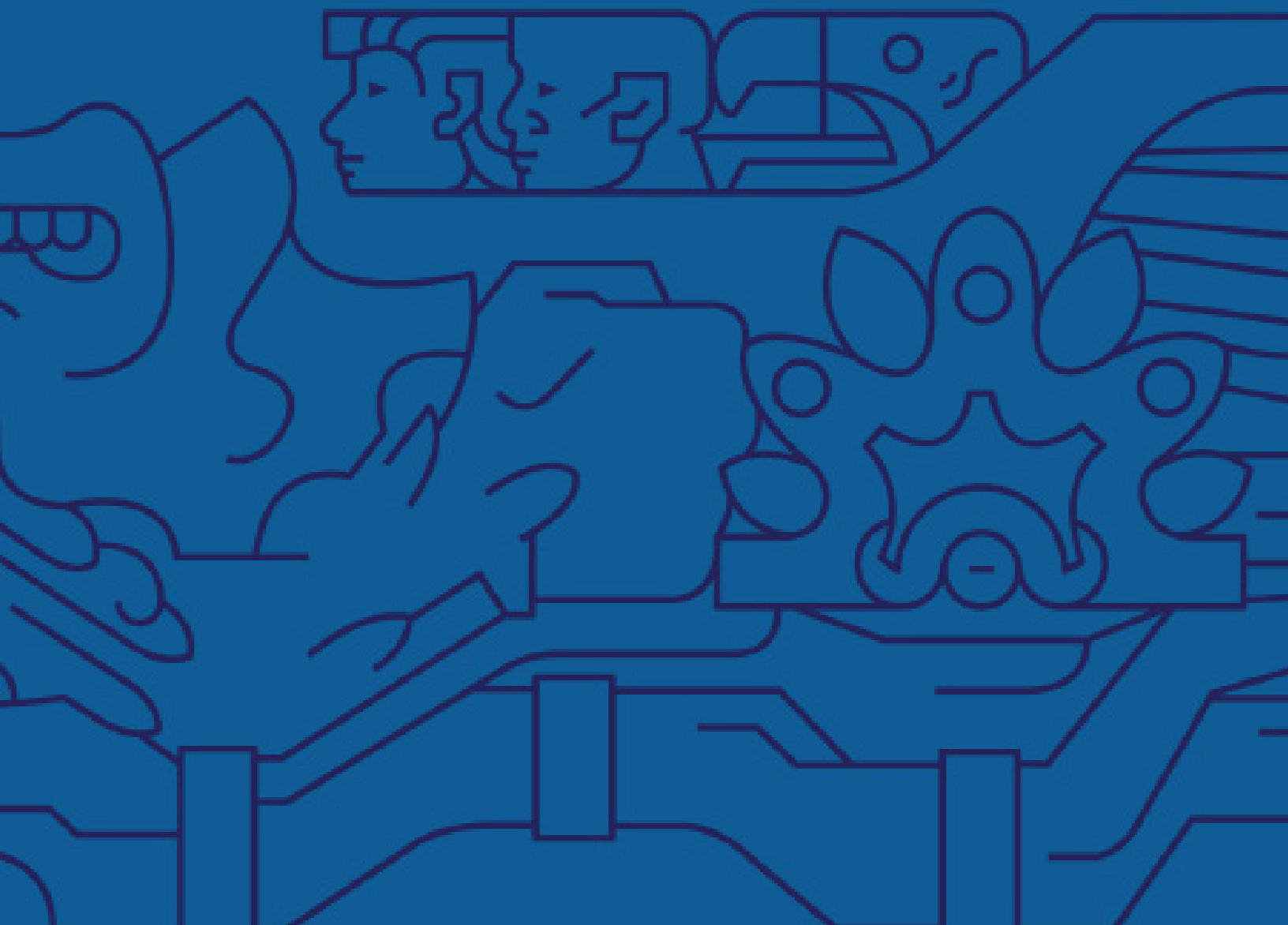
Graduate Programs Catalogue

TECNOLÓGICO
DE MONTERREY



GRADUATE PROGRAMS CATALOGUE

INSTITUTO TECNOLÓGICO Y DE ESTUDIOS SUPERIORES DE MONTERREY

Date of promulgation: August 2016
Modification: 2013, 2014, 2015, 2017, 2018, 2019, 2020, 2021, 2022.

Publication by the Academic Vice-Rectory.
The photos included in this document were obtained from the archives of Tecnológico de Monterrey.

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.

TABLE OF CONTENTS

Course content by academic discipline

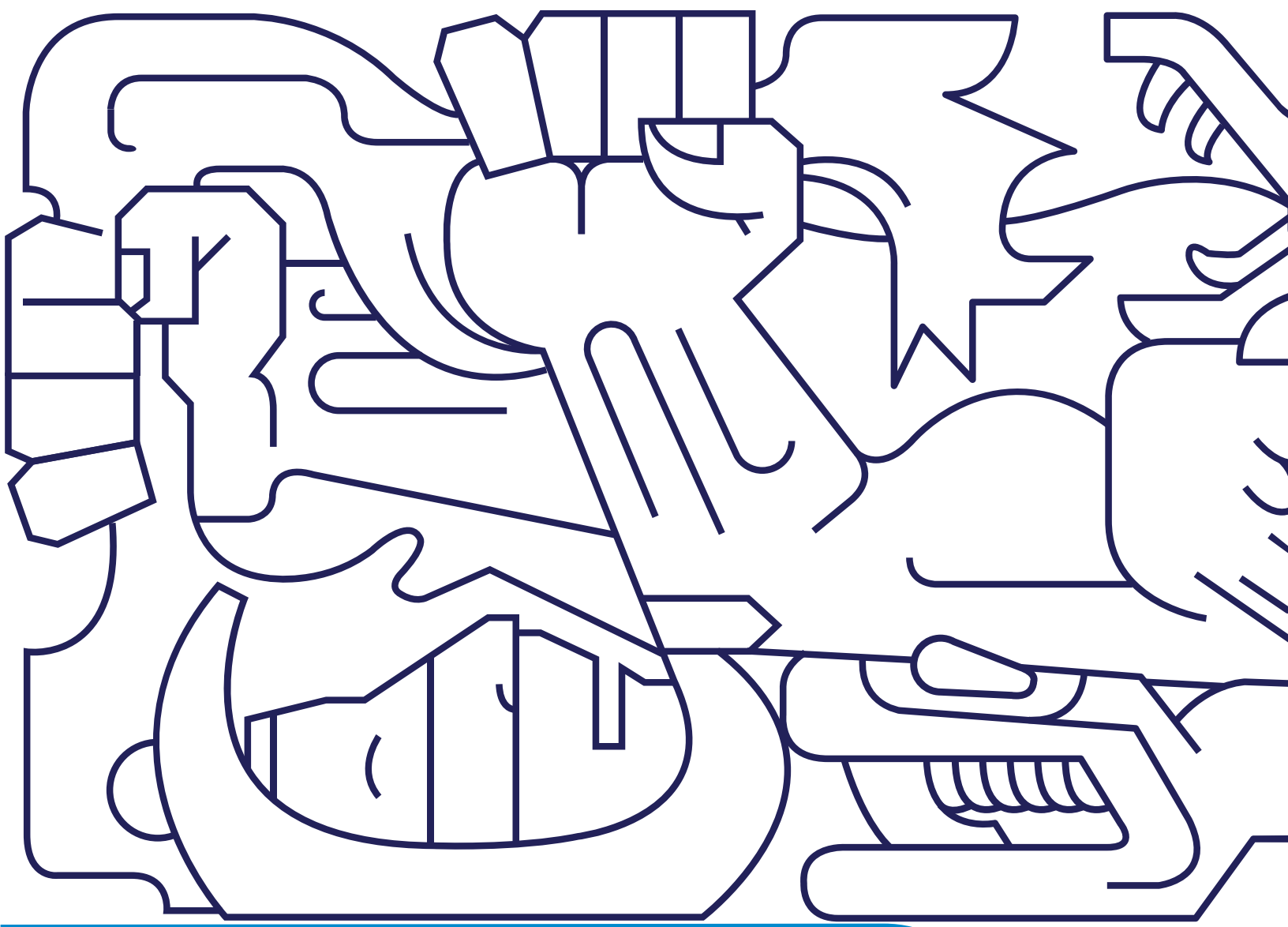
The description of the courses for all the undergraduate programs offers at Tecnologico de Monterrey is available in the Academic Vice-Rectory official web site: http://sitios.itesm.mx/va/planes_de_estudio/3_3EN.htm

INTRODUCTION

This document describes the wide range of educational offerings offered by Tecnológico de Monterrey at the graduate 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 2022



I. EL TECNOLÓGICO DE MONTERREY

I. EL 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 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 80 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 Monterrey 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 responsibility 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.

Educational Model

The graduate educational model of Tecnológico de Monterrey is a comprehensive proposal aimed at impacting education through the training of professional and scientific talent. This approach focuses on key aspects such as leadership, innovation, and entrepreneurship, and it is designed to provide specialized education after completing a bachelor's degree. The primary objectives of the graduate programs are updating knowledge, expanding understanding, and generating new insights, which translates into a significant influence at both individual and institutional levels.

This educational model is based on various reflections and conclusions resulting from collaborative workshops and diagnostics that identified areas of opportunity in both academic and administrative processes. The graduate programs are structured according to clearly defined educational levels: specialty, master's, and doctoral degrees, which align with the official education regulations in Mexico. This establishes a formative proposal that not only characterizes the institution but also distinguishes it from other educational models.

Regarding delivery modalities, Tecnológico de Monterrey offers its graduate programs in various formats. The in-person modality requires a synchronous interaction of time and space between students and instructors, while the online modality uses technological tools and digital environments, necessitating a high degree of self-direction from students.

The graduate model is based on four pillars: cutting-edge options, impactful experience, a community of leaders, and transcendent learning. These pillars allow the educational offerings to be stratified according to different orientations, covering programs that range from professional impact and executive training to scientific research and medical specialties. Additionally, it is complemented by Alternative Credentials that certify specific skills and competencies.

Finally, updating the programs is a priority within the educational model. Criteria and quality standards are established to govern the opening and closing of programs, ensuring that the offerings continue to innovate and meet the demands of the audiences they serve. The effectiveness of these programs is evaluated annually to guarantee they comply with the established standards and remain relevant in a constantly changing educational environment.

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:

- Contact the program director
- Register and complete the online application form
- Schedule and take the Graduate Admission Test (PAEP)
- Complete the admission file
- Once admitted, confirm enrollment

For further details on the graduate 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 9 to 12 academic 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. They fail one or more courses from the curriculum of the specialization in which they are enrolled (or 16% or more of the total work required by the curriculum), or fail two or more courses from the curriculum of the master's degree, medical residency or doctorate in which they are enrolled.

2. Obtain final grades lower than seventy-five in two or more classes (or the equivalent) in the specialization curriculum in which they are enrolled (or in 32% or more of the total work required by the curriculum), or in three or more classes in the case of master's, medical residency or doctoral programs.

Graduation

In order to obtain a specialization diploma, master's degree, medical residency or doctoral degree at Tecnológico de Monterrey, students must have:

1. Fulfilled, in accordance with the regulations in effect, the preliminary academic requirements for the corresponding curriculum, by means of the relevant placement tests, proficiency exams or remedial courses.
2. Obtained a bachelor's degree – preceded by a high school diploma or the equivalent – that is equivalent to those offered by Tecnológico de Monterrey.
3. Completed all the courses of the curriculum in question, either by passing all the courses at Tecnológico de Monterrey, or obtaining revalidation or equivalency agreements – consistent with the corresponding regulations – for the courses studied at other institutions, and passing the remaining courses at Tecnológico de Monterrey. Courses studied at foreign universities with which an agreement has been signed will be considered, for the purposes of this article, as having been studied at Tecnológico de Monterrey, as long as they do not exceed a specific percentage of the curriculum stipulated for each program in particular.
4. Obtained a final grade average for all the courses included in the curriculum equal to or higher than 80. In order to calculate this average, all the courses completed corresponding to the student's curriculum will be taken into consideration. Therefore, preliminary or remedial courses and those passed by means of proficiency tests are excluded from the final grade average calculation.
5. Completed, when stipulated in the curriculum, a research project or thesis that has been presented and passed in an exit exam before an academic jury. The result of this exit exam will be recorded in the student's records by means of a certificate signed by the corresponding academic jury.
6. Studied at Tecnológico de Monterrey at least the equivalent of the second half of the corresponding curriculum, in the case of students who have obtained revalidation or equivalency agreements for this level. This rule can be flexible in the case of graduate programs that are created in conjunction with other universities by means of an agreement.
7. Published or had accepted for publication, in the case of doctoral programs, at least one scientific product of the research project completed for the doctoral thesis. The scientific product or products are defined by each School.

Students must have fulfilled all the academic requirements for graduating from the graduate program in which they are enrolled within the time limit defined for the corresponding program. This time limit should be no more than double the duration of the program, considering a full academic load. When students exceed this time limit, a faculty committee, appointed by the Associate Academic Dean of the corresponding School, will assess, as of that time and in each subsequent academic period, students' performance, based on their academic record, progress and potential for completion, and will determine their possible continuance in the program. Students who, according to the committee's decision, cannot continue in the program will not be considered as having academic dismissal standing and can apply for admission to another program at the Institute.

General Student Rules and Regulations

Since its foundation, Tecnológico de Monterrey defined the regulations that would guide its stu-

dents 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 two types of financial aid: scholarships and tuition agreements:

- **Academic scholarship.** The aim of this scholarship is to attract academically outstanding students to study a graduate degree.
  For professionally-oriented master's programs, the maximum aid offered is 30% of tuition fees. In the case of scientific graduate degrees, financial aid covers 100% of tuition, and is known as an Academic Talent Scholarship.

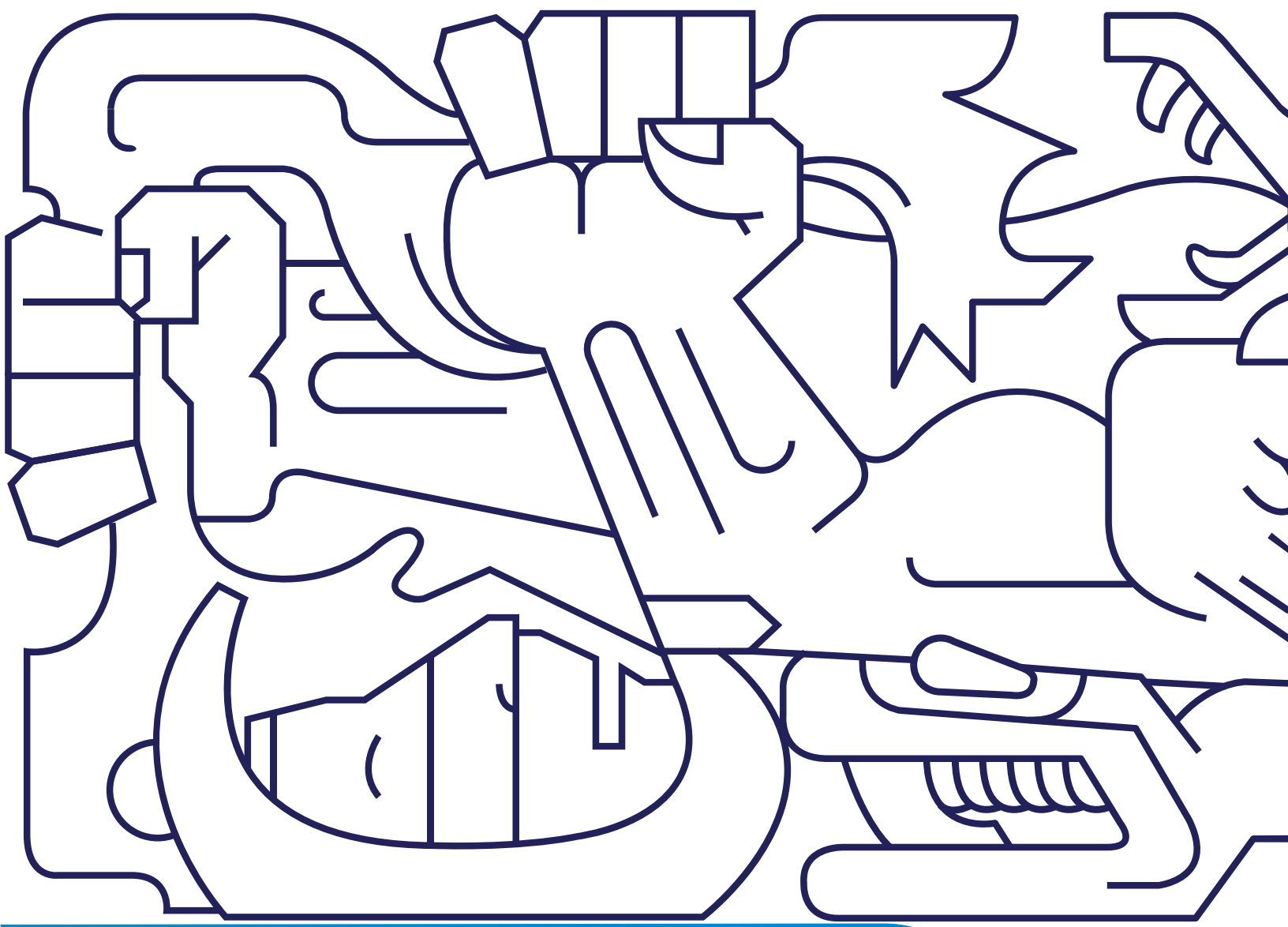
- **Academic excellence scholarship.** The aim of this scholarship is to attract academically outstanding students who have graduated from an undergraduate degree at Tecnológico de Monterrey. The financial aid covers 100 % of tuition.

- **Online program scholarship.** The aim of this scholarship is to support academically outstanding students to study online master's programs. The maximum aid offered is 40% of tuition fees.

- **Scholarship from external funds.** The aim of this type of aid is to give students the opportunity to gain experience in their field of study, connect them with strategic areas of industry and the public or private sectors, or prepare them to be future researchers through their incorporation into a project with external funds under the responsibility of a research professor.
  This financial aid can cover a percentage of tuition fees, living expenses or major medical insurance.

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

Profiles and Curricula of the Graduate Programs

This section contains the graduate 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

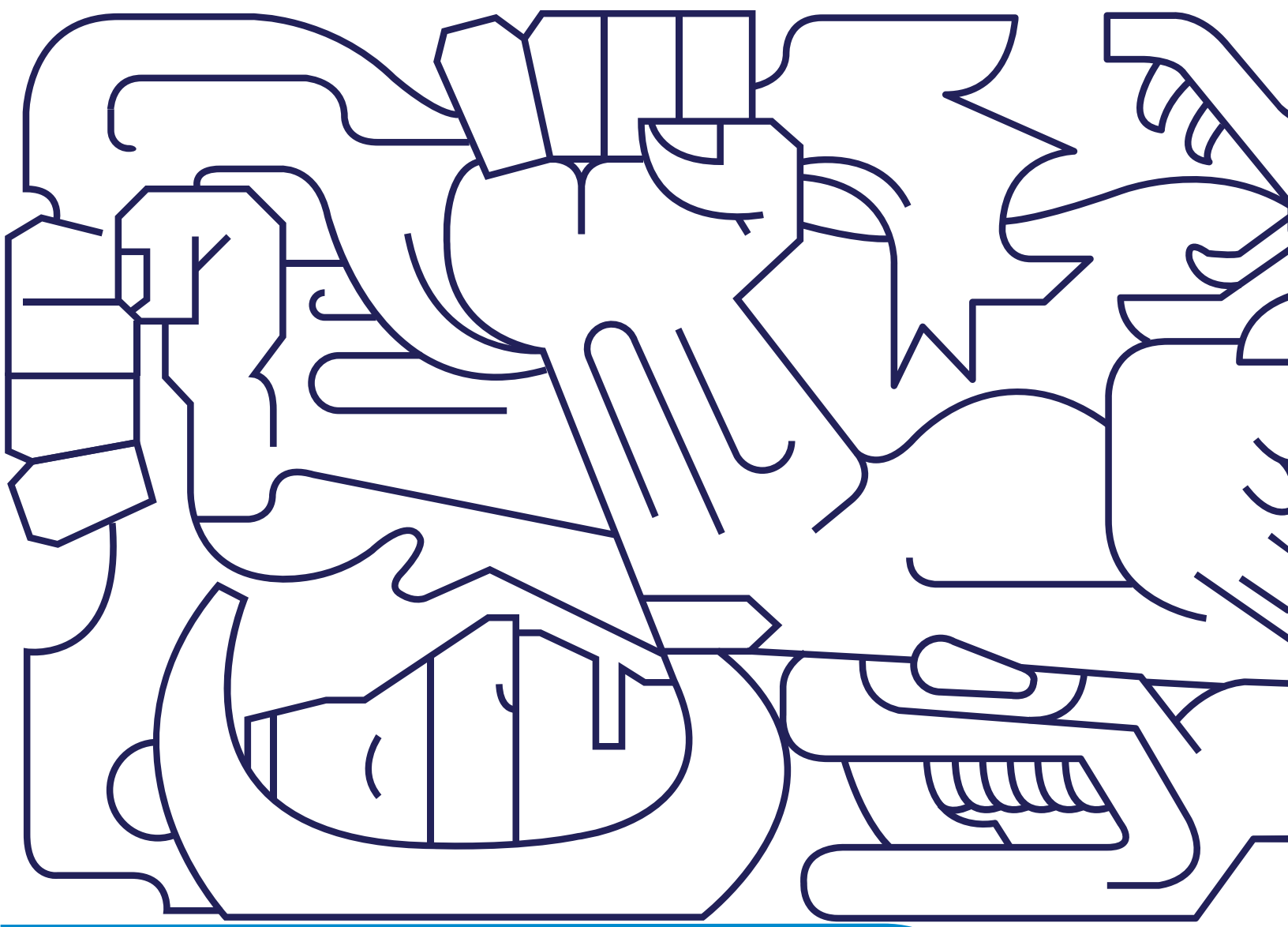
Tecnológico de Monterrey reserves the right to change the programs described in this document.

