
SD1005B	Life Cycle: Childhood and Adolescence		3
SD1006B	Life Cycle: Adulthood		3
SD1007	Embryology		1
SD1008	Human Reproduction		1
SD1009	Growth and Development		1
SD1010	Emotional and Behavioral Development		1
SD1011	Renal Morphophysiology		1
SD1012	Nervous System		1

Third Semester

		Training Units	CA
Code	**Description**		
EG1003	Elective Course Social and Behavioral Sciences		3
SD1007B	Healthy Environments for the Elderly		3
SD1008B	Innovation in Public Health		3
SD1013	Management and Innovation in Health		1
SD1014	Research Methods		1
SD1015	Human Microbiota		1
SD1016	Public Health and Biostatistics		1
SD1017	Blood and Hematopoiesis		1
SD1018	Introduction to Clinical Practice		1
VA1001B	Exploration Topic		3

Fourth Semester

		Training Units	CA
Code	**Description**		
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
OD2001B	Mastication Physiology		4
OD2002B	Pathophysiology of Dental Caries and Periodontal Structures		4
OD2003B	Propaedeutics Dentistry		4
OD2016	Dental Morphology		1
OD2017	Oral Histology and Embryology		1
OD2018	Clinical and Histological Foundations of Oral Pathology		1

Fifth Semester

		Training Units	CA
Code	**Description**		
EG1005	Elective Course Ethics and Citizenship		3
OD2004B	Adhesion Protocol		4
OD2005B	Anesthetic Procedures in Dentistry		4
OD2006B	Surgical Basics in Dentistry		4
OD2019	Operative Dentistry		1
OD2020	Dental Pharmacology		1
OD2021	Diagnosis in Dentistry		1

Sixth Semester

		Training Units	CA
Code	**Description**		
OD2007B	Endodontic and Restorative Therapy		4
OD2008B	Tooth Preservation Treatments		4
OD2022	Pulp Therapy		1
OD2023	Restorative Dentistry		1
OD2024	Oral and Maxillofacial Pathology		1
OD2025	Periodontics		1
OD2026	Introduction to Exodontics		1
OD2027	Oral Microbiology		1
SD2001B	Multidisciplinary Model of Health Care		4

Seventh Semester

		Training Units	CA
Code	**Description**		
OD2009B	Surgery and Prosthetic Treatments in Dentistry		4
OD2010B	Prosthetic Options in Dentistry		4
OD2011B	Prosthetic Rehabilitation of Dental Patients		4
OD2028	Oral Surgery		1
OD2029	Fixed Partial Denture Prosthesis		1
OD2030	Maxillofacial Surgery		1
OD2031	Removable Partial Denture Prosthesis		1
OD2032	Medicine in Dentistry		1
OD2033	Odontogenic Infections		1

Eight Semester

Code	Description	Training Units CA
OD2012B	Aesthetic Procedures in Dentistry	4
OD2013B	Dental Care through the Life Cycle	4
OD2014B	Orthodontics and Orthopedics	4
OD2034	Oral Surgical Implantology	1
OD2035	Dental Aesthetics	1
OD2036	Prosthetic Implantology	1
OD2037	Pediatric Dentistry	1
OD2038	Advanced Implantology	1
OD2039	Malocclusion Orthodontic Treatment	1

First Trimester

Code	Description	Training Units CA
OD3001B	Dentistry Clinic I	3.6
OD3035	Legal and Administrative Processes in Dentistry	2
OD3036	Forensic Dentistry	2
SD3001	Bioetics	1
SD3001B	Multidisciplinary Healthcare	1.8
SD3002	Quality Healthcare and Patient Safety	1

Second Trimester

Code	Description	Training Units CA
OP3010B	Clinical Elective I	2
OP3011B	Clinical Elective II	2
OP3012B	Clinical Elective III	2
OP3057	Professional Elective I	1
OP3058	Professional Elective II	1
OP3060	Professional Elective III	1

Third Trimester

Code	Description	Training Units CA
OD3002B	Dentistry Clinic II	5.3
OD3037	Evidence-based Dentistry	3
OD3038	Dental Information Analysis	3

Fourth Trimester

Code	Description	Training Units CA
OD3003B	Dentistry Clinic III	5.3
OD3039	Advanced Dentistry Seminar	3
OD3040	Clinical Research in Dentistry	3

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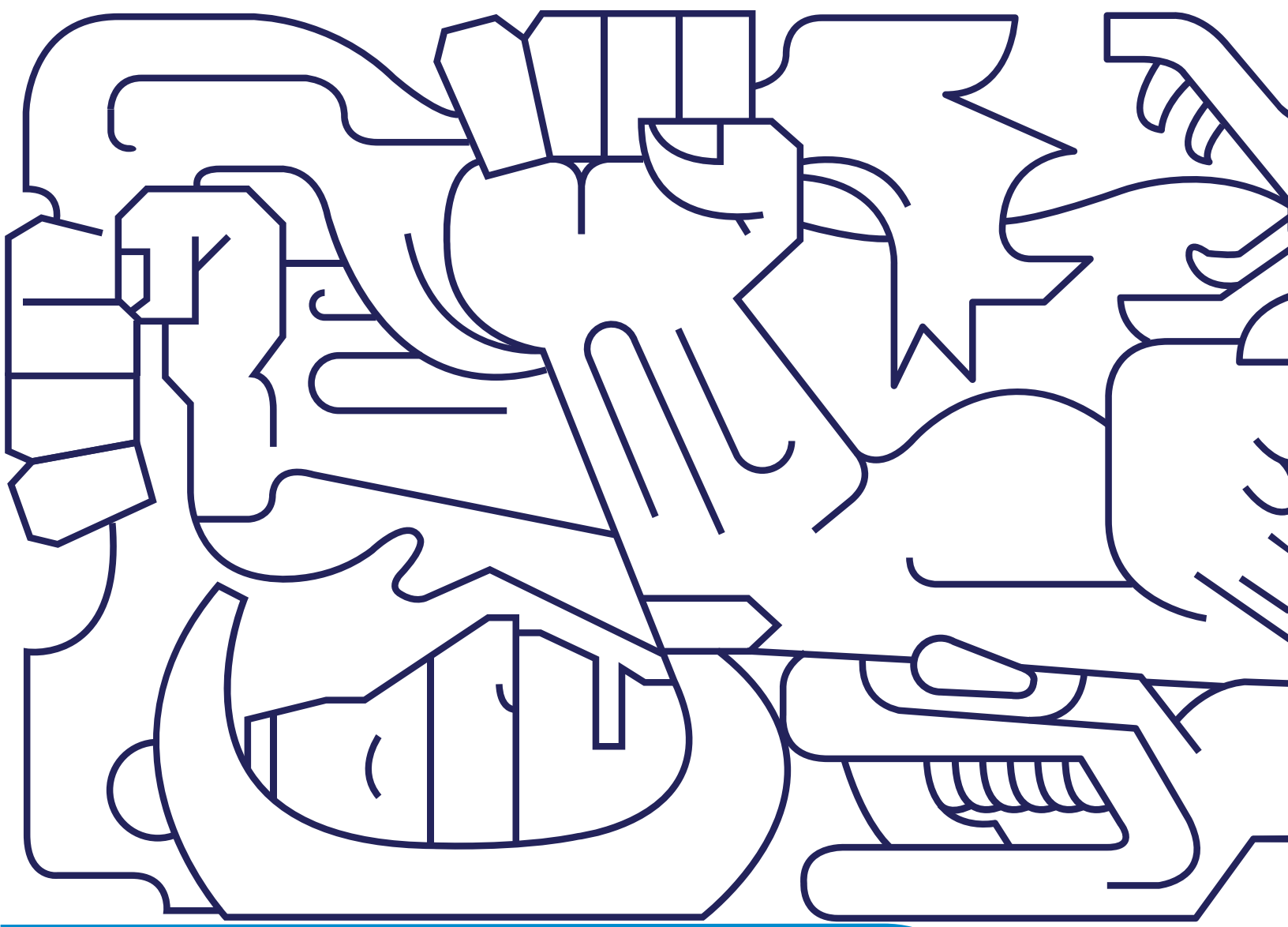
Class-hours take place in 50 minutes sessions each one.