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
MA4005	Applied Statistics	3

The letters of the code indicate the discipline to which the course belongs; In the example, he letters MA indicate that the course corresponds to the discipline Mathematics. Financial and Administrative Accounting.
The letters "CA" represents the number of semester credit hour of the course.

In this case, the course Applied Statistics consist of 3 academic unit.



School of Architecture, Art and Design

MDU-M Master in Urban Design and Architecture (Mixed Program)

Admission Profile

Professionals who have architecture, urbanism, sustainability and environment, ecology, and civil engineering disciplinary foundations. It is also planned for sociology, management, economics, political science, engineering, and community administration professionals, when they have developed a minimum two-year experience in Program related subjects to focus on an interdisciplinary urban problems study and their interventions.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Carry out innovative proposals to actively design, plan, and build sustainable cities.

b) Use state-of-the-art urban design methodologies and tools.

c) Play leadership roles within their organizations.

Graduation Profile

The graduate will be a promoter of change in the transformation of cities based on a critical- purposeful understanding of the challenges and opportunities of the environment. The graduate will be a professional who develops urban scale projects, thus taking advantage of the use of technological, participatory and creative tools in the formulation of strategies or projects applicable to different scales and contexts.

MDU-M Master in Urban Design and Architecture (Mixed Program)
Plan 2022

First Trimester

Code	Name	CA
AR4021	Theories in Urban Development	3
AR4022	Spatial Analysis and GIS	3
AR4027	Urban Design and Architecture Project	3
		9

Second Trimester

Code	Name	CA
AR4026	Social Participation in Urban Planning and Mapping	3
OP4046	Quality Development Course	3
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
AR4024	Critical Thinking of the Urban Model	3
AR4025	Governance for Urban Management	3
OP5086	Elective II	3
		9

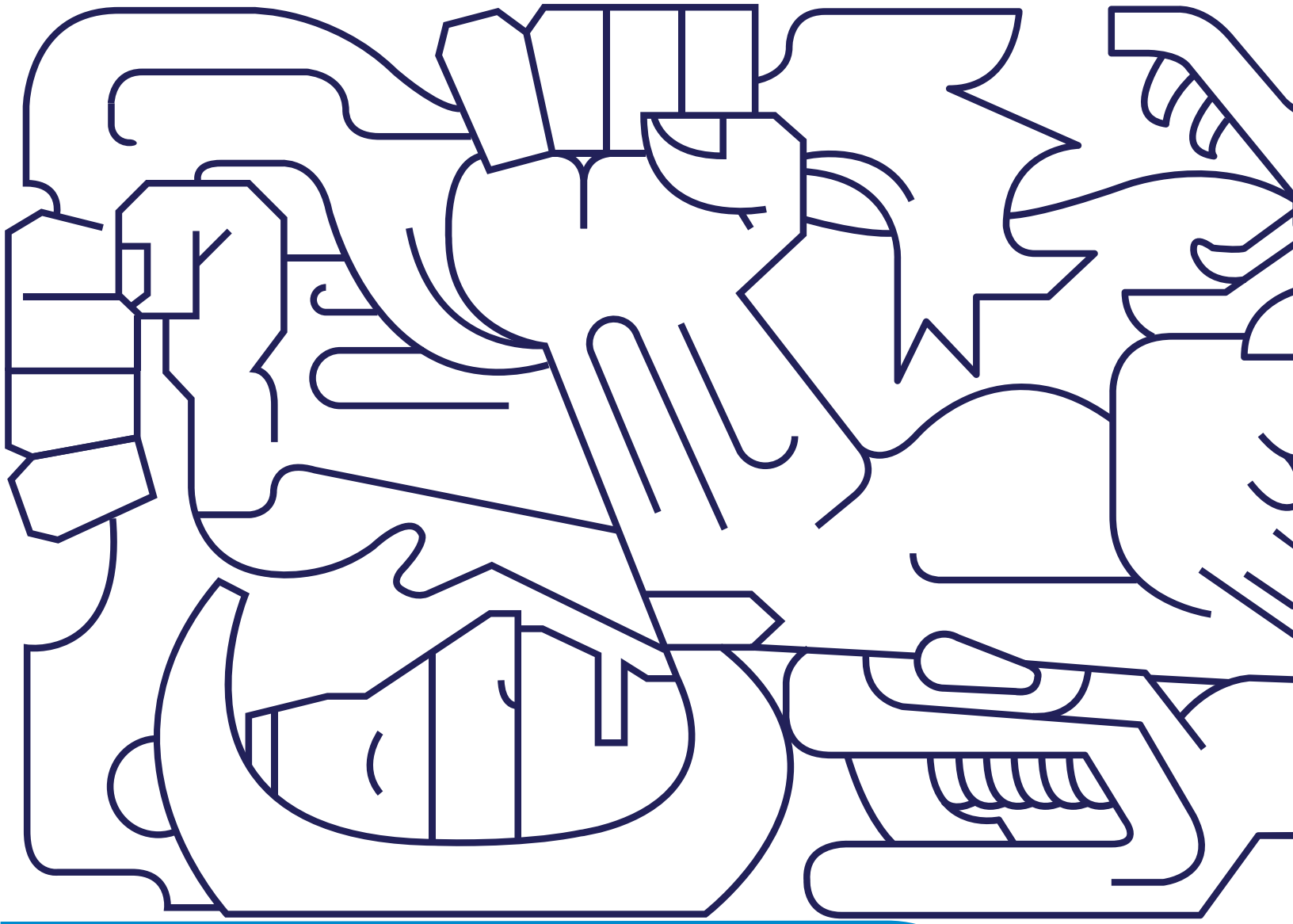
Fourth Trimester

Code	Name	CA
AR4023	Methodologies for Environmental Assessment	3
OP5087	Elective III	3
OP5088	Elective IV	3
		9

Fifth Trimester

Code	Name	CA
AR5034	Capstone Project	3
OP5089	Elective V	3
		6

CA The letters "CA" represents the number of credit hour of the course.



School of Social Sciences and Government

EEA Specialization in Applied Economics and Data Science

Justification

The data has become a fundamental input in any economic process. In its raw state - untreated, isolated - the data is a priori worthless. It is from their scientific treatment, processing and analysis that useful and original knowledge is extracted - never before could data be 'read' as it can be done today - thanks to innovations in Big Data and Data Science. New tools (programming languages, machine learning, scientific data methods), new capabilities (Internet in Mobility and the Internet of Things, cloud computing) and new professional skills in the digital field (since today we find ourselves in a scenario of scarcity of profiles) are the ones that have made it possible for business models to be generated until recently were unimaginable and catalogue as unviable.

In this context, the Specialization in Applied Economics and Data Science becomes of singular importance, as it becomes a cutting-edge educational option, which privileges the balance between the theoretical knowledge and the practical experience for economic analysis through strict data management.

Target Audience

The program is aimed at:

- Public officials of different orders and levels of government interested in deepening their knowledge of economic analysis and data science.
- Professionals and entrepreneurs from all areas of knowledge who share an interest in incorporating economic analysis concepts and tools into their training that enrich their analysis capacity and strategic vision.
- Graduates of bachelor's degrees in economics and related areas: Social (political science, sociology, history, public policy, international relations); Business (business administration, accounting, finance); Mathematics (Actuary, statistics).

Program Objectives

The objectives of this program are economists specialized in robust and updated analytical tools, which participate in the creation and dissemination of high-level scientific knowledge, as well as in the understanding and solution of the socioeconomic problems that plague the country.

Learning Outcomes

After completing their studies, the graduate will be able to:

- Apply the systematic use of analytical and econometric tools to pose and solve real problems.
- Develop critical and reflective thinking about economic phenomena.
- Apply, in a combined way, economic theory and quantitative methods.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average (GPA) in their undergraduate studies.
- Each School may have additional requirements.

EEA Specialization in Applied Economics and Data Science
Plan 2021

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
EO4022	Macroeconomy	3
		6

Second Trimester

Code	Name	CA
EO4024	Prices and Agent Behavior	3
EO4025	Econometrics	3
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
EO4026	Microeconometrics	3
OP5086	Elective II	3
		6

CA The letters "CA" represents the number of credit hour of the course.

EEA-L Specialization in Applied Economics and Data Science (Online Program)

Justification

The data has become a fundamental input in any economic process. In its raw state - untreated, isolated - the data is a priori worthless. It is from their scientific treatment, processing, and analysis that useful and original knowledge is extracted - never before could data be 'read' as it can be done today - thanks to innovations in Big Data and Data Science. New tools (programming languages, machine learning, scientific data methods), new capabilities (Internet in Mobility and the Internet of Things, cloud computing), and new professional skills in the digital field (since today we find ourselves in a scenario of the scarcity of profiles) are the ones that have made it possible for business models to be generated until recently were unimaginable and catalog as unviable.

In this context, the Specialization in Applied Economics and Data Science becomes of singular importance, as it becomes a cutting-edge educational option, which privileges the balance between theoretical knowledge and the practical experience for economic analysis through strict data management.

Target Audience

The program is aimed at:

- Public officials of different orders and levels of government are interested in deepening their knowledge of economic analysis and data science.
- Professionals and entrepreneurs from all areas of knowledge who share an interest in incorporating economic analysis concepts and tools into their training that enrich their analysis capacity and strategic vision.
- Graduates of bachelor's degrees in economics and related areas: Social (political science, sociology, history, public policy, international relations); Business (business administration, accounting, finance); Mathematics (Actuary, statistics).

Program Objectives

The objectives of this program are economists specialized in robust and updated analytical tools, which participate in the creation and dissemination of high-level scientific knowledge, as well as in the understanding and solution of the socio-economic problems that plague the country.

Learning Outcomes

After completing their studies, the graduate will be able to:

- Apply the systematic use of analytical and econometric tools to pose and solve real problems.
- Develop critical and reflective thinking about economic phenomena.
- Apply, in a combined way, economic theory and quantitative methods.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with an entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average (GPA) in their undergraduate studies.
- Each School may have additional requirements.

EEA-L Specialization in Applied Economics and Data Science (Online Program)
Plan 2022

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
EO4022	Macroeconomy	3
		6

Second Trimester

Code	Name	CA
EO4024	Prices and Agent Behavior	3
EO4025	Econometrics	3
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
EO4026	Microeconometrics	3
OP5086	Elective II	3
		6

CA The letters "CA" represents the number of credit hour of the course.

ETD Specialization in Public Decision Making and Data Science

Justification

In the Government, as well as in the private and social sectors, decision-making increasingly depends on data analysis, which is why access, exchange and openness of data is essential. Governments face the need to generate adequate capacities in their employees to take advantage of new technologies (Big Data, Artificial Intelligence, etc.) and thus strengthen evidence-based decision-making.

In this context, the Specialty in Public Decision Making and Data Science becomes of particular importance, as it becomes a cutting-edge educational option, which generates a balance between theory and practice in order to find a solution to real problems in our environment and being an intensive training in the process of transformation of the public.

Target Audience

The program is aimed at:

- Public officials of different orders and levels of government interested in deepening their knowledge for public decision making.
- Private sector professionals seeking to specialize in data science for strategic decision making.
- Researchers and professionals in public policy and public administration and management, interested in updating their knowledge in the field of public affairs.
- Public entrepreneurs interested in creating and transforming the way of doing things.

Program Objectives

This program aims to train experts in the management of technical and analytical tools related to data science and its implementation in strategic decision-making both in the public and private spheres.

Learning Outcomes

After completing their studies, the graduate will be able to:

- Solve problems in the public, private and social sectors, based on collective intelligence, behavioral sciences, experimentation, data science and simulation models.
- Apply public policy tools for strategic decision-making, both in the public and business spheres.
- Ranking public problems based on evidence.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average (GPA) in their undergraduate studies.
- Each School may have additional requirements.

ETD Specialization in Public Decision Making and Data Science
Plan 2021

First Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
EO4021	Quantitative Methods for Inference	3
		6

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
AP5039	Negotiation and Conflict	3
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
AP5040	Government Anticipation Systems	3
OP5086	Elective II	3
		6

CA The letters "CA" represents the number of credit hour of the course.

ETD-L Specialization in Public Decision Making and Data Science

(Online Program)

Justification

In the Government, as well as in the private and social sectors, decision-making increasingly depends on data analysis, which is why access, exchange and openness of data is essential. Governments face the need to generate adequate capacities in their employees to take advantage of new technologies (Big Data, Artificial Intelligence, etc.) and thus strengthen evidence-based decision-making.

In this context, the Specialty in Public Decision Making and Data Science becomes of particular importance, as it becomes a cutting-edge educational option, which generates a balance between theory and practice in order to find a solution to real problems in our environment and being an intensive training in the process of transformation of the public.

Target Audience

The program is aimed at:

- Public officials of different orders and levels of government interested in deepening their knowledge for public decision making.
- Private sector professionals seeking to specialize in data science for strategic decision making.
- Researchers and professionals in public policy and public administration and management, interested in updating their knowledge in the field of public affairs.
- Public entrepreneurs interested in creating and transforming the way of doing things.

Program Objectives

This program aims to train experts in the management of technical and analytical tools related to data science and its implementation in strategic decision-making both in the public and private spheres.

Learning Outcomes

After completing their studies, the graduate will be able to:

- Solve problems in the public, private and social sectors, based on collective intelligence, behavioral sciences, experimentation, data science and simulation models.
- Apply public policy tools for strategic decision-making, both in the public and business spheres.
- Ranking public problems based on evidence.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average (GPA) in their undergraduate studies.
- Each School may have additional requirements.

ETD-L Specialization in Public Decision Making and Data Science (Online Program)
Plan 2022

First Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
EO4021	Quantitative Methods for Inference	3
		6

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
AP5039	Negotiation and Conflict	3
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
AP5040	Government Anticipation Systems	3
OP5086	Elective II	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MAP Master in Public Administration and Public Policy

Program and Learning Outcomes

Admission Profile

Professionals who work as public officials from different orders and levels of government interested in deepening their knowledge in the areas of public administration and public policy. Professionals from the private sector who seek to specialize in government-business relations. Applicants to the program may be researchers and social professionals interested in generating cutting-edge knowledge in the fields of public administration, management and public management. Likewise, public entrepreneurs interested in creating and transforming the way of doing things.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Design, implement and evaluate public policies with the highest possible technical requirements through the rigorous use of technical and methodological tools, statistics and economic analysis.

b) Use cutting-edge analytical frameworks in the formulation, implementation and evaluation of public policies.

c) Undertake empirical analysis on public policy applications through data science management and rigorous statistical analysis.

d) To work on public policy from an interdisciplinary perspective.

Graduation Profile

Professionals who are leaders in addressing public issues through innovative public policy proposals and the transformation of government operations. They are also transformative agents of change, dedicated to solving society's most urgent challenges through the development of strategies for the successful implementation of public policies.

MAP Master in Public Administration and Public Policy

Plan 2020

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	Data Science	3
		9

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
EO4024	Prices and Agent Behavior	3
TC4026	Machine Learning for Decision Making	3
		9

Third Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
OP5086	Elective II	3
RE4020	Economy for Development	3
		9

Fourth Trimester

Code	Name	CA
EO4023	Public Finance and Budgeting	3
OP5087	Elective III	3
RE4021	Scenario Planning	3
		9

Fifth Trimester

Code	Name	CA
AP4042	Entrepreneurship for Public Policy	3
AP5037	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MAP-V Master in Public Administration and Public Policy (Online Program)

Program and Learning Outcomes

Admission Profile

Professionals who work as public officials from different orders and levels of government interested in deepening their knowledge in the areas of public administration and public policy. Professionals from the private sector who seek to specialize in government-business relations. Applicants to the program may be researchers and social professionals interested in generating cutting-edge knowledge in the fields of public administration, management and public management. Likewise, public entrepreneurs interested in creating and transforming the way of doing things.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Design, implement and evaluate public policies with the highest possible technical requirements through the rigorous use of technical and methodological tools, statistics and economic analysis.

b) Use cutting-edge analytical frameworks in the formulation, implementation and evaluation of public policies.

c) Undertake empirical analysis on public policy applications through data science management and rigorous statistical analysis.

d) To work on public policy from an interdisciplinary perspective.

Graduation Profile

Professionals who are leaders in addressing public issues through innovative public policy proposals and the transformation of government operations. They are also transformative agents of change, dedicated to solving society's most urgent challenges through the development of strategies for the successful implementation of public policies.

MAP-V Master in Public Administration and Public Policy (Online Program)

Plan 2021

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	Data Science	3
		9

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
EO4024	Prices and Agent Behavior	3
TC4026	Machine Learning for Decision Making	3
		9

Third Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
OP5086	Elective II	3
RE4020	Economy for Development	3
		9

Fourth Trimester

Code	Name	CA
EO4023	Public Finance and Budgeting	3
OP5087	Elective III	3
RE4021	Scenario Planning	3
		9

Fifth Trimester

Code	Name	CA
AP4042	Entrepreneurship for Public Policy	3
AP5037	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MDP Master in Law

Justification

Tecnológico de Monterrey Master of Laws Program focuses on the interdisciplinary study of the legal order in real and concrete situations that have an impact on the phenomena of economic growth and development. It considers various methodologies to analyze social, economic and political conditions that affect the so-called economic cycles (crisis, depression, revival and boom) and that also affect the practice of Law.

The Program is designed to increase awareness and criticism about the complexity of legal relationships in the areas of: Governance, regulation and business; Regulation and infrastructure development; Financial system, as well as Law, science and technology, in which issues of ethics, international law, public policies in the fight against corruption or data analysis tools are studied.

Target Audience

The program is aimed to:

- Public servants of the three levels of government - federal, state and municipal.
- Practicing lawyers from the public and private sectors interested in deepening the areas of i infrastructure projects for economic development or the financial system.
- Consultants specialized in infrastructure development projects or the financial system.

Program Objectives

The objective of the Master of Laws Program is to train professionals who will be able to:

- Have technical tools to analyze social, economic, political, institutional and legal conditions that affect the areas of infrastructure development and financial system.
- Analyze and propose solutions to complex legal issues that derive from the regulations applicable to the aforementioned areas of knowledge.
- Be transforming agents for their communities, contributing to the solution of urgent challenges of society through the development of strategies for the successful implementation of public policies.

Learning Outcomes

Once completed the Master of Laws Program, the graduate will be able to:

- Analyze legal problems from a critical, ethical and interdisciplinary perspective.
- Design, implement and evaluate strategies, from the legal point of vies, for infrastructure development projects or the financial system.
- Advise clients in the public and private sectors that require highly specialized regulatory services for the development of infrastructure or the financial system.
- Discuss data analysis tools for the effective application of the law.

Admission Profile

The Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, in order to be admitted, applicants participate in a comprehensive selection process that considers:

- Score on the Graduate Admission Test (PAEP).
- Undergraduate grade average.

Each School may have additional requirements.

MDP Master in Law

Plan 2021

First Trimester

Code	Name	CA
DP4015	Institutional and Businesses' Framework	3
EO4027	Economics for Development and Public Finance	3
		6

Second Trimester

Code	Name	CA
DP4016	Compliance	3
DP4017	Public Administation and Business	3
		6

Third Trimester

Code	Name	CA
DP4018	Law of Economic Competency	3
DP4019	Investment Protection and Alternative Dispute Resolution	3
		6

Fourth Trimester

Code	Name	CA
OP4046	Quality Development Course	3
OP5085	Elective I	3
		6

Fifth Trimester

Code	Name	CA
OP5086	Elective II	3
OP5087	Elective III	3
		6

Sixth Trimester

Code	Name	CA
DP5051	Regulated Sectors	3
OP5088	Elective IV	3
		6

Seventh Trimester

Code	Name	CA
DP5052	Advanced Regulated Sectors	3
DP5053	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MDP-V Master in Law (Online Program)

Justification

Tecnológico de Monterrey Master of Laws Program focuses on the interdisciplinary study of the legal order in real and concrete situations that have an impact on the phenomena of economic growth and development. It considers various methodologies to analyze social, economic and political conditions that affect the so-called economic cycles (crisis, depression, revival and boom) and that also affect the practice of Law.

The Program is designed to increase awareness and criticism about the complexity of legal relationships in the areas of: Governance, regulation and business; Regulation and infrastructure development; Financial system, as well as Law, science and technology, in which issues of ethics, international law, public policies in the fight against corruption or data analysis tools are studied.

Target Audience

The program is aimed to:

- Public servants of the three levels of government - federal, state and municipal.
- Practicing lawyers from the public and private sectors interested in deepening the areas of i infrastructure projects for economic development or the financial system.
- Consultants specialized in infrastructure development projects or the financial system.

Program Objectives

The objective of the Master of Laws Program is to train professionals who will be able to:

- Have technical tools to analyze social, economic, political, institutional and legal conditions that affect the areas of infrastructure development and financial system.
- Analyze and propose solutions to complex legal issues that derive from the regulations applicable to the aforementioned areas of knowledge.
- Be transforming agents for their communities, contributing to the solution of urgent challenges of society through the development of strategies for the successful implementation of public policies.

Learning Outcomes

Once completed the Master of Laws Program, the graduate will be able to:

- Analyze legal problems from a critical, ethical and interdisciplinary perspective.
- Design, implement and evaluate strategies, from the legal point of vies, for infrastructure development projects or the financial system.
- Advise clients in the public and private sectors that require highly specialized regulatory services for the development of infrastructure or the financial system.
- Discuss data analysis tools for the effective application of the law.

Admission Profile

The Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, in order to be admitted, applicants participate in a comprehensive selection process that considers:

- Score on the Graduate Admission Test (PAEP).
- Undergraduate grade average.

Each School may have additional requirements.

MDP-V Master in Law (Online Program)

Plan 2021

First Trimester

Code	Name	CA
DP4015	Institutional and Businesses' Framework	3
EO4027	Economics for Development and Public Finance	3
		6

Second Trimester

Code	Name	CA
DP4016	Compliance	3
DP4017	Public Administation and Business	3
		6

Third Trimester

Code	Name	CA
DP4018	Law of Economic Competency	3
DP4019	Investment Protection and Alternative Dispute Resolution	3
		6

Fourth Trimester

Code	Name	CA
OP4046	Quality Development Course	3
OP5085	Elective I	3
		6

Fifth Trimester

Code	Name	CA
OP5086	Elective II	3
OP5087	Elective III	3
		6

Sixth Trimester

Code	Name	CA
DP5051	Regulated Sectors	3
OP5088	Elective IV	3
		6

Seventh Trimester

Code	Name	CA
DP5052	Advanced Regulated Sectors	3
DP5053	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MEK Master in Applied Economics

Program and Learning Outcomes

Admission Profile

Bachelor's degree graduates who are immersed in strategic planning processes, are dedicated to the design of public policy and finance, analyze consumer and stock markets, in addition to analyzing economic and social problems. The program is aimed at professionals who offer consulting in the public, private and social sectors, carry out statistical work and data analysis in large companies and financial institutions. Additionally, individuals who carry out project evaluation and make decisions in companies, non-governmental organizations and governments.
Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Systematically analyze complex economic problems considering not only the economic environment but the local, national and international sociopolitical context.

b) Propose public policy solutions based on a solid and rigorous analysis, which increases the chances of positive impact on society.

c) Rigorously evaluate any public policy, determining its impact and economic, financial and social viability.

d) Use rigorous methodologies to analyze the decisions of agents in an economy, to propose innovative solutions.

Graduation Profile

Professionals who are leaders within public, private, and social organizations, capable of solving the challenges these organizations face. They also design and map out the critical path for implementing economic and social public policies with a high likelihood of positive impact. Graduates are recognized across Latin America as references in the study and application of economic analysis to improve society and public service.

MEK Master in Applied Economics

Plan 2020

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	Data Science	3
		9

Second Trimester

Code	Name	CA
EO4024	Prices and Agent Behavior	3
EO4025	Econometrics	3
TC5030	Guaranteed Data Science	3
		9

Third Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
EO4022	Macroeconomy	3
RE4020	Economy for Development	3
		9

Fourth Trimester

Code	Name	CA
EO4023	Public Finance and Budgeting	3
EO4026	Microeconometrics	3
OP5086	Elective II	3
		9

Fifth Trimester

Code	Name	CA
AP4040	Applied Public Election	3
EO5021	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MEK-V Master in Applied Economics (Online Program)

Program and Learning Outcomes

Admission Profile

Bachelor's degree graduates who are immersed in strategic planning processes, are dedicated to the design of public policy and finance, analyze consumer and stock markets, in addition to analyzing economic and social problems. The program is aimed at professionals who offer consulting in the public, private and social sectors, carry out statistical work and data analysis in large companies and financial institutions. Additionally, individuals who carry out project evaluation and make decisions in companies, non-governmental organizations and governments.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Systematically analyze complex economic problems considering not only the economic environment but the local, national and international sociopolitical context.

b) Propose public policy solutions based on a solid and rigorous analysis, which increases the chances of positive impact on society.

c) Rigorously evaluate any public policy, determining its impact and economic, financial and social viability.

d) Use rigorous methodologies to analyze the decisions of agents in an economy, to propose innovative solutions.

Graduation Profile

Professionals who are leaders within public, private, and social organizations, capable of solving the challenges these organizations face. They also design and map out the critical path for implementing economic and social public policies with a high likelihood of positive impact. Graduates are recognized across Latin America as references in the study and application of economic analysis to improve society and public service.

MEK-V Master in Applied Economics (Online Program)

Plan 2021

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	Data Science	3
		9

Second Trimester

Code	Name	CA
EO4024	Prices and Agent Behavior	3
EO4025	Econometrics	3
TC5030	Guaranteed Data Science	3
		9

Third Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
EO4022	Macroeconomy	3
RE4020	Economy for Development	3
		9

Fourth Trimester

Code	Name	CA
EO4023	Public Finance and Budgeting	3
EO4026	Microeconometrics	3
OP5086	Elective II	3
		9

Fifth Trimester

Code	Name	CA
AP4040	Applied Public Election	3
EO5021	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MGP-V Master in Public Management (Online Program)

Program and Learning Outcomes

Admission Profile

The program is aimed at (a) mid- and upper-level federal, state and municipal public officials, (b) specialists who want to improve their analytical skills and decision-making capacities regarding local public administration issues, (c) individuals who are interested in participating in elected office positions in the different spheres of government within the executive and legislative branches, (d) leaders and collaborators of political parties and non-governmental organizations who wish to strengthen their planning and decision-making processes, (e) professionals involved in analyzing government actions, (f) private-sector professionals seeking to enhance their knowledge of public administration, and (g) academics interested in participating in the improvement of public administration and public policy.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Understand quantitative and qualitative analysis methods, management models, and legal responsibilities in the different branches of government, as well as the fundaments for the design, management and evaluation of public policy, to face the most relevant public challenges. This will endow the graduate with a solid conceptual and practical framework for public management, achieved through the contents of the program's curriculum.

b) Generate, design and implement reforms to steer institutional change processes at the state and municipal levels, as well as positively influence the decision-making process in government; conduct financial, material and human resource management in an efficient manner; and utilize analytical frameworks and empirical methods to formulate and evaluate efficient public management.

c) Have the critical mindset necessary to reflect and analyze ethical dilemmas in public service, and be sensitive to the social, economic, politic and ecologic reality, to act with social responsibility and solidarity. Have a service attitude to foster the creation of public value.

Graduation Profile

The graduate of this program will be capable of providing innovative solutions to society's needs through methodologies that promote the creation of public value. They will foster positive leadership, developed through managerial tools and learning experiences at both national and international levels. Equipped with analytical tools, they will understand the country's most relevant issues and design efficient management models aimed at generating public value. Furthermore, they will contribute to the professionalization of actors in the private sector and organized society to achieve better coordination in building a participative community committed to its political, social, and economic environment. Additionally, they will support the training of public service professionals to become agents of change in public administration, contributing to transformation across the three levels of government.

MGP-V Master in Public Management (Online Program)
Plan 2018

First Trimester

Code	Name	CA
AP4033	Economics of the Public Sector	3
NB4009	Ethics for Public Administration	3
		6

Second Trimester

Code	Name	CA
AP4034	Planning and Public Policy Management	3
AP5026	Public Finances, Theory and Practice	3
		6

Third Trimester

Code	Name	CA
AP4035	Statistical Methods	3
AP4036	Public Policy Law	3
		6

Fourth Trimester

Code	Name	CA
AP4037	Social Projects Evaluation	3
AP4038	Applied Public Management	3
		6

Fifth Trimester

Code	Name	CA
AP4039	Public Sector Entrepreneurship	3
D5019	Decentralization and Intergovernmental Relations	3
		6

Sixth Trimester

Code	Name	CA
OP5049	Elective I	3
OP5050	Elective II	3
		6

Seventh Trimester

Code	Name	CA
AP5027	Final Project	3
OP5051	Elective III	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MGT Master in Government and Public Transformation

Justification

The unprecedented historical circumstances of the 21st century, manifest in climate change, technological disruptions effects and advances in biotechnology, present new challenges and dilemmas for humanity. Along the country, for example, there is a need to propose new governance schemes, fight against poverty and fight against corruption. We also need mechanisms to address exponential technological change and its multiple effects, such as its impact on the future of employment and on technological inclusion.

The Master's degree in Government and Public Transformation responds to the urgency of forming leaders who work for the solution of the most important public problems facing our country and the entire world.

Target Audience

The program is aimed at those who:

- Public servers who want to contribute with innovative initiatives to their work within the Government.
- Citizens with an exceptional and proven record in public transformation processes, that require key skills or resources to realize their vision of change.
- Professionals who want to increase their global view of public innovation and who have worked, ideally, in the following areas: companies and social enterprises, international organizations or Government and public organizations.

Program Objectives

The objective of the program is to train professionals who will:

- Create sustainable public enterprises that improve public life at local, national or global level.
- Build teams and deploy projects that involve analysis techniques, advanced statistics and evidence-based predictive to make better decisions in the public or private sector.
- Make prospective projects that will help the public and private sector to evaluate the technological, socio-economic and cultural changes of the future of their environments.

Learning Outcomes

Once completed the Master's Program, the graduate will be able to:

- Identify entrepreneurship opportunities in different contexts, through a validation process.
- Identify entrepreneurship opportunities based on problems, aspirations, desires, trends or unmet needs.
- Detect problems and create entrepreneurship solutions integrating information from specialized sources.
- Generate innovative and valuable solutions to environmental issues, through an ethical framework and a methodological process of feasibility, in national and regional contexts.
- Develop and validate functional prototypes through an analysis of economic feasibility and technical feasibility.
- Analyze problems with an integrated vision, conceiving reality as a set of interconnected systems.
- Hierarchy variables to define the innovation path exploring different systemic models.
- Propose solutions to complex problems and projects integrating knowledge, experiences and methodologies of other disciplines, interest groups and cultures.

Admission Profile

The Tecnologico de Monterrey seeks to integrate a new generation of students in all its graduate programs who have completed their undergraduate studies and are distinguished by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a comprehensive selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average for professional level studies.

Each School may have additional requirements.

MGT Master in Government and Public Transformation
Plan 2021

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	**Data Science**	3
		9

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
OP5086	Elective II	3
TC5030	Guaranteed Data Science	3
		9

Third Trimester

Code	Name	CA
AP4046	Public Entrepreneurship I	3
EO4022	Macroeconomy	3
EO4023	Public Finance and Budgeting	3
		9

Fourth Trimester

Code	Name	CA
AP4045	Political Philosophy	3
AP4047	Public Entrepreneurship II	3
AP4048	Public Opinion	3
		9

Fifth Trimester

Code	Name	CA
AP4049	Public Management Applied	3
AP5042	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MGT-V Master in Government and Public Transformation (Online Program)

Justification

The unprecedented historical circumstances of the 21st century, manifest in climate change, technological disruptions effects and advances in biotechnology, present new challenges and dilemmas for humanity. Along the country, for example, there is a need to propose new governance schemes, fight against poverty and fight against corruption. We also need mechanisms to address exponential technological change and its multiple effects, such as its impact on the future of employment and on technological inclusion.

The Master's degree in Government and Public Transformation responds to the urgency of forming leaders who work for the solution of the most important public problems facing our country and the entire world.

Target Audience

The program is aimed at those who:

- Public servers who want to contribute with innovative initiatives to their work within the Government.
- Citizens with an exceptional and proven record in public transformation processes, that require key skills or resources to realize their vision of change.
- Professionals who want to increase their global view of public innovation and who have worked, ideally, in the following areas: companies and social enterprises, international organizations or Government and public organizations.

Program Objectives

The objective of the program is to train professionals who will:

- Create sustainable public enterprises that improve public life at local, national or global level.
- Build teams and deploy projects that involve analysis techniques, advanced statistics and evidence-based predictive to make better decisions in the public or private sector.
- Make prospective projects that will help the public and private sector to evaluate the technological, socio-economic and cultural changes of the future of their environments.

Learning Outcomes

Once completed the Master's Program, the graduate will be able to:

- Identify entrepreneurship opportunities in different contexts, through a validation process.
- Identify entrepreneurship opportunities based on problems, aspirations, desires, trends or unmet needs.
- Detect problems and create entrepreneurship solutions integrating information from specialized sources.
- Generate innovative and valuable solutions to environmental issues, through an ethical framework and a methodological process of feasibility, in national and regional contexts.
- Develop and validate functional prototypes through an analysis of economic feasibility and technical feasibility.
- Analyze problems with an integrated vision, conceiving reality as a set of interconnected systems.
- Hierarchy variables to define the innovation path exploring different systemic models.
- Propose solutions to complex problems and projects integrating knowledge, experiences and methodologies of other disciplines, interest groups and cultures.

Admission Profile

The Tecnologico de Monterrey seeks to integrate a new generation of students in all its graduate programs who have completed their undergraduate studies and are distinguished by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a comprehensive selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average for professional level studies.

Each School may have additional requirements.

MGT-V Master in Government and Public Transformation (Online Program)
Plan 2021

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	**Data Science**	3
		9

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
OP5086	Elective II	3
TC5030	Guaranteed Data Science	3
		9

Third Trimester

Code	Name	CA
AP4046	Public Entrepreneurship I	3
EO4022	Macroeconomy	3
EO4023	Public Finance and Budgeting	3
		9

Fourth Trimester

Code	Name	CA
AP4045	Political Philosophy	3
AP4047	Public Entrepreneurship II	3
AP4048	Public Opinion	3
		9

Fifth Trimester

Code	Name	CA
AP4049	Public Management Applied	3
AP5042	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MPE Master in Prospective and Strategic Studies

Program and Learning Outcomes

Admission Profile

Professionals who are immersed in strategic planning processes, are dedicated to innovation and technological change, as well as designing public policies with a future focus. Professionals who analyze the environment of public or private organizations to identify possible disruptive changes, or offer consulting in the public, private and social sectors. The program is also aimed at individuals who analyze sector perspectives at regional and global levels, as well as make decisions in companies, non-governmental organizations and governments.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Analyze complex problems considering the local, national and international economic and socio-political environment.

b) Model complex systems using data science and artificial intelligence.

c) Design and facilitate scenario planning processes for public or private organizations or for topics of interest.

d) Identify early warnings in the local, regional and global context that provide organizations with the ability to anticipate.

e) Design robust strategic plans that contemplate the multiplicity of plausible futures based on the characteristics of their environment.

f) Link the process of foresight, planning and innovation for public or private organizations.

g) Design strategic foresight structures for organizations.

Graduation Profile

Professionals who are leaders within public, private, and social organizations, capable of exploring the multiplicity of possible, probable, and desirable futures to guide decision-making and design robust strategic plans. They will also implement systemic analysis processes within these organizations to visualize complex problems, providing a deeper understanding of organizational challenges that inform strategy. Additionally, they will utilize robust analytical methodologies, leveraging data science and artificial intelligence to enrich foresight and futures analysis. Graduates will be recognized across Latin America as references in the study and implementation of foresight and futures studies, contributing to the strengthening of foresight capacities in the region amid a rising interest in these studies by governments, companies, civil society organizations, and international bodies.

MPE Master in Prospective and Strategic Studies

Plan 2020

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	Data Science	3
		9

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
EO4024	Prices and Agent Behavior	3
TC4026	Machine Learning for Decision Making	3
		9

Third Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
RE4020	Economy for Development	3
RE4023	Systems Modeling	3
		9

Fourth Trimester

Code	Name	CA
OP5086	Elective II	3
RE4021	Scenario Planning	3
RE4022	Futures Methods	3
		9

Fifth Trimester

Code	Name	CA
OP5087	Elective III	3
RE5019	Integrator Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MPE-V Master in Prospective and Strategic Studies (Online Program)

Program and Learning Outcomes

Admission Profile

Professionals who are immersed in strategic planning processes, are dedicated to innovation and technological change, as well as designing public policies with a future focus. Professionals who analyze the environment of public or private organizations to identify possible disruptive changes, or offer consulting in the public, private and social sectors. The program is also aimed at individuals who analyze sector perspectives at regional and global levels, as well as make decisions in companies, non-governmental organizations and governments.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Analyze complex problems considering the local, national and international economic and socio-political environment.

b) Model complex systems using data science and artificial intelligence.

c) Design and facilitate scenario planning processes for public or private organizations or for topics of interest.

d) Identify early warnings in the local, regional and global context that provide organizations with the ability to anticipate.

e) Design robust strategic plans that contemplate the multiplicity of plausible futures based on the characteristics of their environment.

f) Link the process of foresight, planning and innovation for public or private organizations.

g) Design strategic foresight structures for organizations.

Graduation Profile

Professionals who are leaders within public, private, and social organizations, capable of exploring the multiplicity of possible, probable, and desirable futures to guide decision-making and design robust strategic plans. They will also implement systemic analysis processes within these organizations to visualize complex problems, providing a deeper understanding of organizational challenges that inform strategy. Additionally, they will utilize robust analytical methodologies, leveraging data science and artificial intelligence to enrich foresight and futures analysis. Graduates will be recognized across Latin America as references in the study and implementation of foresight and futures studies, contributing to the strengthening of foresight capacities in the region amid a rising interest in these studies by governments, companies, civil society organizations, and international bodies.

MPE-V Master in Prospective and Strategic Studies (Online Program)

Plan 2021

First Trimester

Code	Name	CA
EO4021	Quantitative Methods for Inference	3
OP5085	Elective I	3
TC4025	Data Science	3
		9

Second Trimester

Code	Name	CA
AP4040	Applied Public Election	3
EO4024	Prices and Agent Behavior	3
TC4026	Machine Learning for Decision Making	3
		9

Third Trimester

Code	Name	CA
AP4041	Ethical Dilemmas of Public Leadership	3
RE4020	Economy for Development	3
RE4023	Systems Modeling	3
		9

Fourth Trimester

Code	Name	CA
OP5086	Elective II	3
RE4021	Scenario Planning	3
RE4022	Futures Methods	3
		9

Fifth Trimester

Code	Name	CA
OP5087	Elective III	3
RE5019	Integrator Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

DPP Ph. D. in Public Policy

Program and Learning Outcomes

Admission Profile

Public officials from different orders and levels of government interested in deepening their knowledge in the areas of public administration and public policy. Private sector professionals seeking to specialize in government-business relations. Likewise, researchers and professionals in the social area interested in generating cutting-edge knowledge in the fields of administration and public policy.

Academic background for admission: Master's degree in an area related to the research lines of the program.

Student Learning Outcomes

a) Design, implement and evaluate public policies in the diverse government branches and areas.

b) Propose government-civil society-enterprise liaison strategies.

c) Propose and execute leadership in research related to the field of public policy based on their theoretical, analytical, and instrumental grounding in public policy processes, with a multidisciplinary approach underpinned by legal, economic and public administration insights.