School of Business

NEG Business / Exploration

Program and Learning Outcomes

Business is an exploration program that encompasses the first three semesters. At the end of this entry, the student may choose to continue in the following programs:

LAET – B.A. Business Administration

LAF – B.A. Financial Management

LCPF – B.A. Finance and Accounting

LDE – B.A. Entrepreneurship

LDO – B.A. Human Resource Management

LEM – B.A. Marketing LET

LIN – B.A. International Business

LIT – B.S. Business Intelligence

Student Learning Outcomes

a) Employs the principles of responsible management, considering the different interest groups and communicating an inspiring future for the business.

b) Distinguishes the human and administrative processes related to talent management that maximize the capabilities of collaborators in diverse and dynamic environments.

c) Proposes improvements and changes through innovation methodologies of business models, products, services and processes; contributing to the generation of economic, social and environmental value in organizations.

d) Critically analyzes quantitative and qualitative information that facilitates decision-making in the organization by applying mathematical reasoning, programming techniques, statistical methods and cutting-edge technological tools.

e) Formulates strategies that generate competitive advantages from an internal and external situational analysis of the organization.

f) Uses financial information in decision making that improves the profitability and financial structure of organizations.

g) Creates business opportunities through identification and satisfaction of market needs.

Admission Profile

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Academic background for admission: high school or equivalent.

NEG Business / Exploration
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1003	Introductory Courses		34

First Semester

Code	Description	Training Units	CA
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

Code	Description	Training Units	CA
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

Code	Description	Training Units	CA
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

BGB B.A. in Global Business

Program and Learning Outcomes

Professionals who are aware of the global reality and, therefore, capable of identifying and capitalizing on worldwide business opportunities, and developing innovative solutions in a multicultural context. They have the skills for effective intercultural communication, interaction and negotiation. Graduates will take on leadership roles, acting with a sense of ethics and responsibility, considering sustainable development and respect for the environment, using cutting-edge technologies in strategic international business settings, such as international marketing processes, and driving their professional development in commercial operations, in the short term, and managerial and executive development, in the medium and long term.

Student Learning Outcomes

a) Develops global business and internationalization strategies by evaluating the geopolitical situation and its operational and financial feasibility at the company, sector, industry, region, country and trade block level.

b) Designs innovative strategies for the international marketing of products and services in accordance with established international guidelines.

c) Integrates the global supply chain profitably and mitigates environmental risks.

d) Ensures legal compliance with a company's international operations by applying current national and international regulations.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

BGB B.A. in Global Business
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

		Training Units	CA
Code	**Description**		
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

		Training Units	CA
Code	**Description**		
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
NI2001B	International Business Panorama		4
NI2002B	Exportation Plan		8
NI2026	Global Business Trends & Risk Detection		1
NI2027	International Logistics Operations		2

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
NI2003B	Import Management & Compliance		8
NI2004B	International Service Development: trading intangibles		4
NI2025	Negotiation Across Cultures		2
NI2028	International Sales & Contracts		1

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
NI3001B	Development of Internationalization Strategies for the XXI Century		12
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LAE Bachelor in Strategy and Business Transformation

Program and Learning Outcomes

Professionals with a solid grounding in the area of strategic business innovation. They are competent in the efficient, effective management and leadership of private and public organizations in the knowledge era, with a systemic, ethical, humanistic approach. Graduates from this degree will flourish at the executive and managerial levels in national and international public and private institutions, innovating business models and generating strategies.