Graduate Profile

Professionals with solid analytical, critical and ethical skills, capable of addressing the complex challenges facing contemporary societies. Graduates of the program are prepared to lead research and projects focused on the creation, implementation and evaluation of public policies in various areas, such as social well-being, the economy, security, health and the environment. Their multidisciplinary training allows them to combine approaches from social sciences, economics, public administration and other relevant areas to develop innovative and sustainable solutions, in addition to being prepared to analyze and transform public systems through the use of data science tools and artificial intelligence, used with an ethical commitment and a strategic vision that will allow us to influence the improvement of social well-being and sustainable development at a national and international level.

DPP Ph. D. in Public Policy
Plan 2011

First Semester

Code	Name	CA
GP6000	Theory of Public Organizations and of Public Administration	3
GP6001	Analytical Processes of Public Policy	3
GP6003	Public Administration System of Competencies	3
GP6035	Research Methodology	3
		12

Second Semester

Code	Name	CA
GP5000	Research Proposal I	3
OP4037	Quality Development Course	3
OP5062	Elective I	3
OP5063	Elective II	3
		12

Third Semester

Code	Name	CA
GP5001	Research Proposal II	3
GP5002	Research Proposal III	3
GP5003	Research Seminar I	1
OP5064	Elective III	3
		10

Fourth Semester

Code	Name	CA
GP6021	Doctoral Research I	3
GP6022	Doctoral Research II	3
GP6023	Doctoral Research III	3
GP6024	Doctoral Research IV	3
		12

Fifth Semester

Code	Name	CA
GP5004	Research Seminar II	1
GP6025	Doctoral Research V	3
GP6026	Doctoral Research VI	3
GP6027	Doctoral Research VII	3
		10

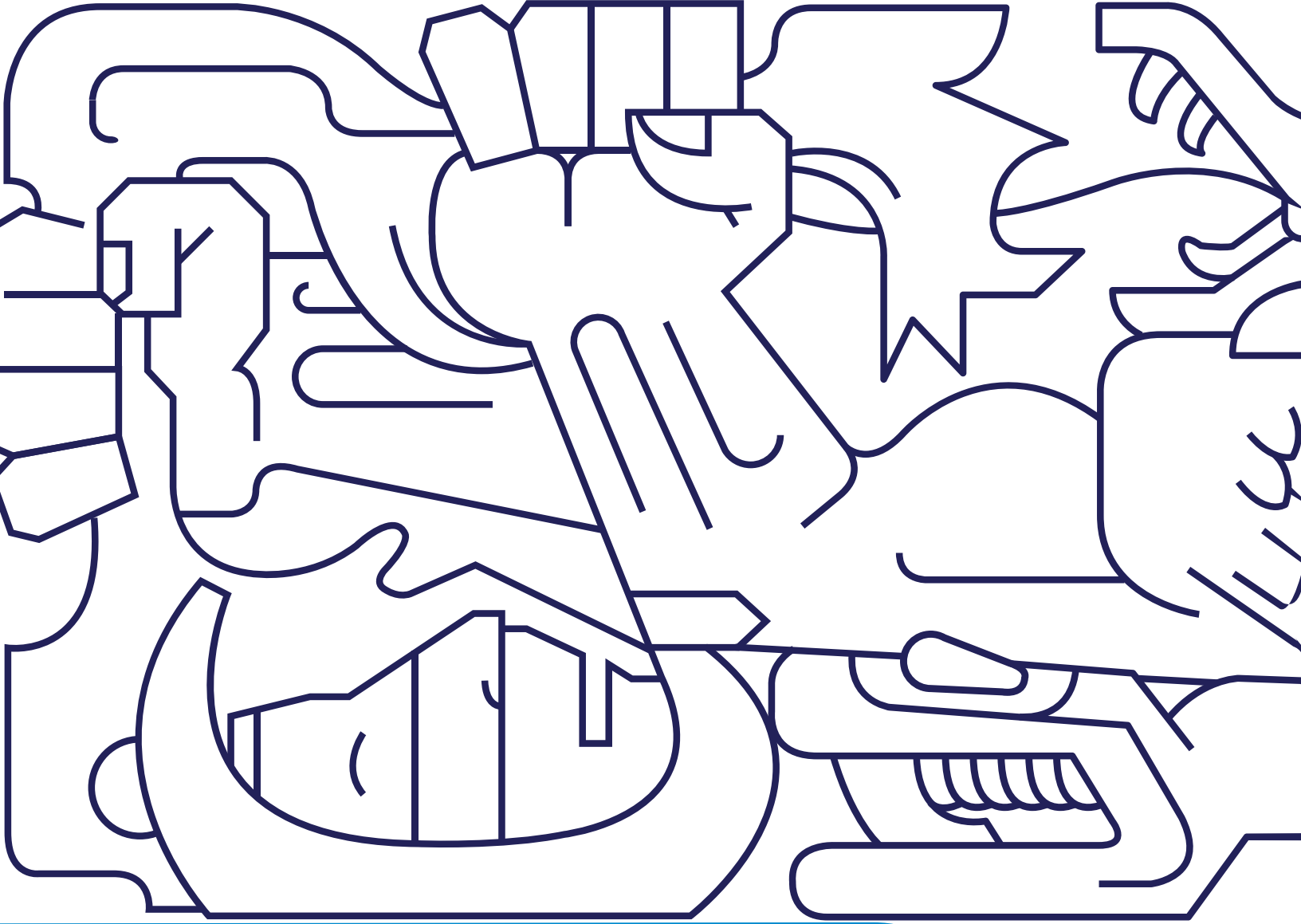
Sixth Semester

Code	Name	CA
GP6028	Doctoral Research VIII	3
GP6029	Doctoral Research IX	3
GP6030	Doctoral Research X	3
		9

Seventh Semester

Code	Name	CA
GP5005	Research Seminar III	1
GP6031	Doctoral Research XI	3
GP6032	Doctoral Research XII	3
GP6033	Doctoral Research XIII	3
GP6034	Doctoral Defense	0.3
		10.3

CA The letters "CA" represents the number of credit hour of the course.



School of Humanities and Education

EEE-V Specialization in Teaching and Assessment of English as a Second Language (Online Program)

Program and Learning Outcomes

Admission Profile

Tecnológico de Monterrey seeks to integrate into all its graduate programs a new generation of students who have completed their undergraduate studies and who are distinguished by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with an entrepreneurial spirit, human sense, and internationally competitive.

The program is aimed at:

- Professional educators teaching English in elementary and junior high schools.

- Graduate professionals with a bachelor's degree in humanities, such as Applied Linguistics and English Teaching, among others.

- Elementary and high school teachers who have a bachelor's or master's degree in another discipline, but who, due to their high level of proficiency in English, seek to teach this subject.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Design and teach English courses in public and private educational institutions in elementary, junior, and senior high school levels.

b) Assess, according to international standards, the level of proficiency in English as a foreign or second language of participants and candidates who wish to be accepted in formal and informal educational programs, as well as of applicants in job positions which require the mastery of English language.

c) Design and implement innovative training solutions in English as a foreign or second language through the use of cutting-edge technological resources for public and private institutions.

Graduate Profile

Professionals that are highly trained, and who know and use the most up to date and advanced pedagogy in the teaching and assessment of English as a foreign language at various school levels as well as in public and private institutions. In addition, professionals that integrate the use of technological tools applied to the teaching and assessment of English as a foreign language in his/ her teaching practice.

EEE-V Specialization in Teaching and Assessment of English as a Second Language

(Online Program)

Plan 2021

First Trimester

Code	Name	CA
ED4043	Entrepreneurship and Innovation	3
ED4058	Fundamentals for the Design of TESOL Educational Programs	3
		6

Second Trimester

Code	Name	CA
ED4059	Evaluation of Learning	3
ED4060	Technological Innovation in Teaching, Learning and Evaluation of Foreign Languages	3
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
ED5124	Assessment of Linguistic Competence	3
OP5086	Elective II	3
		6

CA The letters "CA" represents the number of credit hour of the course.

EGE-V Specialization in Management for Educational Leadership and Innovation (Online Program)

Program and Learning Outcomes

Admission Profile

Tecnológico de Monterrey seeks to integrate into all its graduate programs a new generation of students who have completed their undergraduate studies and who are distinguished by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with an entrepreneurial spirit, human sense, and internationally competitive.

The program is aimed at:

- Directors and coordinators who wish to enrich their educational institution by strengthening their leadership and linking them with avant-garde tools for schools and applying this knowledge in institutions of the private and public sector and organizations.

- Future directors and coordinators who wish to obtain a view of the directive function in the educational field.

- Education professionals with the aspiration of serving as consultants in the private or public sector to guide projects related to the evaluation of institutions, human capital development and institutional management.

- Owners and entrepreneurs who wish to participate in high-level educational projects linked to educational services for institutions. Social entrepreneurship, indispensable in new globalized and digital contexts.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Design and implement educational solutions to complex problems in educational centers, with an ethical and socially responsible perspective, using scientific methods and innovative technologies.

b) Interact with specialists from all the functional areas of the educational centers in order to define the strategies, guidelines and organizational objectives for the institution, in an atmosphere of respect and inclusion.

c) Lead processes of change in complex environments that strengthen the organizational transformation of educational centers promoting transparency and equity.

Graduate Profile

Professionals with the necessary competencies to strategically manage their respective schools and take them effectively to the next level of educational quality.

EGE-V Specialization in Management for Educational Leadership and Innovation

(Online Program)

Plan 2019

First Trimester

Code	Name	CA
ED4042	Strategic Leadership	3
OP4046	Quality Development Course	3
		6

Second Trimester

Code	Name	CA
ED5110	Traveling Seminar for Innovative Management	3
OP5085	Elective I	3
		6

Third Trimester

Code	Name	CA
ED4044	Empowerment of Teams for Transformation	3
OP5086	Elective II	3
		6

Fourth Trimester

Code	Name	CA
ED5104	Partnerships for Financial Management	3
		3

CA The letters "CA" represents the number of credit hour of the course.

MEE-V Master in Education (Online Program)

Program and Learning Outcomes

Admission Profile

Graduates from a bachelor's degree in an area related to education, administration or similar, and, preferably, have reading comprehension skills in the English language. Moreover, applicants should, if possible, have some work experience involving school management scenarios in the diverse academic levels or work in private enterprise, focusing on the respective business training programs.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) To solve challenges of contemporary, local, regional and global educational reality, contributing to processes of educational change.

b) To Apply the knowledge of Educational Sciences in teaching and learning processes within multiple contexts.

c) To Carry out applied educational research as a work tool in their professional practice in business or educational settings, both formal and non-formal.

d) To generate new ideas, procedures and techniques in order to identify areas of opportunity and implement solutions jointly with various social actors.

e) To incorporate their conception of education into their own intervention project.

Graduation Profile

Professionals who are leaders in the field of education, proposing and executing innovative educational projects and programs that contribute to improving the services provided in their institutions. The graduate is a professional who carries out their teaching practice using teaching and learning strategies to achieve curriculum objectives effectively and efficiently.

They also apply their research skills to solve current educational challenges. Graduates of the Master's in Education are professionals who conduct themselves according to ethical standards, demonstrating through their teaching practice a respect for the dignity of their students, parents, and colleagues, whether they are members of the educational community or the broader community.

MEE-V Master in Education (Online Program)
Plan 2013

First Semester

Code	Name	CA
ED4022	Technology and Innovation in Education	3
ED4033	Learning Theories in the Educational Context	3
		6

Second Semester

Code	Name	CA
OP4006	Elective Course I	3
OP5042	Elective I	3
		6

Third Semester

Code	Name	CA
ED4034	Applied Research Project I: Identifying Study-Problems	3
OP5043	Elective II	3
		6

Fourth Semester

Code	Name	CA
ED4035	Applied-Research Project II: Methodological Approaches	3
OP5044	Elective III	3
		6

Fifth Semester

Code	Name	CA
ED4032	Comparative Education	3
ED5084	Applied-Research Project III: Analysis of Results	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MEH Master in Humanistics Studies

Program and Learning Outcomes

Admission Profile

People seeking to begin their training as researchers in the interdisciplinary field of humanities. Likewise, graduates and professionals from different disciplines who wish to complement their academic and professional training with a broad, solid, and updated perspective that adds value to their professional profiles.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Develop high-quality research, which proposes new approaches to the study of the interdisciplinary field of the humanities, from perspectives aligned with the Sustainable Development Goals (SDG 2015-2030) defined by the UN, which demonstrates its ability to continue its studies at the PhD level.

b) Design and develop analysis strategies for contemporary social and cultural phenomena, from a critical humanistic perspective, with knowledge of the environment and purposeful attitude to identify relevant issues in their field of research.

c) Manage and evaluate projects of a social and cultural nature, in public and private institutions, as well as in the academic field, which allow it to contribute to the solution of the main challenges facing contemporary societies.

Graduation Profile

Researchers with the knowledge, skills, and abilities to apply a critical and proactive approach in identifying the most relevant issues for research within contemporary social and cultural contexts, from a humanistic perspective. They are also prepared to propose new approaches to studying specific phenomena in the interdisciplinary field of the humanities, demonstrating a critical vision of culture based on a solid theoretical and conceptual foundation, along with the application of the most suitable research techniques and methods for each case study. Likewise, they are equipped to participate in the design, development, management, and evaluation of projects and programs related to the work of public, private, and academic institutions, aiming to impact social and cultural well-being and contribute to addressing the main challenges faced by contemporary societies.

MEH Master in Humanistics Studies
Plan 2009

First Semester

Code	Name	CA
H4012	Research Methods	3
OP4002	Basic Course I	3
OP5042	Elective I	3
		9

Second Semester

Code	Name	CA
H5022	Research Seminar	3
OP4003	Basic Course II	3
OP5043	Elective II	3
		9

Third Semester

Code	Name	CA
OP4004	Basic Course III	3
OP4037	Quality Development Course	3
OP5044	Elective III	3
		9

Fourth Semester

Code	Name	CA
OP4005	Basic Course IV	3
OP4018	Basic Course V	3
OP5045	Elective IV	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MHD-V Master in Digital Humanities (Online Program)

Program and Learning Outcomes

Admission Profile

Graduates from a bachelor's degree and professionals from humanities, communication, social sciences or information technologies, as well as cultural managers, community managers, editors, journalists, publicists, creators, information analysts, librarians, graphic designers, visual artists, educators and academics. The applicant for the program must have skills in searching for information in bibliographic databases, be familiar with the use of information and communication technologies and the dissemination of knowledge in digital media and be capable of locating information and tools on the web for the development of the activities proposed in the courses. In addition, the applicant must possess medium and high-performance reading comprehension skills, as well as be able to understand the English language at a medium-high level, allowing an adequate understanding of bibliographic materials.
Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Integrate the humanist tradition with the digital methods and tools to generate new approaches and knowledge in the humanities.

b) Create cultural entrepreneurship projects on digital platforms for the dissemination of cultural heritage.

c) Critically analyze social behavior and its trends in digital society.

Graduation Profile

Professionals with the necessary skills to create humanistic knowledge within the complex environment of a digital society through the development of digital projects, the analysis of trends in social networks and cultural and creative entrepreneurship products.

MHD-V Master in Digital Humanities (Online Program)
Plan 2019

First Trimester

Code	Name	CA
EH4001	Digital Humanities Fundamentals	3
OP4046	Quality Development Course	3
		6

Second Trimester

Code	Name	CA
EH4002	Information Architecture for Digital Content	3
OP5085	Elective I	3
		6

Third Trimester

Code	Name	CA
EH4003	Digital Methods	3
EH5001	Digital Project I	3
OP5086	Elective II	3
		9

Fourth Trimester

Code	Name	CA
EH4004	Digital Technologies	3
EH5002	Digital Project II	3
OP5087	Elective III	3
		9

Fifth Trimester

Code	Name	CA
EH5003	Digital Project III	3
OP5088	Elective IV	3
		6

Sixth Trimester

Code	Name	CA
EH4005	Philosophy of Technology	3
OP5089	Elective V	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MTE-V Master in Educational Technology (Online Program)

Program and Learning Outcomes

Admission Profile

Graduates from a bachelor's degree related to the areas of education, administration or related fields and, preferably, that they have reading comprehension skills in English. Likewise, it is desirable that they are working in a position that allows them to approach organizational or school settings at various educational levels.
Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Design learning environments by selecting the appropriate technologies.

b) Apply educational technology in their courses as a teacher of a basic, upper or higher level, or as a training instructor and manager of human talent.

c) Implement and evaluate projects of technology applied to education.

d) Design curricular plans based on current teaching paradigms.

e) Carry out applied research in the area of technology-mediated education.

Graduation Profile

Professionals who are leaders in the field of education propose and implement innovative educational and technological projects and programs that contribute to improving the services provided in their institutions and organizations. They carry out their teaching practice through effective and efficient teaching and learning strategies to achieve curriculum objectives, particularly by incorporating and implementing technology in education. They also apply their skills in applied research to address current educational challenges. Furthermore, they conduct themselves according to ethical standards, demonstrating respect for the dignity of their students, parents, collaborators, and colleagues, whether they are part of the educational community or the broader community.

MTE-V Master in Educational Technology (Online Program)
Plan 2013

First Semester

Code	Name	CA
ED4022	Technology and Innovation in Education	3
ED4033	Learning Theories in the Educational Context	3
		6

Second Semester

Code	Name	CA
OP4006	Elective Course I	3
OP5042	Elective I	3
		6

Third Semester

Code	Name	CA
ED4034	Applied Research Project I: Identifying Study-Problems	3
OP5043	Elective II	3
		6

Fourth Semester

Code	Name	CA
ED4035	Applied-Research Project II: Methodological Approaches	3
OP5044	Elective III	3
		6

Fifth Semester

Code	Name	CA
ED4032	Comparative Education	3
ED5084	Applied-Research Project III: Analysis of Results	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MTO-V Master in Education Entrepreneurship (Online Program)

Program and Learning Outcomes

Admission Profile

Teachers and educators regardless of their level of experience or area of expertise, as well as entrepreneurs, future entrepreneurs and professionals who wish to venture into the education sector. Additionally, the applicant must possess verbal and mathematical reasoning skills that are related to the ability to infer, analyze and synthesize, complementing them with the exploration of competencies to organize, obtain and understand information; be familiar with the use of information and communication technologies, so that they are able to use these tools to send and receive information, as well as search for data and reports. Likewise, understand the English language at a medium-high level, allowing an adequate understanding of bibliographic materials.
Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Identify areas of opportunity in an education environment.

b) Develop proposals that translate into real projects in the field of education through interaction with specialists in the areas of education, business, entrepreneurship, technology.

c) Carry out a process of strategic communication of a product or service with the intention of sales or investment.

d) Develop online marketing strategies for educational products or services.

e) Implement negotiation strategies with different audiences and in different contexts.

f) Identify trends and do prospective education.

Graduation Profile

Professionals with the necessary skills to undertake innovative educational projects that contribute to the transformation of their communities in social and economic aspects. The graduate will be able to identify areas of opportunity in an education environment, with the purpose of develop proposals that translate into real projects in the field of education through interaction with specialists in the areas of education, business, entrepreneurship, technology.

MTO-V Master in Education Entrepreneurship (Online Program)
Plan 2020

First Trimester

Code	Name	CA
ED4046	Organizational Change for Entrepreneurship in Education	3
ED4047	Prospective Studies in Education	3
ED4050	Educational Entrepreneurship Internship I	1.5
ED4054	Educational Entrepreneurship Project I	1.5
		9

Second Trimester

Code	Name	CA
ED4045	Transforming Education Through Emerging Technologies	3
ED4048	Educational Entrepreneurship I	3
ED4051	Educational Entrepreneurship Internship II	1.5
OP4046	Quality Development Course	3
		10.5

Third Trimester

Code	Name	CA
ED4049	Educational Entrepreneurship II	3
ED4052	Educational Entrepreneurship Internship III	1.5
ED4055	Educational Entrepreneurship Project II	1.5
OP5085	Elective I	3
		9

Fourth Trimester

Code	Name	CA
ED4053	Educational Entrepreneurship Internship IV	1.5
ED4056	Educational Entrepreneurship Project III	1.5
OP5086	Elective II	3
		6

Fifth Trimester

Code	Name	CA
ED5116	Educational Entrepreneurship III	3
ED5117	Educational Entrepreneurship Project IV	1.5
OP5087	Elective III	3
		7.5

CA The letters "CA" represents the number of credit hour of the course.

DEE Ph. D. in Educational Innovation

Admission Profile

Academics at the postgraduate level interested in a career as researchers within a public or private higher education institution and/or in research centers on education or other social sciences, and to a lesser extent to educational administrators in higher education institutions interested in pursuing an administrative career in institutions that require a completed doctorate from their administrators.

Academic background for admission: Master's degree in an area related to the research lines of the program.

Student Learning Outcomes

El programa de Doctorado en Innovación Educativa, tiene como propósito fundamental formar investigadores que:

a) Generate and implement innovative and valuable solutions to educational problems through a symbiotic process that incorporates research, application, and knowledge transfer.

b) Develop meaningful scientific research that provides new and relevant knowledge for the field of educational innovation, considering both national and international contexts and a commitment to societal impact.

c) Exercise leadership skills in innovative projects that deliver concrete and sustainable improvements in education for the benefit of society.

d) Generate new projects that positively impact processes, products, and services within the educational context to promote social well-being.

e) Uphold ethical principles in their actions as researchers and educators, demonstrating a strong sense of social responsibility.

f) Apply critical and integrative thinking in addressing complex issues, using scientific methodologies to help solve national and international educational challenges.

g) Cultivate an appreciation for diverse cultures and ways of life, fostering a cosmopolitan and integrative spirit that embraces the plurality of human experience, particularly in formal and non-formal educational settings.

Graduate Profile

The graduate is an educational researcher who proposes innovative solutions based on data and high value to solve problems in the educational environment, in which a cyclical process that incorporates both research and the application of knowledge follows. It is an educational scientist who contributes new relevant knowledge, both for the line of research and for the field of educational innovation, considering audiences from national and international environments and public commitment to society. He is a leader of innovation projects that provide significant and sustainable improvements to address situations analyzed with proven methods supported by data and which include the complexity approach and apply national and international quality scientific methodologies.

As a researcher, he handles himself ethically when developing sustainable, inclusive and diverse projects that address different learning styles. In addition, he is a teacher who positively impacts the processes, products and services related to the educational phenomenon in his community. The graduate is an educator who appreciates and respects diverse cultures and ways of life, safeguarding the plurality of the human experience, particularly in formal and non-formal educational settings.

DEE Ph. D. in Educational Innovation
Plan 2022

First Semester

Code	Name	CA
ED6047	Doctoral Research I	3
ED6048	Doctoral Research II	3
ED6061	Research and Educational Innovation Workshop I	1
ED6067	Research Methodology I	3
		10

Second Semester

Code	Name	CA
ED6049	Doctoral Research III	3
ED6050	Doctoral Research IV	3
ED6068	Research Methodology II	3
ED6069	Research Seminar I	0.5
ED6075	Research Integration I	1.5
		11

Third Semester

Code	Name	CA
ED6051	Doctoral Research V	3
ED6052	Doctoral Research VI	3
ED6062	Research and Educational Innovation Workshop II	1
ED6070	Research Seminar II	0.5
ED6076	Research Integration II	1.5
		9

Fourth Semester

Code	Name	CA
ED6053	Doctoral Research VII	3
ED6063	Research and Educational Innovation Workshop III	1
ED6071	Research Seminar III	0.5
ED6077	Research Integration III	1.5
ED6080	Doctoral forum	3
		9

Fifth Semester

Code	Name	CA
ED6054	Doctoral Research VIII	3
ED6064	Research and Educational Innovation Workshop IV	1
ED6072	Research Seminar IV	0.5
ED6078	Research Integration IV	1.5
ED6081	Linkage to society	3
		9

Sixth Semester

Code	Name	CA
ED6055	Doctoral Research IX	3
ED6056	Doctoral Research X	3
ED6073	Research Seminar V	0.5
ED6079	Research Integration V	1.5
		8

Seventh Semester

Code	Name	CA
ED6057	Doctoral Research XI	3
ED6058	Doctoral Research XII	3
ED6065	Research and Educational Innovation Workshop V	1
ED6074	Research Seminar VI	0.5
		7.5

Eighth Semester

Code	Name	CA
ED6059	Doctoral Research XIII	3
ED6060	Doctoral Research XIV	3
ED6066	Research and Educational Innovation Workshop VI	1
ED6082	Dissemination of research	1.5
ED6083	Doctoral Defense	0.3
		8.8

CA The letters "CA" represents the number of credit hour of the course.

DEH Ph. D. in Humanistic Studies

Program and Learning Outcomes

Admission Profile

Professionals who seek to develop, from an interdisciplinary perspective, training with which they can specialize, in their fields of study, generate knowledge and skills through research that contributes to the development and social improvement of the country. In particular, it is aimed at:

- Academicians who creatively and appropriately face the challenges and needs of social entrepreneurship, which is essential in the new globalized and digital contexts.

- Leaders and collaborators of non-governmental organizations that promote understanding of society and its current processes to lead their course of action.

- Professionals who work in the private, public, and social sectors, whose interests or work needs require to develop an innovative, humanistic, and social profile.

- People interested in strengthening the higher educational system through teaching and research.

Academic background for admission: Master's degree in an area related to the research lines of the program.

Student Learning Outcomes

a) Demonstrate a high level of theoretical and methodological knowledge of the humanities, enabling them to participate and play a prominent role in interdisciplinary debates.

b) Conduct research in their area of specialization that will contribute new, relevant knowledge to the advancement of the humanities.

c) Apply and generate interdisciplinary knowledge in the program's fields of study through complex thinking with a critical and comprehensive vision of cultural and social phenomena.

d) Design strategies that will impact social life through consultancy for the public, private and civil sectors.

e) Work collectively in high-level research and teaching groups in higher education institutions, and report results, disseminate and foment scientific knowledge. Have a proactive, creative attitude to unpublished issues with original proposals.

Graduate Profile

Research professionals who debate in interdisciplinary settings with a high content of advanced knowledge applied in the humanities, cultural studies and argumentation. They are scientists who develop academic texts in which they clearly and rigorously present new knowledge after having applied theories that have been analyzed with objective criteria in which they make contributions from various disciplines. At the same time, they are designers and implementers of collaboration strategies in disciplinary groups dedicated to high-impact research. Graduates are people who implement educational developments in formal environments, who strictly follow development plans in which applied knowledge is deployed, who organize and execute high-impact scientific dissemination activities in international forums.

DEH Ph. D. in Humanistic Studies
Plan 2018

First Semester

Code	Name	CA
GH6001	Research Mentoring I	3
GH6002	Methodology of Interdisciplinary Research	3
GH6003	Strategic Research Seminar I	1
GH6004	Research Workshop I	1
GH6005	Research Workshop II	1
		9

Second Semester

Code	Name	CA
GH6006	Research Mentoring II	3
GH6007	Research Protocol Presentation	1
GH6008	Research Integration I	1
GH6009	Methodology of Interdisciplinary Research II	3
GH6010	Strategic Research Seminar II	1
		9

Third Semester

Code	Name	CA
GH6011	Doctoral Student Conference	3
GH6012	Doctoral Research I	3
GH6013	Communicating Scientific Production I	1.5
GH6014	Strategic Research Seminar III	1
GH6015	Research Tutoring I	0.5
		9

Fourth Semester

Code	Name	CA
GH6016	Research Integration II	1
GH6017	Doctoral Research II	3
GH6018	Doctoral Research III	3
GH6019	Strategic Research Seminar IV	1
GH6020	Research Workshop III	1
		9

Fifth Semester

Code	Name	CA
GH6021	Research stay	3
GH6022	Doctoral Research IV	3
GH6023	Strategic Research Seminar V	1
GH6024	Research Workshop IV	1
GH6025	Research Tutoring II	0.5
GH6026	Research Tutoring III	0.5
		9

Sixth Semester

Code	Name	CA
GH6027	Research integration III	1
GH6028	Doctoral Research V	3
GH6029	Doctoral Research VI	3
GH6030	Communicating Scientific Production II	1.5
GH6031	Strategic Research Seminar VI	1
		9.5

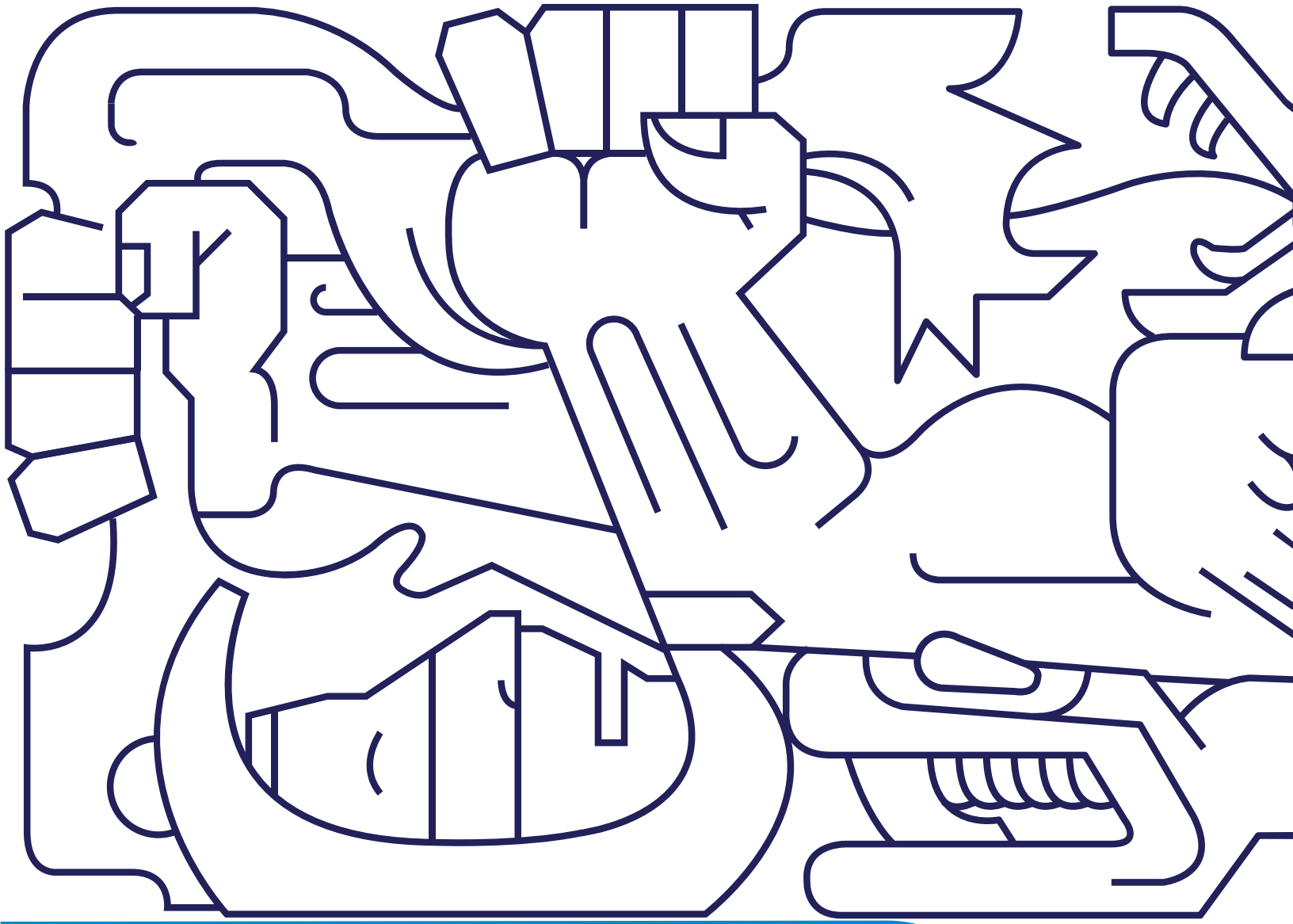
Seventh Semester

Code	Name	CA
GH6032	Doctoral Research VII	3
GH6033	Doctoral Research VIII	3
GH6034	Strategic Research Seminar VII	1
GH6035	Research Workshop V	1
GH6036	Research tutoring IV	0.5
GH6037	Research tutoring V	0.5
		9

Eighth Semester

Code	Name	CA
GH6038	Doctoral Research IX	3
GH6039	Doctoral Research X	3
GH6040	Strategic Research Seminar VIII	1
GH6041	Research Workshop VI	1
GH6042	Research tutoring VI (Doctoral Predefense)	0.5
GH6043	Doctoral defense	0.3
		8.8

CA The letters "CA" represents the number of credit hour of the course.



School of Engineering and Sciences

ELS Specialization in Logistics and Supply Chain

Program and Learning Outcomes

Admission Profile

Tecnológico de Monterrey seeks to integrate into all its graduate programs a new generation of students who have completed their undergraduate studies and who are distinguished by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with an entrepreneurial spirit, human sense, and internationally competitive.

The program is aimed at people who wish to join the productive sector creating solutions for Logistics and Supply Chain problems from their design, analysis, development and implementation.

Academic background for admission: Students graduated from a bachelor's degree with deep knowledge of probability and statistics and operations research.

Student Learning Outcomes

a) Design supply chains, addressing the issues related to the location of facilities, transportation of goods, routing and inventory management.

b) Strategically and efficiently manage the organizational and technological resources in the supply chain.

c) Diagnose and solve supply chain management problems.

d) Design efficient return flow collection models to collaborate with environmental conservation.

Graduate Profile

Specialists who use their leadership in an organization to improve an organization's competitiveness through innovations in supply chain management, as well as optimize an organization's logistics and supply chain processes through technological and administrative innovations.

ELS Specialization in Logistics and Supply Chain
Plan 2011

First Trimester

Code	Name	CA
AD4001	Statistical Analysis in Organizations	3
AD5003	Value Creation, Business and Network Models	3
		6

Second Trimester

Code	Name	CA
IN5096	Transportation and Third Party Logistics	3
OP5053	Elective I	3
OP5054	Elective II	3
		9

Third Trimester

Code	Name	CA
GI5021	Professional Certification	3
OP5055	Elective III	3
		6

CA The letters "CA" represents the number of credit hour of the course.

ENA-V Specialization in Applied Artificial Intelligence (Online Program)

Program and Learning Outcomes

Admission Profile

Tecnológico de Monterrey seeks to integrate into all its graduate programs a new generation of students who have completed their undergraduate studies and who are distinguished by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with an entrepreneurial spirit, human sense, and internationally competitive.

The program is aimed at:

- Professionals from any area interested in acquiring specialized knowledge of AI as a means to consolidate and transform their company through solutions supported by emerging technologies, in support of decision-making and business intelligence.

- Professionals interested in designing and proposing intelligent and innovative solutions supported by any of the issues associated with emerging technologies such as data visualization and science, intelligent software, autonomous mobility, the internet of things, among others.

- Professionals in the engineering area who wish to enter into solutions based on some emerging technology and supported by artificial intelligence, to transform any of the processes or activities of the organization.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Use specialized knowledge and business intelligence with emerging technologies to propose solutions to real and complex problems that arise in companies.

b) Analyze, manage, direct, and propose solutions to processes and problems that come from any of the areas of their specialty: software engineering, smart manufacturing, autonomous mobility, or in general from any process that arises from a company with technologies involved in Industry 4.0.

c) Communicate clearly, effectively, and efficiently the results of your work as a specialist. This communication capacity includes both the traditional oral and written way, as well as the visualization of data and information. This effective and contextual communication should be applicable when addressing both colleagues in your work group, as well as your superiors or clients.

d) Work in the professional community of their area of expertise with leadership in an efficient, collaborative, and ethical manner.

Graduate Profile

Specialists who are agents of change in organizations, who carry out innovation, technological development, and transfer through some emerging technology through solutions based on artificial intelligence.

ENA-V Specialization in Applied Artificial Intelligence (Online Program)
Plan 2021

First Trimester

Code	Name	CA
OP5085	Elective I	3
TC4029	Analytics and Data Science	3
TC5032	Data Display	3
		9

Second Trimester

Code	Name	CA
OP4046	Quality Development Course	3
OP5086	Elective II	3
		6

Third Trimester

Code	Name	CA
OP5087	Elective III	3
TC5038	Solutions with Technology Application	3
		6

CA The letters "CA" represents the number of credit hour of the course.

EPY Specialization in Project Management

Program and Learning Outcomes

Admission Profile

Tecnológico de Monterrey seeks to integrate into all its graduate programs a new generation of students who have completed their undergraduate studies and who are distinguished by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with an entrepreneurial spirit, human sense, and internationally competitive.

Academic background for admission: Students graduated from a Bachelor of Science such as engineering or a Bachelor of Arts with a background in probability and statistics.

Student Learning Outcomes

a) Initiate, plan, execute, control and close projects correctly.

b) Make the best project leadership decisions according to the circumstances.

c) Form, integrate and develop effective project management work teams.

Graduate Profile

Specialists who use their leadership in an organization to plan, execute, control, close and evaluate projects, managing human and material resources efficiently.

EPY Specialization in Project Management
Plan 2011

First Trimester

Code	Name	CA
AD4004	Competitive Strategy and Business Design	3
AD5034	Project Management	3
		6

Second Trimester

Code	Name	CA
FZ5011	Economic Engineering	3
OP5053	Elective I	3
OP5054	Elective II	3
		9

Third Trimester

Code	Name	CA
GI5023	Professional Certification	3
OP5055	Elective III	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MBI Master of Science in Biotechnology

Program and Learning Outcomes

Admission Profile

Professionals with a high affinity for the task of research, technological development and/or high-tech business entrepreneurship; graduates from a bachelor's degree from areas related to biotechnology, biology, chemistry, biochemistry, chemical engineering, biochemical engineering, food engineering, medicine, and nutrition, among others.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Work in the areas of new biotechnological products and process research and development.

b) Serve in academic or business settings, participating actively in the development of biotechnological processes at laboratory level and their implementation at industrial level, thus acquiring a competitive advantage in the professional environment.

Graduation Profile

Professional with transversal and disciplinary skills necessary to function successfully in academic, scientific, professional and industrial environments, both in areas of research and development of new products, biotechnological processes or leadership, since they have the necessary skills both for the application and for the generation of knowledge. Likewise, the graduate, if he or she so wishes, is prepared to continue with doctoral studies in areas related to biotechnology.

MBI Master of Science in Biotechnology
Plan 2009

First Semester

Code	Name	CA
BT4005	Cell Biology and Physiology	3
BT5006	Genetic Engineering	3
GI5000	Research and Innovation Methods	1.5
OP4000	Quality Development Course	1.5
		9

Second Semester

Code	Name	CA
BT4004	Instrumental Analysis in Biotechnology	3
BT5005	Selected Topics in Biotechnology	3
IN5058	Design and Analysis of Experiments	3
		9

Third Semester

Code	Name	CA
GI5007	Thesis I	3
OP5042	Elective I	3
OP5043	Elective II	3
		9

Fourth Semester

Code	Name	CA
GI5008	Thesis II	3
OP5044	Elective III	3
OP5045	Elective IV	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MCC-I Master of Science in Computer Science

Program and Learning Outcomes

Admission Profile

Professionals mainly from the areas of informatics, engineering and exact sciences, who are interested in conducting high-impact research in one of the specialization areas of Computer Science.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Demonstrate a high level of theoretical and methodological knowledge of Computer Science in any professional situation.

b) Conduct research in their area of expertise to provide knowledge relevant to the advancement of Computer Science.

c) Communicate results of their professional work in a clear, effective and efficient manner.

d) Work in the professional community in their area of specialty with leadership in an efficient, collaborative and ethical way in the manufacturing industry.

Graduation Profile

Professionals capable of carrying out scientific research following the principles of replicability, absence of trends in experiments, and in general the application of scientific rigor. Likewise, the graduate has the ability to express their results both in terms of rigorous scientific communications, typical of the discipline's journals, and in popular terms for the purposes of science dissemination. The graduate has the qualities of ethical behavior, civic and environmental awareness, leadership and teamwork that our institution promotes in students.

MCC-I Master of Science in Computer Science
Plan 2016

First Semester

Code	Name	CA
CS4000	Intelligent Systems	3
CS4012	Computing Fundamentals	3
GI5000	Research and Innovation Methods	1.5
OP4000	Quality Development Course	1.5
		9

Second Semester

Code	Name	CA
CS4013	Machine Learning	3
CS4014	Applied Mathematics	3
CS5058	Thesis I	3
		9

Third Semester

Code	Name	CA
CS5059	Thesis II	3
OP5042	Elective I	3
OP5043	Elective II	3
		9

Fourth Semester

Code	Name	CA
CS5060	Thesis III	3
OP5044	Elective III	3
OP5045	Elective IV	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MCI Master of Science in Engineering

Program and Learning Outcomes

Admission Profile

Graduates from areas of engineering and exact sciences interested in conducting high-impact research to contribute to the knowledge of one of the specialty areas of Engineering Science.

Academic background for admission: bachelor's degree in engineering.

Student Learning Outcomes

a) Demonstrate a high level of basic knowledge in fundamental engineering areas including, but not limited to, mathematics, statistics and computing.

b) Dominate the theoretical and methodological knowledge of the Engineering Sciences in any professional situation.

c) Model engineering problems using appropriate mathematical language.

d) Accomplish research in his/her area of specialization that contributes with relevant new knowledge for the advancement of Engineering Sciences under the supervision of the direct advisor and the thesis committee.

e) Develop solutions to engineering problems using technological tools.

f) Communicate results of their professional work in a clear, effective and efficient manner.