Student Learning Outcomes

a) Formulates a strategic management model based on the analysis of the environment, with a systemic approach, vision of the future and incorporating data analytics that support decision making.

b) Designs business platforms that integrate strategic resources and capabilities in the creation of value for the actors involved.

c) Proposes organizational transformation strategies in environments of volatility, uncertainty, complexity and ambiguity.

d) Promotes the achievement of a shared purpose using contemporary leadership styles and negotiation techniques.

e) Uses institutionalization and corporate governance methodologies in the structuring of processes that favor the success and validity of the company over time and during intergenerational change.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LAE Bachelor in Strategy and Business Transformation
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

		Training Units	CA
Code	**Description**		
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

		Training Units	CA
Code	**Description**		
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
AD2001B	Detection of Strategic Opportunities		4
AD2002B	Design of Flexible Organizations		4
AD2004B	Leadership for Transformation		4
AD2025	Strategic Thinking		3
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3

Fifth Semester

Code	Description	Training Units	CA
AD2005B	Assurance of Value Creation		4
AD2006B	Strategic Design to Create Value		8
AD2026	Building Interpersonal Skills		1
AD2027	Innovation and co-creation of Value		2
EG1005	Elective Course Ethics and Citizenship		3

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
AD3001B	Strategic Management of Small and Medium Enterprises		6
AD3002B	Family Business		6
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LAF B.A. in Finance

Program and Learning Outcomes

Professionals with a solid quantitative business education, who are competent in managing the financial resources of an organization, to generate value, considering current regulations and acting in an ethical, socially responsible manner. Graduates will be able to make financing, investment and risk-management decisions in financial markets, insurance, investment funds, stock markets, among other areas in public or private banking, insurance or securities institutions, Banco de México or the Mexican Ministry of Finance and Public Credit (SHCP).

Student Learning Outcomes

a) Develop investment and financing strategies that create value for stakeholders and consider current regulations.

b) Manage financial products and services, using cutting-edge technologies and complying with ethical standards.

c) Manage risk derived from investment, financing and operations, considering diverse economic scenarios and current regulations.

d) Develops financial models that adapt to the nature of the areas of opportunity in the business process and the available data, making effective use of technology.

Admission Profile

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Prerequisite for entry: high school or equivalent.

LAF B.A. in Finance

Plan 2019

Introductory Semester

	Training Units	CA
Code	**Description**	
VA1003	Introductory Courses	34

First Semester

	Training Units	CA
Code	**Description**	
AD1000B	Business Role in Society	3
AD1014	Business Leadership	1
CF1015	Financial Analysis	1
EC1017	Enterprise Economy	1
EG1001	Elective Course Mathematics and Science	3
FZ1011	Financial Decision	1
MA1027	Mathematical Thinking	1
NI1001B	Business Globalization	3
RH1001B	Strategy and Talent	3
TC1027	Business Programming	1

Second Semester

	Training Units	CA
Code	**Description**	
AD1016	Business Communication	1
CD1004	Decision Support Analysis	1
CD1005	Statistics for Business	1
CF1001B	Financial Management	3
D1029	Business Law	1
EG1002	Elective Course Humanities and Fine Arts	3
EM1001B	Creating Prototypes	3
EM1009	Business Model Innovation	1
MT1001B	Marketing Insight to Develop Strategies	3
RH1004	Talent Management Process	1

Third Semester

	Training Units	CA
Code	**Description**	
AD1001B	Sharing Value Creation	3
CF1016	Financial Planning Strategy	1
EG1003	Elective Course Social and Behavioral Sciences	3
EM1010	Business Innovation Project	1
FZ1012	Investment Project Evaluation	1
MT1002B	Market Solutions	3
MT1011	Market Strategies and Differentiation	1
NI1004	International Competitiveness and Business Opportunities	1
RH1005	Culture, Organization and Human Talent	1
VA1001B	Exploration Topic	3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
FZ2001B	Investment Analysis		4
FZ2002B	Financial Culture		4
FZ2004B	Treasury Management		4
FZ2019	Econometric Models		1
FZ2020	Time Series		1
FZ2021	Investment Theory		1