Graduation Profile

Specialists with the potential to become agents of change for the industrial and academic sectors, taking leadership in strategic areas, with the ability to carry out applied research, technological development and technology transfer in the areas of engineering. In addition, graduates have the possibility of entering a doctorate in engineering sciences.

MCI Master of Science in Engineering
Plan 2017

First Semester

Code	Name	CA
CS4015	Applied Computing	3
F4005	Mathematical Physical Modeling	3
GI5000	Research and Innovation Methods	1.5
OP4000	Quality Development Course	1.5
		9

Second Semester

Code	Name	CA
GI5025	Thesis I	3
IN4027	Data Science and Statistical Inference	3
OP5042	Elective I	3
		9

Third Semester

Code	Name	CA
GI5026	Thesis II	3
OP5043	Elective II	3
OP5044	Elective III	3
		9

Fourth Semester

Code	Name	CA
GI5027	Thesis III	3
OP5045	Elective IV	3
OP5046	Elective V	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MCY Master in Cybersecurity

Admission Profile

Graduates of a bachelor's degree in engineering or science who have experience in professional engineering work, specifically in information technologies and telecommunications. Professionals with solid knowledge in the area of computing, coding and programming, data networks, communications, protocols, operating systems and computer processes.

Academic background for admission: a bachelor's degree in engineering.

Student Learning Outcomes

a) Show a high level of basic knowledge in fundamental areas of cybersecurity including, but not limited to architecture, management and operation.

b) Master efficient and effective methodologies to protect an organization's data, information, and knowledge.

c) Analyze cybersecurity issues using appropriate reference models.

d) Carry out innovation in your area of specialty that provides new knowledge of relevance to the advancement of Cybersecurity.

e) Develop solutions to cybersecurity problems using technological tools.

f) Communicate results of your professional work in a clear, effective, and efficient manner.

Graduation Profile

Professionals, agents of change in organizations who are capable of innovation, technological development, technology transfer in the areas of cybersecurity. As well as leading and managing a cybersecurity office.

MCY Master in Cybersecurity
Plan 2019

First Trimester

Code	Name	CA
OP4046	Quality Development Course	3
TI4020	Cybersecurity Frameworks Outline	3
TI4021	Functional Cybersecurity Structure in Organizations	3
		9

Second Trimester

Code	Name	CA
TC4020	Cybersecurity Operations	3
TI4023	Data Protection Management	3
TI4024	Innovation in Cybersecurity Technology	3
		9

Third Trimester

Code	Name	CA
OP5085	Elective I	3
TC5028	Cybersecurity Project	3
TI4025	Innovation and Leadership in Cybersecurity Management	3
		9

Fourth Trimester

Code	Name	CA
OP5086	Elective II	3
OP5087	Elective III	3
OP5088	Elective IV	3
		9

Fifth Trimester

Code	Name	CA
OP5089	Elective V	3
TC5029	Business Cibersecurity Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MCY-M Master in Cybersecurity (Mixed Program)

Admission Profile

Graduates of a bachelor's degree in engineering or science who have experience in professional engineering work, specifically in information technologies and telecommunications. Professionals with solid knowledge in the area of computing, coding and programming, data networks, communications, protocols, operating systems and computer processes.

Academic background for admission: a bachelor's degree in engineering.

Student Learning Outcomes

a) Show a high level of basic knowledge in fundamental areas of cybersecurity including, but not limited to architecture, management and operation.

b) Master efficient and effective methodologies to protect an organization's data, information, and knowledge.

c) Analyze cybersecurity issues using appropriate reference models.

d) Carry out innovation in your area of specialty that provides new knowledge of relevance to the advancement of Cybersecurity.

e) Develop solutions to cybersecurity problems using technological tools.

f) Communicate results of your professional work in a clear, effective, and efficient manner.

Graduation Profile

Professionals, agents of change in organizations who are capable of innovation, technological development, technology transfer in the areas of cybersecurity. As well as leading and managing a cybersecurity office.

MCY-M Master in Cybersecurity (Mixed Program)
Plan 2020

First Trimester

Code	Name	CA
OP4046	Quality Development Course	3
TI4020	Cybersecurity Frameworks Outline	3
TI4021	Functional Cybersecurity Structure in Organizations	3
		9

Second Trimester

Code	Name	CA
TC4020	Cybersecurity Operations	3
TI4023	Data Protection Management	3
TI4024	Innovation in Cybersecurity Technology	3
		9

Third Trimester

Code	Name	CA
OP5085	Elective I	3
TC5028	Cybersecurity Project	3
TI4025	Innovation and Leadership in Cybersecurity Management	3
		9

Fourth Trimester

Code	Name	CA
OP5086	Elective II	3
OP5087	Elective III	3
OP5088	Elective IV	3
		9

Fifth Trimester

Code	Name	CA
OP5089	Elective V	3
TC5029	Business Cibersecurity Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MEM Master in Engineering Management

Program and Learning Outcomes

Admission Profile

Graduates of a bachelor's degree in science or engineering, who have a keen interest in the development of engineering skills in project management and key business processes in management technology or entrepreneurship. Future technological leaders in industrial management, high technology management, R & D or business management with high technology and start-up companies. Professionals in engineering who require, in their work areas, identify critical issues, generate solutions, evaluate alternatives, make decisions, and implement actions, leading multidisciplinary teams.

Academic background for admission: a bachelor's degree in engineering.

Student Learning Outcomes

a) Demonstrate and use a high level of theoretical and methodological knowledge of engineering management solution for engineering projects.

b) Analyze, manage and lead improvement processes that can be applied to areas such as information technology, process optimization, statistical engineering, supply chain, logistics, among others.

c) Communicate results of their professional work in a clear, effective and efficient manner.

d) Work in the professional community of their area of expertise with leadership, in an efficient, collaborative and ethical manner.

Graduation Profile

Professionals capable of managing complex engineering projects, with a strategic focus in a global environment. Graduates master both management methodologies and technological tools, as well as management skills (power skills) mandatory to meet the needs of the current market

MEM Master in Engineering Management
Plan 2016

First Trimester

Code	Name	CA
IN4029	Engineering Project Management	3
IN4030	Financial Analysis for Innovation and Technology Projects	1.5
IN5111	Project Design I	1.5
OP4036	Quality Development Course	3
		9

Second Trimester

Code	Name	CA
IN4028	Statistical Methods and Visualization	3
IN4031	Economic Analysis for Business	1.5
IN4032	Risk Analysis Project Management	1.5
IN4033	Innovation and Product Development	1.5
IN5112	Project Design II	1.5
		9

Third Trimester

Code	Name	CA
IN4034	Legal Aspects in Managing Engineering	1.5
IN5121	Business Innovation Project I	1.5
OP5053	Elective I	3
OP5054	Elective II	3
		9

Fourth Trimester

Code	Name	CA
IN5122	Business Innovation Project II	1.5
IN5123	Business Innovation Project III	1.5
IN5124	Business Innovation Project IV	1.5
IN5125	Business Innovation Project V	1.5
OP5055	Elective III	3
		9

Fifth Trimester

Code	Name	CA
IN5126	Business Innovation Project VI	1.5
IN5127	Business Innovation Project VII	1.5
OP5056	Elective IV	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MEM-M Master in Engineering Management (Mixed Program)

Program and Learning Outcomes

General program objectives

The aim of the Master in Management Engineering is to develop leaders and project managers, specialists in their area of expertise.

Learning outcomes

During the duration of the program students will have the opportunity not only to interact with distinguished professors in the specialty areas of the program, and also have extensive experience in solving engineering problems in industry, but also to interact with students from different areas of expertise, who work or have worked in small or mul- tinational companies from different regions of the country. This interaction is one of the great strengths of this master's program. This program is designed to give students the necessary preparation and to make a person a leader in their engineering professional skills.

It is expected that after a few years of practice, a graduate of this program will have achievements such as:

- Having led high impact engineering projects

- Being leader of technical or engineering area of multinational companies

- Having led consulting projects in administration and management of engineering projects in their area of specialty

In addition, after graduation of the program students will be able to:

- Demonstrate and use a high level of theoretical and methodological knowledge of engineering management solution for engineering projects.

- Analyze, manage and lead improvement processes that can be applied to areas such as information technology, process optimization, statistical engineering, supply chain, logistics, among others.

- Communicate results of their professional work in a clear, effective and efficient manner.

- Work in the professional community of their area of expertise with leadership, in an efficient, collaborative and ethical manner.

Target Audience

The Master of Engineering Management is directed to graduates of a bachelor degree in science or engineering, who have a keen interest in the development of engineering skills in project management and key business processes in management technology or entrepreneurship. Similarly, it is aimed at future technological leaders in industrial management, high technology management, R & D or business management with high technology and startup companies.

Likewise, this program is aimed at professionals in engineering who require, in their work areas, identify critical issues, generate solutions, evaluate alternatives, make decisions, and implement actions, leading multidisciplinary teams.

MEM-M Master in Engineering Management (Mixed Program)
Plan 2022

First Trimester

Code	Name	CA
IN4029	Engineering Project Management	3
IN4030	Financial Analysis for Innovation and Technology Projects	1.5
IN5111	Project Design I	1.5
OP4036	Quality Development Course	3
		9

Second Trimester

Code	Name	CA
IN4028	Statistical Methods and Visualization	3
IN4031	Economic Analysis for Business	1.5
IN4032	Risk Analysis Project Management	1.5
IN4033	Innovation and Product Development	1.5
IN5112	Project Design II	1.5
		9

Third Trimester

Code	Name	CA
IN4034	Legal Aspects in Managing Engineering	1.5
IN5121	Business Innovation Project I	1.5
OP5053	Elective I	3
OP5054	Elective II	3
		9

Fourth Trimester

Code	Name	CA
IN5122	Business Innovation Project II	1.5
IN5123	Business Innovation Project III	1.5
IN5124	Business Innovation Project IV	1.5
IN5125	Business Innovation Project V	1.5
OP5055	Elective III	3
		9

Fifth Trimester

Code	Name	CA
IN5126	Business Innovation Project VI	1.5
IN5127	Business Innovation Project VII	1.5
OP5056	Elective IV	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MER-V Master in Energy Management and Renewable Sources
(Online Program)

Program and Learning Outcomes

Admission Profile

Professionals interested in specializing in energy management and energy efficiency processes, developing strategic schemes in the organization that contribute to the sustainable energy vision at global level. Professionals from any area interested in solving problems in the use of energy to transform cities and communities. Engineering professionals interested in developing and managing energy innovation technology projects to achieve the efficient and effective use of renewable resources.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Generate value in organizations with broad leadership based on the application of energy strategies.

b) Identify the impact of energy efficiency projects based on renewable energy systems through the analysis of available natural resources.

c) Understand the model, structure, conditions, and perspectives of the industry and unify the global energy strategy and the organization's strategy under an innovative scheme.

Graduation Profile

Qualified professionals for energy management, including the use of alternative and conventional sources.

MER-V Master in Energy Management and Renewable Sources (Online Program)
Plan 2022

First Trimester

Code	Name	CA
TE4018	Energy Analysis Tools	3
TE4019	Energy Management Systems	3
		6

Second Trimester

Code	Name	CA
DS4007	Environmental Assessment	3
DS4008	Renewable Energy Applications	3
		6

Third Trimester

Code	Name	CA
DS4009	Regulation, Acquisition, and Financing of Energy Resources	3
TE4020	Efficient Use of Energy	3
		6

Fourth Trimester

Code	Name	CA
OP4046	Quality Development Course	3
OP5085	Elective I (A)	3
		6

Fifth Trimester

Code	Name	CA
OP5086	Elective II (B)	3
OP5087	Elective III (C)	3
		6

Sixth Trimester

Code	Name	CA
OP5088	Elective IV (D)	3
TE5027	Energy Project I	3
		6

Seventh Trimester

Code	Name	CA
OP5089	Elective V (E)	3
TE5028	Energy Project II	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MID-V Master in Innovation for Enterprise Development (Online Program)

Program and Learning Outcomes

Admission Profile

Profesionales de diferentes áreas interesados en desarrollar las competencias necesarias para potenciar la innovación en las organizaciones. Profesionales que buscan hacer realidad sus ideas innovadoras en emprendimientos que generen un alto valor agregado tanto en industrias actuales como emergentes.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Generate original and quality ideas, which can be expressed in a formal way and defend in situations and / or problems both known and emerging.

b) Propose changes and solutions to given situations and / or problems, based on methodologies appropriate to the relevant context.

c) Carry out projects on their own initiative, committing certain resources in order to exploit an opportunity, and assuming the risk that this entails.

Graduation Profile

Professionals who promote innovation within their areas of responsibility by developing, envisioning, generating, and proposing original ideas and projects in ventures that create high added value in current and emerging industries. They also integrate interdisciplinary teams, managing the mobilization of resources for project execution. Likewise, they undertake projects on their own initiative, committing specific resources to seize an opportunity and assuming the associated risks.

MID-V Master in Innovation for Enterprise Development (Online Program)
Plan 2021

First Trimester

Code	Name	CA
IN4038	Creativity and Design Thinking	3
IN4039	Strategy Innovation and Leadership	3
		6

Second Trimester

Code	Name	CA
IN4040	Innovation Models and Processes	3
IN4041	Intellectual Property Strategies	1.5
IN4042	Analysis and Financial Impact for Innovation and Technology Projects	1.5
		6

Third Trimester

Code	Name	CA
IN4043	Project Management	3
OP5085	Elective I	3
		6

Fourth Trimester

Code	Name	CA
IN4044	Products and Services Development	3
OP5086	Elective II	3
		6

Fifth Trimester

Code	Name	CA
OP4046	Quality Development Course	3
OP5087	Elective III	3
		6

Sixth Trimester

Code	Name	CA
IN5128	Innovation Project I	3
OP5088	Elective IV	3
		6

Seventh Trimester

Code	Name	CA
IN5129	Innovation Project II	3
OP5089	Elective V	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MIP-V Master in Engineering with specialization in Quality Systems and Productivity (Online Program)

Program and Learning Outcomes

Admission Profile

Professionals from different areas interested in developing the necessary skills to promote continuous improvement and operational excellence in organizations. As well as professionals who work in industrial or service environments, with mathematical and technological skills, interested in developing competencies for the transformation of organizations to new competitive and international levels.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Design, manage, evaluate and improve management systems for service and production areas based on principles and philosophies of quality, innovation, digital transformation and competitiveness.

b) Design, manage, execute and evaluate experimental processes that generate tangible solutions for the optimization of operations.

c) To comprehensively lead the process of continuous improvement, innovation and digital transformation in the production systems of a company that allow it to be internationally competitive.

d) Design, manage, evaluate and improve production systems based on contemporary principles and philosophies of intelligent production and manufacturing, supported by the use of statistical tools, data science and process optimization.

e) Integrate the participation of human resources as a key element in the operation of the organizational management and production processes, as well as the efficient administration of organizational and technological resources.

Graduation Profile

Professionals who are agents of change in organizations with the integral management of processes through quality, operational excellence, innovation and digital transformation, putting the person as a key element in the development of competitive and sustainable organizations.

MIP-V Master in Engineering with specialization in Quality Systems and Productivity
(Online Program)
Plan 2022

First Trimester

Code	Name	CA
MA4020	Statistics and Data Analytics	3
OP4046	Quality Development Course	3
		6

Second Trimester

Code	Name	CA
IN4052	Quality and Competitiveness in the Digital Age	3
IN4053	Smart Supply Chain	3
		6

Third Trimester

Code	Name	CA
IN5130	Intelligent Systems of Statistical Process Control	3
IN5131	Production Management and Smart Factories	3
		6

Fourth Trimester

Code	Name	CA
IN4054	Project Management and Agile Methods	3
OP5085	Elective I	3
		6

Fifth Trimester

Code	Name	CA
OP5086	Elective II	3
OP5087	Elective III	3
		6

Sixth Trimester

Code	Name	CA
IN4055	Integrating Quality and Productivity Project I	3
OP5088	Elective IV	3
		6

Seventh Trimester

Code	Name	CA
IN5132	Integrating Quality and Productivity Project II	3
OP5089	Elective V	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MNA-V Master in Applied Artificial Intelligence (Online Program)

Program and Learning Outcomes

Admission Profile

Professionals from any area who are interested in acquiring solid knowledge of AI as a means to consolidate and transform their company through solutions based on emerging technologies, helping in decision-making and business intelligence. Professionals interested in designing and proposing intelligent and innovative solutions based on studies and analysis through data science, intelligent software, autonomous mobility, or a network of sensors, underpinning the competitiveness and leadership of organizations. Professionals in the engineering area who want to explore solutions based on emerging technologies and supported by artificial intelligence to transform the processes and activities of the organization.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Demonstrate and use a high level of knowledge and business intelligence, through the use of intelligent algorithms, to propose solutions to real and complex problems that arise in companies.

b) Analyze, manage, direct and propose solutions to processes and problems that come from areas such as software engineering, smart manufacturing, autonomous mobility, and in general any process that arises from a company with technologies involved in Industry 4.0.

c) Communicate clearly, effectively, and efficiently the results of your professional work orally, in writing, and through data visualization. This effective and contextualized communication should be applicable when informing both colleagues in your work group, as well as your superiors or clients.

d) Work in the professional community of their area of expertise with leadership in an efficient, collaborative and ethical manner.

Graduation Profile

Agents of change in organizations, who carry out innovation, technological development, and technology transfer through solutions based on artificial intelligence and emerging technologies.

MNA-V Master in Applied Artificial Intelligence (Online Program)
Plan 2021

First Trimester

Code	Name	CA
OP5085	Elective I	3
TC4029	Analytics and Data Science	3
TC5032	Data Display	3
		9

Second Trimester

Code	Name	CA
OP5086	Elective II	3
TC4030	Artificial Intelligence and Machine Learning	3
TE4017	Iot and Sensors Networks	3
		9

Third Trimester

Code	Name	CA
OP4046	Quality Development Course	3
OP5087	Elective III	3
OP5088	Elective IV	3
		9

Fourth Trimester

Code	Name	CA
OP5089	Elective V	3
OP5096	Elective VI	3
OP5097	Elective VII	3
		9

Fifth Trimester

Code	Name	CA
OP5098	Elective VIII	3
TC5035	Integrative Project	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MNT Master in Nanotechnology

Program and Learning Outcomes

Admission Profile

The master's program in Nanotechnology is aimed at professionals in areas of engineering and natural sciences mainly interested in conducting high-impact research to contribute to the knowledge of any of the specialty areas of Nanotechnology. Students entering this program should have excellent academic background, vocation in the generation of knowledge, fluency of communication, working professionally under strict ethical standards who are open to new ways of assimilation of knowledge and professional practice and intellectually curious.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Demonstrate a high level of theoretical and methodological knowledge of Nanotechnology in any professional situation.

b) Perform research in their area of expertise to provide knowledge relevant to the advancement of nanotechnology.

c) Communicate their professional work results in a clear, effective and efficient manner.

d) Work in their professional community of their area of expertise with efficient leadership, collaborative and ethical manner.

Graduation Profile

Professionals for industry and academia, who, as agents of change, be able to do applied research, technological development, innovation, and technology transfer in the areas of nanotechnology.

MNT Master in Nanotechnology
Plan 2016

First Semester

Code	Name	CA
F4002	Computer Simulations	3
GI5000	Research and Innovation Methods	1.5
MA4007	Partial Differential Equations	3
OP4000	Quality Development Course	1.5
		9

Second Semester

Code	Name	CA
MA4009	Statistical Methods	3
NT5011	Thesis I	3
Q4001	Thermodynamics of Materials	3
		9

Third Semester

Code	Name	CA
NT5012	Thesis II	3
OP5042	Elective I	3
OP5043	Elective II	3
		9

Fourth Semester

Code	Name	CA
NT5013	Thesis III	3
OP5044	Elective III	3
OP5045	Elective IV	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MOI Master in Industrial Engineering

Justification

In a global and highly competitive business, the areas of project management and supply chain are a distinguishing factor and largely enabling element of its competitiveness and capacity for innovation. There is a need for mastering those rapidly changing areas of knowledge; a proliferation of products both software and hardware, the results of new theories, methods and techniques, directly impact activities that add value to organizations. Those advances bring as result a very high obsolescence rate leading to a large demand for human resources with an international profile able to assimilate, evaluate, transfer and integrate new advances in the development of new products and services for the areas of project management and supply chain in accordance with current requirements of the organizations.