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
FZ2005B	Financing Analysis		4
FZ2008B	Firms Valuation		4
FZ2009B	Investment Vehicles and Coverage		4
FZ2022	Algorithm Analysis		1
FZ2023	Derivative Instruments		1
FZ2024	Financial Modeling and Programming		1

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
FZ3001B	International Financial Management		6
FZ3002B	Investment Fund Management		6
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LCPF B.A. in Finance & Accounting

Program and Learning Outcomes

Professionals who are capable of controlling management, evaluating value creation and identifying opportunities for organizational growth and enhancement. They are financial information experts, with a strong grounding in finance and the capacity to assess and form an opinion on the quality and reliability of financial-fiscal information generated by organizations, in accordance with international financial, fiscal and auditing standards. Graduates will be able to work in areas for planning, implementing and improving the different systems that maximize companies' profit; participate in forecasting activities through financial figures; and optimize sources of finance and investment opportunities, and risk management and coverage. They can serve as accounting, financial, administrative and fiscal advisors in their own firm.

Student Learning Outcomes

a) Contribute to business decision making by generating, analyzing and interpreting financial and administrative information, in accordance with national and international legislation and the principles of the Professional Code of Ethics.

b) Measure the value creation of strategic and operating decisions, using financial and non-financial criteria.

c) Design the structure of the financial reporting process using technology and artificial intelligence applications.

d) Appraise goods, services, projects, assets and companies objectively and reasonably (fair value), using state-of-the-art methodologies and complying with the Professional Code of Ethics.

e) Contribute to value generation by fulfilling the organization's corporate responsibility regarding taxation, accounting, operating risk management and corporate governance, in accordance with the applicable regulations and best practices.

Admission Profile

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Prerequisite for entry: high school or equivalent.

LCPF B.A. in Finance & Accounting
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

		Training Units	CA
Code	**Description**		
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

		Training Units	CA
Code	**Description**		
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

	Training Units	CA
Code	**Description**	
CF2001B	Financial Diagnosis	4
CF2002B	Financial Integration of Business Processes	4
CF2022	Fiscal Compliance	1
CF2023	Costo Optimization	1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation	3
FZ2003B	Strategic Business Decisions	4
TI2016	Information structures	1

Fifth Semester

	Training Units	CA
Code	**Description**	
CF2003B	Accounting Architecture Development	4
CF2024	Financial Strategy Design	1
CF2025	Valuation and Presentation of Financing	1
CF2026	Valuation and Presentation of Investments	1
EG1005	Elective Course Ethics and Citizenship	3
FZ2006B	Financial Statement Analysis	4
FZ2007B	Creating Value in Business	4

Sixth Semester

	Training Units	CA
Code	**Description**	
OP3091	Professional Elective I	3
OP3092	Professional Elective II	3
OP3093	Professional Elective III	3
OP3094	Professional Elective IV	3
OP3095	Professional Elective V	3
OP3096	Professional Elective VI	3

Seventh Semester

	Training Units	CA
Code	**Description**	
CF3001B	Professional Critical Judgment	15
CF3024	Assurance and Public Interest	1
CF3026	Tax Cycle and Companies	1
CF3027	Consolidation of Financial Information	1

Eight Semester

	Training Units	CA
Code	**Description**	
CF3002B	Financial Management and Controllership	12
OP3001B	Elective Multidisciplinary Professional	6

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LDE B.A. in Entrepreneurship

Program and Learning Outcomes

Professionals with a global vision, enabling them to identify opportunities, assess risk and take on challenges, to promote and generate innovation-based companies. Graduates have the necessary knowledge, attitudes and competencies to create and develop companies, constantly seeking to generate greater economic and social value. They lead and participate in multidisciplinary teams in the context of their own businesses, other businesses, and social and public institutions, seeking to learn and generate knowledge and competitive advantages. They play an active role in social responsibility and sustainability in their environment.