In this sense, the training for specialists that respond to the needs in the areas of project management and supply chain becomes a priority. The Tecnológico de Monterrey concerned about these claims, has implemented several academic measures to respond to the stated needs. An example of this dynamism is the Master of Science in Industrial Engineering (MOI) an academic program that seeks to strengthen the competitiveness of professional graduates and promote the new role of these skilled professionals in project management and supply chain in society. It is an academic program discrete, efficient, flexible and fully aligned with the Mission of Tecnológico de Monterrey.

General Program Objectives

- To train highly qualified professionals with an extensive knowledge to manage, evaluate and schedule projects, with a medium and long term development and implementation of project plans concept.
- To train highly qualified professionals that help improve the competitiveness of an organization through innovations in the management of the supply chain; optimize logistics processes and supply chain organization through technological and administrative innovations.

Learning Outcomes

On completing the program, students will be able to:

- Apply methodologies for business innovation.
- Apply quantitative techniques and programming tools of time and resources projects, including the application of specialized management software programming projects.
- Support the strategic and efficient management of organizational and technological resources in the supply chain.
- Design, manage, evaluate and improve global production systems.
- Suggest new ways to care the return flows into production in order to face the urgent need for environmental conservation.

Target Audience

Professionals who wish to support the transformation of organizations through knowledge of tools for project management and managing the supply chain in its strategic areas of business, operations, transportation and storage. Professionals in the areas of supply chain projects and whether practitioners, consultants and trainers who wish to deepen, update or develop their skills in the various areas of specialization. Graduates from the Bachelor of Arts or Bachelor of Science degrees who are familiar with probability and statistics and operations research. If they do not meet these requirements, candidates can complete remedial courses.

Research Areas

- Project management.
- Supply chain.

MOI Master in Industrial Engineering
Plan 2013

First Trimester

Code	Name	CA
AD4004	Competitive Strategy and Business Design	3
AD5034	Project Management	3
OP4036	Quality Development Course	3
		9

Second Trimester

Code	Name	CA
AD4001	Statistical Analysis in Organizations	3
AD5003	Value Creation, Business and Network Models	3
FZ5011	Economic Engineering	3
		9

Third Trimester

Code	Name	CA
IN5096	Transportation and Third Party Logistics	3
OP5053	Elective I	3
OP5054	Elective II	3
		9

Fourth Trimester

Code	Name	CA
OP5055	Elective III	3
OP5056	Elective IV	3
OP5057	Elective V	3
		9

Fifth Trimester

Code	Name	CA
IN5101	Integrative Project	3
OP5058	Elective VI	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MSM Master of Science in Manufacturing Systems

Program and Learning Outcomes

Admission Profile

Engineers from all disciplines. Due to its interdisciplinary nature, the development and technological improvement of manufacturing systems requires the interaction of multiple areas of knowledge.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Consolidate companies' competitiveness through the development and integration of design and manufacturing technology in order to increase productivity, enhance quality, reduce costs and ensure their reliability.

b) Plan, manage and execute technological development projects in the area of high added-value product design and manufacturing, taking into consideration their technical, economic and social impact.

c) Interact with national and international multidisciplinary working groups for research, development and innovation in relation to new products and manufacturing processes.

d) Independently update their knowledge in order to continue to be an agent of technological change and development in the manufacturing industry.

Graduation Profile

Professionals for industry, who, as agents of change, will be capable of technological development, innovation and technology transfer, in new products, manufacturing materials and productive process design settings.

MSM Master of Science in Manufacturing Systems
Plan 2009

Remedial Semester

Code	Name	CA
M1002	Computerized Drawing	3
M2010	Materials Behavior	3
M4000	Analysis and Synthesis of Mechanical Systems	3
		9

First Semester

Code	Name	CA
GI5000	Research and Innovation Methods	1.5
M4009	Advanced Materials in Manufacturing	3
OP4000	Quality Development Course	1.5
OP4006	Elective Course I	3
		9

Second Semester

Code	Name	CA
M4008	Product Design	3
M4010	Automation in Manufacturing Systems	3
OP5042	Elective I	3
		9

Third Semester

Code	Name	CA
GI5007	Thesis I	3
OP5043	Elective II	3
OP5044	Elective III	3
		9

Fourth Semester

Code	Name	CA
GI5008	Thesis II	3
OP5045	Elective IV	3
OP5046	Elective V	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MTI-V Master in Information Technology Management

(Online Program)

Program justification programa (MTI)

Nowadays, any type of company, large, small, traditional or online, demands professionals with specialized knowledge in the areas of information technology management. And it does not matter if a company is directly focused on the area of technologies, the reality is that currently they all handle, manage and make use of various frontier technologies, generating a huge amount of information that needs to be processed and managed intelligently to support your business strategies.

In this context, the Master in Information Technology Management is an educational alternative that arises as a response to the need of local, national and international companies to have professionals specialized in the areas of management and administration of information technologies. Companies require the knowledge and skills of a person who knows how to communicate transversally and vertically within a company, managing and communicating the needs and solutions to problems related to emerging technologies.

Target Audience

The MTI program is aimed to:

- Professionals from any area interested in specializing in IT management as a tool to transform transversal processes and strategically underpin the competitiveness of organizations.
- Professionals interested in the IT management, who want to understand the value of technologies for organizations, mastering the techniques necessary for their administration and the search for business opportunities.
- Professionals in the engineering area who want to get into information and communication technologies as a tool to transform the processes and activities of the organization.

Program Objective

The objective of the Master of Information Technology Management is to train professionals who:

- Are capable of promoting, with a strategic vision of the organization, the generation of value through information and communication technologies.
- Are capable of acting as the means of communication between decision makers and designers of growth strategies with new technologies.

Graduate Competences

The graduate will be able to:

- Generate value in organizations with a leadership based on the application of information emerging technologies.
- Understand the business model and unify the global strategy and IT strategy under an innovative scheme.
- Identify IT projects and required resources, as well as lead the changes necessary to increase competitiveness in a globalized environment.

Admission Profile

Tecnológico de Monterrey seeks to integrate in all its graduate programs a new generation of students who have completed their studies and who are distinguished by being talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with an entrepreneurial spirit, human sense and internationally competitive.

MTI-V Master in Information Technology Management (Online Program)
Plan 2021

First Trimester

Code	Name	CA
AD4050	Project, Program and Portfolio Management	3
RH4005	Human Talent Development	3
		6

Second Trimester

Code	Name	CA
TI4029	Technological Architecture Models	3
TI4030	Information Technology Governance	3
		6

Third Trimester

Code	Name	CA
TI4031	Strategic Enterprise Performance Management	3
TI4032	Digital Transformation of Organizations	3
		6

Fourth Trimester

Code	Name	CA
OP4046	Quality Development Course	3
OP5085	Elective I	3
		6

Fifth Trimester

Code	Name	CA
OP5086	Elective II	3
OP5087	Elective III	3
		6

Sixth Trimester

Code	Name	CA
OP5088	Elective IV	3
TC5036	Capstone Project I	3
		6

Seventh Trimester

Code	Name	CA
OP5089	Elective V	3
TC5037	Capstone Project II	3
		6

CA The letters "CA" represents the number of credit hour of the course.

DBT Ph. D. in Biotechnology

Program and Learning Outcomes

Admission Profile

Graduates of Master's degree in areas related to biotechnology, biology, chemistry, biochemistry, chemical engineering, biochemical engineering, food engineering, medicine, nutrition, among others.

Academic background for admission: Undergraduate or Master degree program in an area related to the research lines of the program.

Student Learning Outcomes

a) Understand the application of basic sciences and research methodology techniques in areas of cell biology, physiology, biochemistry, and bioprocesses engineering.

b) Use research skills including translational research, critical evaluation, laboratory safety and experimental planning.

c) Design experiments from the identification of the problems to the interpretation of results.

d) Analyze critically results and data with advanced statistics tools, such as bioinformatics and data mining.

e) Communicate effectively orally and in writing with their peers: mentors, research community, society and grantsmanship.

f) Make decisions with scientific judgment and critical thinking in their practice as researchers following legal, ethical and official government regulations.

Graduate Profile

Scientists who create biological knowledge establish novel and innovative technologies that are relevant for the food and pharmaceutical sectors and understand basic phenomena within the field of life sciences. They work as leaders or as collaborators within national and international research groups, in areas such as nutraceuticals, biopharmaceuticals, bioinformatics, bioprocesses, cancer, cardiovascular sciences, stem cell biology, biomedical devices, biophysics, immunology and metabolism, among others.

The findings of their discoveries are important outcomes which should be submitted for peer-reviewed and academic publication, patents, or conference proceedings. This knowledge transference as well as all of their professional activities follows legal, ethical and official norms.

DBT Ph. D. in Biotechnology
Plan 2011

First Semester

Code	Name	CA
GI5000	Research and Innovation Methods	1.5
OP4000	Quality Development Course	1.5
OP5062	Elective I	3
OP5063	Elective II	3
OP5064	Elective III	3
		12

Second Semester

Code	Name	CA
GI5011	Research Proposal I	3
OP5065	Elective IV	3
OP5066	Elective V	3
OP5067	Elective VI	3
		12

Third Semester

Code	Name	CA
GI5012	Research Proposal II	3
GI5014	Research Seminar I	1
OP5068	Elective VII	3
OP5069	Elective VIII	3
OP5070	Elective IX	3
		13

Fourth Semester

Code	Name	CA
GI5013	Research Proposal III	3
GI5017	Assisted Research I	3
OP5071	Elective X	3
OP5072	Elective XI	3
		12

Fifth Semester

Code	Name	CA
GI5018	Assisted Research II	3
GI5019	Assisted Research III	3
GI6021	Doctoral Research I	3
GI6022	Doctoral Research II	3
		12

Sixth Semester

Code	Name	CA
GI5015	Research Seminar II	1
GI6023	Doctoral Research III	3
GI6024	Doctoral Research IV	3
GI6025	Doctoral Research V	3
		10

Seventh Semester

Code	Name	CA
GI6026	Doctoral Research VI	3
GI6027	Doctoral Research VII	3
GI6028	Doctoral Research VIII	3
		9

Eighth Semester

Code	Name	CA
GI5016	Research Seminar III	1
GI6029	Doctoral Research IX	3
GI6030	Doctoral Research X	3
GI6031	Doctoral Research XI	3
		10

Ninth Semester

Code	Name	CA
GI6000	Doctoral Defense	0.3
GI6032	Doctoral Research XII	3
GI6033	Doctoral Research XIII	3
GI6034	Doctoral Research XIV	3
		9.3

CA The letters "CA" represents the number of credit hour of the course.

DCC PH. D. in Computer Sciences

Program and Learning Outcomes

Admission Profile

Professional with proven academic ability, creativity, motivation and potential to carry out research projects that culminate in original works that contribute to enrich the field of information technology and computer science.

Academic background for admission: Master's degree in an area related to the research lines of the program.

Student Learning Outcomes

a) Generate new knowledge, contributing to the development of the state of the art in their respective areas.

b) Work in research, teaching, development, and technology management.

c) Explore the border of the state of the art of their specialty.

Graduate Profile

Researchers with competence, knowledge, and skills to identify opportunities, develop and conduct original research projects at the frontier of knowledge. Disseminate the results of research and apply the generated knowledge in the technological development of the country. To be recognized as a Computer Science program with high impact on the productive, educational/academic, and social sectors of the country.

DCC PH. D. in Computer Sciences
Plan 2016

First Semester

Code	Name	CA
CS6021	Guided Research I	3
CS6022	Guided Research II	3
CS6025	Integrated Exam	1.5
GI6041	Research Seminar I	0.5
GI6051	Research Workshop I	1
		9

Second Semester

Code	Name	CA
CS6031	Research Proposal I	3
CS6032	Research Proposal II	3
CS6035	Research Proposal Defense	1.5
GI6042	Research Seminar II	0.5
GI6052	Research Workshop II	1
		9

Third Semester

Code	Name	CA
CS6041	Research Integration I	1.5
CS6101	Doctoral Research I	3
CS6102	Doctoral Research II	3
GI6043	Research Seminar III	0.5
GI6053	Research Workshop III	1
		9

Fourth Semester

Code	Name	CA
CS6103	Doctoral Research III	3
CS6104	Doctoral Research IV	3
GI6044	Research Seminar IV	0.5
GI6054	Research Workshop IV	1
GI6061	Scientific Product I	1.5
		9

Fifth Semester

Code	Name	CA
CS6042	Research Integration II	1.5
CS6105	Doctoral Research V	3
CS6106	Doctoral Research VI	3
GI6045	Research Seminar V	0.5
GI6055	Research Workshop V	1
		9

Sixth Semester

Code	Name	CA
CS6107	Doctoral Research VII	3
CS6108	Doctoral Research VIII	3
GI6046	Research Seminar VI	0.5
GI6056	Research Workshop VI	1
GI6062	Scientific Product II	1.5
		9

Seventh Semester

Code	Name	CA
CS6109	Doctoral Research IX	3
CS6110	Doctoral Research X	3
CS6111	Doctoral Research XI	3
		9

Eighth Semester

Code	Name	CA
CS6112	Doctoral Research XII	3
CS6113	Doctoral Research XIII	3
CS6114	Doctoral Research XIV	3
CS6120	Doctoral Defense	0.3
		9.3

CA The letters "CA" represents the number of credit hour of the course.

DCI Ph. D. in Engineering Sciences

Program and Learning Outcomes

Admission Profile

Professional with proven academic ability, creativity, motivation and potential to carry out research that manifest itself in original work that contributes to enriching the field of technology.

Academic background for admission: Master's degree in an area of study related to engineering sciences or exact sciences.

Student Learning Outcomes

a) Identify opportunities and create and manage original research projects at the frontier of knowledge.

b) Disseminate research findings.

c) Apply the knowledge generated for the country's technological development.

d) Conduct high-impact research on engineering in the country's productive, education-academic and social sectors.

Graduate Profile

Professionals with a high level of basic knowledge in fundamental areas of engineering including, but not limited to, mathematics, statistics and computing. Likewise, they master the theoretical and methodological knowledge of engineering sciences in any professional situation. Graduates are capable of modeling engineering problems using appropriate mathematical language, as well as conducting research in their area of specialty that provides new knowledge of relevance to the advancement of engineering sciences, under the supervision of the direct advisor and the committee thesis. Finally, they have the ability to develop solutions to engineering problems using technological tools and to communicate the results of their professional work in a clear, effective and efficient manner.

DCI Ph. D. in Engineering Sciences
Plan 2018

First Semester

Code	Name	CA
GI5017	Assisted Research I	3
GI5018	Assisted Research II	3
GI6035	Integrated Exam	1.5
GI6041	Research Seminar I	0.5
GI6051	Research Workshop I	1
		9

Second Semester

Code	Name	CA
GI5011	Research Proposal I	3
GI5012	Research Proposal II	3
GI6036	Research Proposal Defense	1.5
GI6042	Research Seminar II	0.5
GI6052	Research Workshop II	1
		9

Third Semester

Code	Name	CA
GI6021	Doctoral Research I	3
GI6022	Doctoral Research II	3
GI6037	Research Integration I	1.5
GI6043	Research Seminar III	0.5
GI6053	Research Workshop III	1
		9

Fourth Semester

Code	Name	CA
GI6023	Doctoral Research III	3
GI6024	Doctoral Research IV	3
GI6044	Research Seminar IV	0.5
GI6054	Research Workshop IV	1
GI6061	Scientific Product I	1.5
		9

Fifth Semester

Code	Name	CA
GI6025	Doctoral Research V	3
GI6026	Doctoral Research VI	3
GI6038	Research Integration II	1.5
GI6045	Research Seminar V	0.5
GI6055	Research Workshop V	1
		9

Sixth Semester

Code	Name	CA
GI6027	Doctoral Research VII	3
GI6028	Doctoral Research VIII	3
GI6046	Research Seminar VI	0.5
GI6056	Research Workshop VI	1
GI6062	Scientific Product II	1.5
		9

Seventh Semester

Code	Name	CA
GI6029	Doctoral Research IX	3
GI6030	Doctoral Research X	3
GI6031	Doctoral Research XI	3
		9

Eighth Semester

Code	Name	CA
GI6000	Doctoral Defense	0.3
GI6032	Doctoral Research XII	3
GI6033	Doctoral Research XIII	3
GI6034	Doctoral Research XIV	3
		9.3

CA The letters "CA" represents the number of credit hour of the course.

DNT Ph. D. in Nanotechnology

Program and Learning Outcomes

Admission Profile

The candidates with proven academic ability, creativity, motivation and potential to carry out investigations revealed in original works that contribute to enriching the field of nanotechnology.

Academic background for admission: Master's degree in an area related to the research lines of the program.

Student Learning Outcomes

a) Understand the application of basic sciences and research methodology techniques on areas of Nano materials, Nano sensors and Nano photonics.

b) Use research skills including materials preparation, characterization, critical evaluation, laboratory safety and experimental planning

c) Design experiments from the identification of the problems to the interpretation of results.

d) Communicate effectively orally and in writing with their peers: mentors, research community, society, and grant proposals.

e) Make decisions with scientific judgment and critical thinking in their practice as researchers following legal, ethical and government regulations.

Graduate Profile

Scientists who create knowledge to establish novel and innovative technologies that are relevant for the materials and manufacturing sectors and understand basic phenomena within the field of Nano sciences. They work as leaders or as collaborators within national and international research groups, on areas such as Nano materials, Nano sensors and Nano photonics, among others. The findings of their discoveries are important outcomes which should be submitted for peer-reviewed and academic publication, patents, or conference proceedings. This knowledge transference as well as all their professional activities follows legal, ethical, and official norms.

DNT Ph. D. in Nanotechnology
Plan 2016

First Semester

Code	Name	CA
GI6041	Research Seminar I	0.5
GI6051	Research Workshop I	1
NT6021	Guided Research I	3
NT6022	Guided Research II	3
NT6025	Integrated Exam	1.5
		9

Second Semester

Code	Name	CA
GI6042	Research Seminar II	0.5
GI6052	Research Workshop II	1
NT6031	Research Proposal I	3
NT6032	Research Proposal II	3
NT6035	Research Proposal Defense	1.5
		9

Third Semester

Code	Name	CA
GI6043	Research Seminar III	0.5
GI6053	Research Workshop III	1
NT6041	Research Integration I	1.5
NT6101	Doctoral Research I	3
NT6102	Doctoral Research II	3
		9

Fourth Semester

Code	Name	CA
GI6044	Research Seminar IV	0.5
GI6054	Research Workshop IV	1
GI6061	Scientific Product I	1.5
NT6103	Doctoral Research III	3
NT6104	Doctoral Research IV	3
		9

Fifth Semester

Code	Name	CA
GI6045	Research Seminar V	0.5
GI6055	Research Workshop V	1
NT6042	Research Integration II	1.5
NT6105	Doctoral Research V	3
NT6106	Doctoral Research VI	3
		9

Sixth Semester

Code	Name	CA
GI6046	Research Seminar VI	0.5
GI6056	Research Workshop VI	1
GI6062	Scientific Product II	1.5
NT6107	Doctoral Research VII	3
NT6108	Doctoral Research VIII	3
		9

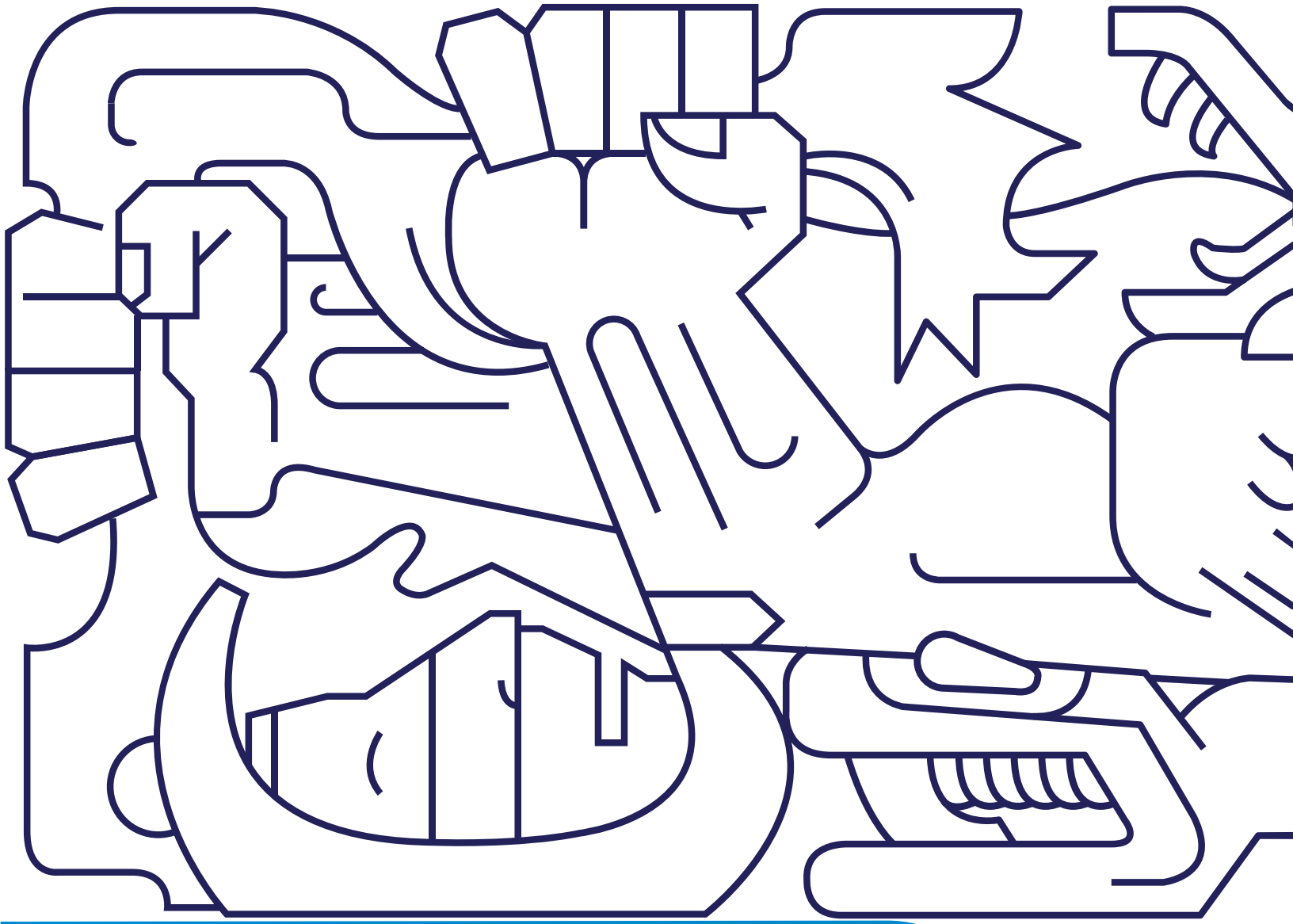
Seventh Semester

Code	Name	CA
NT6109	Doctoral Research IX	3
NT6110	Doctoral Research X	3
NT6111	Doctoral Research XI	3
		9

Eighth Semester

Code	Name	CA
NT6112	Doctoral Research XII	3
NT6113	Doctoral Research XIII	3
NT6114	Doctoral Research XIV	3
NT6120	Doctoral Defense	0.3
		9.3

CA The letters "CA" represents the number of credit hour of the course.