Student Learning Outcomes

a) Develop high-potential entrepreneurial initiatives through a formal, systemic innovation process.

b) Implement technology-based business solutions that generate economic, social and environmental value.

c) Obtain appropriate financial resources for a company's lifecycle.

d) Configure the creation of a new business initiative in the family-business context, through formal innovation processes.

e) Incorporate human resources consistently with the needs of an entrepreneurial project.

f) Communicate their entrepreneurial project effectively to diverse stakeholders.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LDE B.A. in Entrepreneurship
Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1003	Introductory Courses		34

First Semester

Code	Description	Training Units	CA
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

Code	Description	Training Units	CA
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

Code	Description	Training Units	CA
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
EM2001B	Opportunity and Solution		4
EM2002B	Evaluation and Communication of Opportunities		4
EM2003B	High Impact Exploration		4
EM2013	Innovation Value Chain		1
EM2014	Entrepreneurial Leadership		1
EM2015	Corporate Entrepreneurship Opportunities		1

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
EM2004B	Prototype Design		4
EM2005B	Design of High Impact Solutions		4
EM2006B	Generation and Validation of Prototypes		4
EM2016	Innovation Methodologies		1
EM2017	Technological Innovation Methodologies		1
EM2018	Prototyping Techniques		1

Sixth Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Eight Semester

Code	Description	Training Units	CA
EM3001B	Scalability		6
EM3002B	Persuasion and Sales		6
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LDO B.A. in Human Resource Management

Program and Learning Outcomes

Professionals who have the capacity to generate business strategies based on human resources; design, with a strategic vision, organizational projects that will generate value for the company through people's talent; face up to a changing environment, creating more human, fairer, healthier and more sustainable work environments; and manage cultural and generational diversity in organizations. Graduates participate nationally and internationally at the executive and managerial levels in mentoring or coaching, in public and private settings, establishing talent and organizational culture management strategies, and to promote organizational learning and positive labor relations.

Student Learning Outcomes

a) Optimizes the versatility of the processes of attraction, hiring, assignment, compensation, development and administration of human talent aligned with the organization's strategy in terms of talent decisions, in accordance with labor and tax regulations.

b) Designs work experiences that contribute to increasing the fulfillment and well-being of people, balancing business objectives with personal ones.

c) Designs human talent strategies using various quantitative and qualitative methodologies for evidence-based decision making.

d) Implement strategies for learning and reinventing the organization using strategic organizational design and development methodologies that generate value from talent.

e) Creates innovative, flexible and human organizational cultures, generating collective leadership and enhancing the organization's strategy according to the national and international context.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LDO B.A. in Human Resource Management

Plan 2019

Introductory Semester

Code	Description	Training Units	CA
VA1003	Introductory Courses		34

First Semester

Code	Description	Training Units	CA
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

Code	Description	Training Units	CA
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

Code	Description	Training Units	CA
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
RH2001B	Strategies to Enhance Human Talent		4
RH2002B	Human Capital Planning		4
RH2003B	Strategic Assessment of Work		4
RH2012	Attraction and Development of Human Talent in Digital Environment		1
RH2013	Performance and Retribution in Global Contexts		1
TI2015	People Analytics		1

Fifth Semester

Code	Description	Training Units	CA
AD2028	Social Responsibility and Human Talent		1
EG1005	Elective Course Ethics and Citizenship		3
RH2004B	Understanding the Work Environment		4
RH2005B	Value Creation Talent		4
RH2006B	Design of Full Work Experiences		4
RH2014	Practicing Positive Leadership		1
RH2015	Organizational Learning		1

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
OP3001B	Elective Multidisciplinary Professional		6
RH3001B	Strategic Talent Leadership		6
RH3002B	Potentiation of Organizational Cultures		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LEM B.A. in Marketing

Program and Learning Outcomes

Professionals with the capacity to identify and analyze consumer needs in order to develop national and international commercial strategies, in an honest, ethical manner and in compliance with human rights, committing to the sustainable development of products and services within their community. Graduates participate in national or international public and private settings in market intelligence and information systems, advertising, product development, strategic sales and strategic planning, among other areas.

Student Learning Outcomes

a) Generate market intelligence using advanced investigation techniques to enable organizational decision making.

b) Design innovative marketing strategies that are cost-effective for organizations and sustainable for society.

c) Develop multi-platform marketing plans that will build brand value for organizations and consumers.

d) Design performance control strategies for marketing plans that will guarantee their effectiveness through sustainable metrics that are aligned with the organization's vision.

e) Develop internal marketing plans that foster the development of a consumer-centric vision.

Admission Profile

Tecnológico de Monterrey seeks to incorporate into all its undergraduate degrees a new generation of students who have completed high school and stand out for being talented, enthusiastic individuals, committed to their environment and the wellbeing of society. They have the potential to complete their undergraduate program successfully and become internationally competitive leaders with an entrepreneurial spirit and a humanistic outlook.

Prerequisite for entry: high school or equivalent.

LEM B.A. in Marketing
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

		Training Units	CA
Code	**Description**		
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

		Training Units	CA
Code	**Description**		
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
MT2001B	Consumer Intelligence for Insights Generation		4
MT2002B	Exploratory Market Intelligence		4
MT2003B	Segmentation and Positioning of Value Strategies		4
MT2027	Competitive Market Definition		1
MT2028	Design of Marketing Metrics		1
MT2029	Holistic View of the Consumer		1

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
MT2004B	Development Brands		4
MT2005B	Design of Omnichannel Experiences		4
MT2006B	Sustainable Management of Marketing Projects		4
MT2030	Design of Internal Marketing Strategies		1
MT2031	Price Optimization and Supply Chain		2

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
MT3001B	Marketing Leadership I		6
MT3002B	Marketing Leadership II		6
OP3001B	Elective Multidisciplinary Professional		6

CA The letters "CA" represents the number of semester credit hour of the course.
One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LIN B.A. in International Business

Program and Learning Outcomes

Professionals who are aware of the global reality and, therefore, capable of identifying and capitalizing on worldwide business opportunities, and developing innovative solutions in a multicultural context. They have the skills for effective intercultural communication, interaction and negotiation. Graduates will take on leadership roles, acting with a sense of ethics and responsibility, considering sustainable development and respect for the environment, using cutting-edge technologies in strategic international business settings, such as international marketing processes, and driving their professional development in commercial operations, in the short term, and managerial and executive development, in the medium and long term.

Student Learning Outcomes

a) Develops global business and internationalization strategies by evaluating the geopolitical situation and its operational and financial feasibility at the company, sector, industry, region, country and trade block level.

b) Designs innovative strategies for the international marketing of products and services in accordance with established international guidelines.

c) Integrates the global supply chain profitably and mitigates environmental risks.

d) Ensures legal compliance with a company's international operations by applying current national and international regulations.

Admission Profile

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Prerequisite for entry: high school or equivalent.

LIN B.A. in International Business
Plan 2019

Introductory Semester

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

		Training Units	CA
Code	**Description**		
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

		Training Units	CA
Code	**Description**		
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
NI2001B	International Business Panorama		4
NI2002B	Exportation Plan		8
NI2026	Global Business Trends & Risk Detection		1
NI2027	International Logistics Operations		2

Fifth Semester

Code	Description	Training Units	CA
EG1005	Elective Course Ethics and Citizenship		3
NI2003B	Import Management & Compliance		8
NI2004B	International Service Development: trading intangibles		4
NI2025	Negotiation Across Cultures		2
NI2028	International Sales & Contracts		1

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
NI3001B	Development of Internationalization Strategies for the XXI Century		12
OP3001B	Elective Multidisciplinary Professional		6

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One academic credit implies 750 minutes of instruction in sessions of class-hour and, at least, 1500 minutes of independent work.
Class-hours take place in 50 minutes sessions each one.

LIT B.S. in Business Intelligence

Program and Learning Outcomes

Professionals with a solid grounding in statistics and information technologies, as well as the analytical capacity to translate business into a quantitative structure for rapid, efficient decision making. They will be able to act in a rapidly changing world and transform organizations, taking processes and infrastructure into consideration, and visualize the strategic course of companies, using data to detect opportunities, propose solutions and establish business models. Graduates from this degree will flourish at the executive and managerial levels in national and international public and private institutions.

Student Learning Outcomes

a) Develops interactive digital dashboards, following the best practices of descriptive analytics.

b) Creates deterministic and stochastic models using predictive analytics techniques.

c) Generates proposals for strategic actions for organizations, based on findings obtained from descriptive and predictive analysis.

d) Manages business analytics technology platforms according to the organization's strategy.

Admission Profile

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Prerequisite for entry: high school or equivalent.

LIT B.S. in Business Intelligence
Plan 2019

Semestre de Introducción

		Training Units	CA
Code	**Description**		
VA1003	Introductory Courses		34

First Semester

		Training Units	CA
Code	**Description**		
AD1000B	Business Role in Society		3
AD1014	Business Leadership		1
CF1015	Financial Analysis		1
EC1017	Enterprise Economy		1
EG1001	Elective Course Mathematics and Science		3
FZ1011	Financial Decision		1
MA1027	Mathematical Thinking		1
NI1001B	Business Globalization		3
RH1001B	Strategy and Talent		3
TC1027	Business Programming		1

Second Semester

		Training Units	CA
Code	**Description**		
AD1016	Business Communication		1
CD1004	Decision Support Analysis		1
CD1005	Statistics for Business		1
CF1001B	Financial Management		3
D1029	Business Law		1
EG1002	Elective Course Humanities and Fine Arts		3
EM1001B	Creating Prototypes		3
EM1009	Business Model Innovation		1
MT1001B	Marketing Insight to Develop Strategies		3
RH1004	Talent Management Process		1

Third Semester

		Training Units	CA
Code	**Description**		
AD1001B	Sharing Value Creation		3
CF1016	Financial Planning Strategy		1
EG1003	Elective Course Social and Behavioral Sciences		3
EM1010	Business Innovation Project		1
FZ1012	Investment Project Evaluation		1
MT1002B	Market Solutions		3
MT1011	Market Strategies and Differentiation		1
NI1004	International Competitiveness and Business Opportunities		1
RH1005	Culture, Organization and Human Talent		1
VA1001B	Exploration Topic		3

Fourth Semester

Code	Description	Training Units	CA
AD2003B	Indicators and Risks with Strategic Vision		8
CD2001B	Lines of Action Diagnosis		4
CD2008	Business Analytics		1
CD2009	Data Manipulation		1
EG1004	Elective Course Leadership, Entrepreneurship and Innovation		3
TI2017	Data Integration to Analytics		1

Fifth Semester

Code	Description	Training Units	CA
AD2007B	Strategic Lines of Action		4
CD2010	Introduction to Econometrics		1
CD2011	Data Mining		2
EG1005	Elective Course Ethics and Citizenship		3
TC2003B	Project Management of Analytical Platforms		4
TI2001B	Business Analytics Platforms for Organizations		4

Sixth Semester

Code	Description	Training Units	CA
OP3091	Professional Elective I		3
OP3092	Professional Elective II		3
OP3093	Professional Elective III		3
OP3094	Professional Elective IV		3
OP3095	Professional Elective V		3
OP3096	Professional Elective VI		3

Seventh Semester

Code	Description	Training Units	CA
VA3111	Elective I		3
VA3112	Elective II		3
VA3113	Elective III		3
VA3114	Elective IV		3
VA3115	Elective V		3
VA3116	Elective VI		3

Eight Semester

Code	Description	Training Units	CA
AD3003B	Strategic Planning Based on Prescriptive Analytics		12
OP3001B	Elective Multidisciplinary Professional		6

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Class-hours take place in 50 minutes sessions each one.

Course Content by Academic Discipline

The description of the courses for all the undergraduate programs offers at Tecnologico de Monterrey is available in the Academic Vice-Rectory official web site. : http://sitios.itesm.mx/va/planes_de_estudio/2_1EN.htm

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