School of Medicine and Health Science

RAP Residency in Anatomic Pathology

Program and Learning Outcomes

Admission Profile

The Residency in Anatomical Pathology requires physicians who have completed their undergraduate degree and who throughout their studies showed a special interest in morphological science by participating in activities as scholarship holders within the department, who have selected Pathology as one of their optional rotations and/or conducted social service activities in pathology. Students must satisfactorily meet all the residency and master's admissions requirements of Tecnológico de Monterrey, be proficient in English and have a suitable psychological profile.

Academic background for admission: have a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Apply with professionalism their knowledge of Anatomical Pathology in order to establish definitive diagnoses in pathology.

b) Develop a critical rationale of the information available to communicate in a scientific, orientating manner with their colleagues who are involved in the patient's diagnosis and treatment.

c) Participate in basic and clinical research as a member of a research team.

d) Efficiently coordinate healthcare teams of practitioners and technicians in relation to Anatomical Pathology.

e) Collaborate in inter-and multi-disciplinary teams exchanging experiences to enhance medical attention.

f) Act with professionalism, ethics, and a humanistic outlook.

Graduate Profile

Specialist practitioners who support patients and physicians in solving diagnostic problems. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional. Anatomical Pathology Residents who graduate from this institution are outstanding leaders in local and international settings who contribute to the generation and implementation of innovations in human-tissue prosection strategies and procedures that will result in the most accurate diagnosis possible.

RAP Residency in Anatomic Pathology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4153	Anatomic Pathology I	3
ME4154	Clinical Practice in Anatomic Pathology I	3
		7.5

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4155	Anatomic Pathology II	3
ME4156	Clinical Practice in Anatomic Pathology II	3
		7.5

Third Semester

Code	Name	CA
ME4142	Quality Health Care	1.5
ME4157	Anatomic Pathology III	3
ME4158	Clinical Practice in Anatomic Pathology III	3
		7.5

Fourth Semester

Code	Name	CA
ME4143	Research and Innovation Methods	1.5
ME4159	Anatomic Pathology IV	3
ME4160	Clinical Practice in Anatomic Pathology IV	3
		7.5

Fifth Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME5201	Anatomic Pathology V	3
ME5202	Clinical Practice in Anatomic Pathology V	3
		9

Sixth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5203	Anatomic Pathology VI	3
ME5204	Clinical Practice in Anatomic Pathology VI	3
		9

Seventh Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5205	Anatomic Pathology VII	3
ME5206	Clinical Practice in Anatomic Pathology VII	1.5
		6

Eighth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5207	Anatomic Pathology VIII	3
ME5208	Clinical Practice in Anatomic Pathology VIII	1.5
ME5266	Thesis Defense	0.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RCA Residency in Health Care Quality

Program and Learning Outcomes

Admission Profile

This program is aimed at physicians who have passed the national Medical Residency Applicant Examination and who have an interest and vocation in this specialty; the skills and attitudes for evaluating the quality and safety of healthcare processes and for leading improvement efforts within the framework of health organizations and services; a sense of commitment to patient safety and the provision of quality first-contact healthcare services; the capacity to read and comprehend medical literature in English. They must also be available full-time to cover academic and healthcare activities in compliance with the regulations in effect. In order to be admitted to the Residency in Healthcare Quality of Tecnológico de Monterrey, applicants must satisfactorily meet the graduate admission requirements stipulated by ITESM and the Mexican Ministry of Health.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Drive and direct organizational change and innovation through resource and health service infrastructure management, in order to construct, transform and operate clinical and administrative healthcare processes that are centered on the patient and his/her family, constantly seeking quality, safety, and self-sustainability in healthcare services.

b) Develop and transform their community through the collaborative construction of knowledge; the lifelong development of their abilities and skills; professional development founded on ethical values; relevant scientific research in the clinical-systemic interface; and the ongoing consolidation of their capacity to perform in national and international settings.

Graduate Profile

Specialist practitioners who apply their knowledge and innovation practice at the macro and micro healthcare levels, according to the highest quality and safety standards. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Health Care Quality Residents who graduate from this institution are outstanding leaders in local and international settings who design, implement and evaluate effective operating strategies in organizations belonging to the healthcare sector, based on investigation processes and innovation, bringing about organizational change in this sector.

RCA Residency in Health Care Quality
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4177	Management in Clinical Care I	3
ME4178	Hospital Practice I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4179	Management in Clinical Care II	3
ME4180	Hospital Practice II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4181	Management in Clinical Care III	3
ME4182	Hospital Practice III	3
		9

Fourth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5225	Management in Clinical Care IV	3
ME5226	Hospital Practice IV	3
		9

Fifth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5227	Management in Clinical Care V	3
ME5228	Hospital Practice V	1.5
		6

Sixth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5229	Management in Clinical Care VI	3
ME5230	Hospital Practice VI	1.5
ME5266	Thesis Defense	0.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RCR Residency in Cardiology

Program and Learning Outcomes

General Program Objectives

The aim of the Residency in Cardiology of Tecnológico de Monterrey is to train exceptional Cardiologists who contribute to the prevention, detection, treatment and rehabilitation of cardiovascular diseases, according to the highest quality and safety standards, in both inpatient and outpatient settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Cardiologists who graduate from this program are outstanding, inter- nationally competitive leaders in their field. They conduct research in the basic areas of cardiology, clinical cardiology, cardiovascular imaging, electrocardiography, hemodynamics, interventional cardiology and endovascular treatment.

Learning Outcomes

On completing the program, students will be able to:

- Deliver medical attention and care to patients with cardiovascular problems and diseases.

- Analyze, investigate and assess the results of the clinical guides and medical protocols used for patients with cardiovascular problems and diseases.

- Communicate effectively with patients, family members, faculty, colleagues and other members of the healthcare team.

- Execute their professional duties with commitment and responsibility, adhering strictly to the ethical principles of the profession.

- Know and take into consideration the characteristics of the diverse health systems and their influence on the medical attention of patients with cardiovascular problems and diseases.

Target Audience

Applicants to the Residency in Cardiology of Tecnológico de Monterrey are graduates from the Physician and Surgeon program who have earned credit for at least two years in the Residency in Internal Medicine at hospital and university insti- tutions belonging to the National System of Residencies in Medical Specialties. Doctors who have completed the Residency in Internal Medicine in other countries at universities that are recognized by the Tecnológico de Monterrey System can also apply to participate in this program.

In order to be admitted to the Residency in Cardiology of Tecnológico de Monterrey, applicants must satisfactorily meet the graduate admission requirements stipulated by ITESM and the Mexican Ministry of Health.

RCR Residency in Cardiology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4228	Cardiology I	3
ME4229	Medical Care in Cardiology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4230	Cardiology II	3
ME4231	Medical Care in Cardiology II	3

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4232	Cardiology III	3
ME4233	Medical Care in Cardiology III	3

Fourth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5281	Cardiology IV	3
ME5282	Medical Care in Cardiology IV	3

Fifth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5283	Cardiology V	3
ME5284	Medical Care in Cardiology V	1.5

Sixth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5266	Thesis Defense	.3
ME5285	Cardiology VI	3
ME5286	Medical Care in Cardiology VI	1.5

CA The letters "CA" represents the number of credit hour of the course.

REA Residency in Anesthesiology

Program and Learning Outcomes

Admission Profile

Applicants must be qualified physicians in compliance with all the official regulations of the Ministry of Education and the Ministry of Health. They should display high moral values; be ethical and congruent with the profession they have chosen to practice. They must also be willing to work in multidisciplinary teams, interested in conducting quality research, proficient in their native language as well as a foreign language, have a neat and tidy appearance, and show respect for patients, staff and the institution in which they work.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Applying their knowledge, abilities and skills in a collaborative, multidisciplinary manner, within a framework of safe, comprehensive patient care.

b) Be creative and innovative, conducting relevant clinical research and able to perform with quality in national and international settings, consolidating their professional competency activities with solid attitudes and values.

Graduate Profile

Anesthesiologists who apply anesthesia and analgesia techniques, according to the highest quality and safety standards, in both inpatient and outpatient settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice, outstanding leaders at local and international levels, who contribute through clinical research to generating innovations in the techniques and procedures of this specialization that will benefit patients, their families, specialists, the healthcare team, and medical institutions.tional levels, who contribute through clinical research to generating innovations in the techniques and procedures of this specialization that will benefit patients, their families, specialists, the healthcare team and medical institutions.

REA Residency in Anesthesiology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4234	Anesthesiology I	3
ME4235	Medical Care in Anesthesiology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4236	Anesthesiology II	3
ME4237	Medical Care in Anesthesiology II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4238	Anesthesiology III	3
ME4239	Medical Care in Anesthesiology III	3
		9

Fourth Semester

Code	Name	CA
ME4240	Anesthesiology IV	3
ME4241	Medical Care in Anesthesiology IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5287	Anesthesiology V	3
ME5288	Medical Care in Anesthesiology V	1.5
		6

Sixth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5289	Anesthesiology VI	3
ME5290	Medical Care in Anesthesiology VI	1.5
		6

Seventh Semester

Code	Name	CA
ME5291	Anesthesiology VII	3
ME5292	Medical Care in Anesthesiology VII	3
		6

Eighth Semester

Code	Name	CA
ME5266	Thesis Defense	0.3
ME5293	Anesthesiology VIII	3
ME5294	Medical Care in Anesthesiology VIII	3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

REC Residency in General Surgery

Program and Learning Outcomes

Admission Profile

This program is aimed at physicians who seek a highly competitive training program that will drive their leadership capacity in General Surgery, who are proficient in English, computer literate and have research skills. They must demonstrate their concern for social commitment, professionalism, leadership and entrepreneurial capability.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Perform as experts in the comprehensive, ongoing care of surgical patients in relation to diagnoses, selection, preoperative, operative, and postoperative care, including managing the pathology and complications in the gastrointestinal tract; abdomen and its contents; mammary glands and soft tissue; head and neck; endocrine system; surgical oncology; polytraumatized patients and severely ill patients in the ER or ICU.

b) Provide preoperative, operative, and postoperative care for pediatric, plastic, peripheral vascular, general thoracic and transplant surgery, and handle the most common problems in cardiac, gynecological, neurological, orthopedic and urological surgery, as well as in the administering of anesthetic agents.

c) Use endoscopic techniques, in particular laparoscopy and minimally invasive surgical techniques, as well as other relevant diagnostic and therapeutic techniques.

d) Act with professionalism within a framework of honesty and professional ethics, with a profound sense of respect and sensitivity toward patients and the medical community.

e) Communicate effectively with the patient, family members and other members of multidisciplinary healthcare teams, orally and in writing.

f) Apply the analytical skills of reasoning, medical judgment and decision making to solve problems in their specialty and use scientific method to conduct research projects that will have an impact on improving healthcare.

Graduate Profile

Surgeons who deliver clinical care to patients with surgical pathology, according to the highest quality and safety standards. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Surgeons who graduate from this institution are outstanding leaders at national and international levels, who contribute through research to generating innovations in surgical procedures, in healthcare models and in the development of the discipline itself**.**

REC Residency in General Surgery
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4250	General Surgery I	3
ME4251	Medical Care in General Surgery I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4252	General Surgery II	3
ME4253	Medical Care in General Surgery II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4254	General Surgery III	3
ME4255	Medical Care in General Surgery III	3
		9

Fourth Semester

Code	Name	CA
ME4256	General Surgery IV	3
ME4257	Medical Care in General Surgery IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME4258	General Surgery V	3
ME4259	Medical Care in General Surgery V	3
		6

Sixth Semester

Code	Name	CA
ME5302	General Surgery VI	3
ME5303	Medical Care in General Surgery VI	3
		6

Seventh Semester

Code	Name	CA
ME5304	General Surgery VII	3
ME5305	Medical Care in General Surgery VII	3
		6

Eighth Semester

Code	Name	CA
ME5306	General Surgery VIII	3
ME5307	Medical Care in General Surgery VIII	3
		6

Ninth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5308	General Surgery IX	3
ME5309	Medical Care in General Surgery IX	1.5
		6

Tenth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5266	Thesis Defense	0.3
ME5310	General Surgery X	3
ME5311	Medical Care in General Surgery X	1.5
		6.3

CA The letters "CA" represents the number of credit hour of the course.

REE Residency in Critical Care Medicine

Program and Learning Outcomes

General Program Objectives

The aim of the Residency in Critical Care Medicine of Tecnológico de Monterrey is to train exceptional specialist practitioners who meet the health needs of critical patients, according to the highest quality and safety standards, in public and private settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice.

Critical Care Medicine Residents who graduate from this institution are outstanding leaders locally and internationally, who generate innovation with new diagnostic and therapeutic methodologies and technologies, as well as early disease detection programs in the population under their care.

Learning Outcomes

On completing the program, students will be able to:

- Promote, prevent, diagnose, treat and rehabilitate critical care health issues.

- Practice Critical Care Medicine in public and private healthcare systems.

- Make medical decisions applying clinical reasoning, evidence-based medicine, the use of critical thinking, research methodology and the comprehensive use of statistics.

- Be creative and innovative and handle uncertainty.

- Interact effectively in multidisciplinary teams, in teaching and research activities, and the comprehensive management of a Critical Care Unit.

- Practice as a Critical Care specialists within the framework of Medical Ethics, with responsibility and respect for the dignity of individuals and of the community where they provide these services.

Target Audience

The Multicentric Critical Care Medicine Program of Tecnológico de Monterrey is aimed at graduates from the Medical Residencies in Internal Medicine, Anesthesiology or Medical-Surgical Emergencies, whose academic performance has been outstanding and who have a vocation for and clear interest in this discipline, a spirit of innovation and com- mitment to lifelong learning, with a genuine interest in research and teaching. In order to be admitted to the Residency in Critical Care Medicine of Tecnológico de Monterrey, applicants must satisfactorily meet the graduate admission requirements stipulated by ITESM and the Mexican Ministry of Health.

REE Residency in Critical Care Medicine
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4197	Critical Care Medicine I	3
ME4198	Medical Care in Critical Medicine I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4199	Critical Care Medicine II	3
ME4200	Medical Care in Critical Medicine II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME5191	Elective Specialty I	1.5
ME5245	Critical Care Medicine III	3
ME5246	Medical Care in Critical Medicine III	1.5
		9

Fourth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5192	Elective Specialty II	1.5
ME5247	Critical Care Medicine IV	3
ME5248	Medical Care in Critical Medicine IV	1.5
ME5266	Thesis Defense	.3
		9.3

CA The letters "CA" represents the number of credit hour of the course.

REG Residency in Obstetrics and Gynecology

Program and Learning Outcomes

Admission Profile

This program is aimed at general doctors who have a deep social commitment and an interest in providing quality care for senior citizens from a holistic perspective, identifying the patient as the protagonist of this care.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Develop geriatric care models for institutional and private environments, based on the human being and the social and family environment, within the framework of medical ethics.

b) Coordinate the actions of interdisciplinary healthcare teams for the medical and gerontological care of their patients, constantly seeking to improve their quality of life.

c) Conduct clinical research projects in geriatrics.

d) Provide the highest quality healthcare based on state-of-the-art geriatrics within a framework of ethics and professionalism.

e) Educate healthcare personnel and the community on the attention and care of elderly patients.

Graduate Profile

Geriatricians who meet the healthcare needs of the elderly, according to the highest quality and safety standards, in inpatient, outpatient and pro-longed-care settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Geriatricians who graduate from this institution are outstanding leaders in both local and international settings and contribute to designing strategies and generating innovations to solve problems related to the health of the elderly.

REG Residency in Obstetrics and Gynecology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4266	Fundaments in Obstetrics and Gynecology I	3
ME4267	Medical Care in Obstetrics and Gynecology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4268	Fundaments in Obstetrics and Gynecology II	3
ME4269	Medical Care in Obstetrics and Gynecology II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4270	Ambulatory Care in Obstetrics and Gynecology	3
ME4271	Medical Care in Obstetrics and Gynecology III	3
		9

Fourth Semester

Code	Name	CA
ME4272	Obstetrics and Gynecology Specialties I	3
ME4273	Medical Care in Obstetrics and Gynecology IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5318	Obstetrics and Gynecology Specialties II	3
ME5319	Medical Care in Obstetrics and Gynecology V	1.5
		6

Sixth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5320	Obstetrics and Gynecology Specialties III	3
ME5321	Medical Care in Obstetrics and Gynecology VI	1.5
		6

Seventh Semester

Code	Name	CA
ME5322	Advances in Obstetrics and Gynecology I	3
ME5323	Medical Care in Obstetrics and Gynecology VII	3
		6

Eighth Semester

Code	Name	CA
ME5266	Thesis Defense	.3
ME5324	Advances in Obstetrics and Gynecology II	3
ME5325	Medical Care in Obstetrics and Gynecology VIII	3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

REM Residency in Internal Medicine

Program and Learning Outcomes

General Program Objectives

The aim of the Residency in Internal Medicine of Tecnológico de Monterrey is to train exceptional Internists who meet the health needs of adult patients, according to the highest quality and safety standards, in both inpatient and outpatient set- tings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Internists who graduate from this institution are outstanding leaders locally and internationally, who contribute to the continuous enhancement of healthcare processes and to generating innovations in the primary or secondary prevention of disorders that affect the adult population, in particular chronic-degenerative diseases.

Learning Outcomes

On completing the program, students will be able to:

- Apply their knowledge of Internal Medicine to diagnose, treat, prevent and rehabilitate health issues in adult patients.

- Keep their knowledge of Internal Medicine and its subspecialties up to date by consulting relevant information sources in order to provide optimal healthcare.

- Formulate significant clinical questions related to their patients, care and resolve them through clinical or bibliographic research.

- Communicate their clinical care and research ideas effectively and clearly, orally and in writing.

- Deliver medical care to patients with professionalism and the highest ethical standards.

Target Audience

The Multicentric Internal Medicine Program of Tecnológico de Monterrey is aimed at graduates from the undergraduate program in Medicine, whose academic performance has been outstanding and who have a vocation for and clear interest in this discipline, with a genuine interest in research and teaching.

In order to be admitted to the Residency in Critical Care Medicine of Tecnológico de Monterrey, applicants must satisfactorily meet the graduate admission requirements stipulated by ITESM and the Mexican Ministry of Health.

REM Residency in Internal Medicine
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4169	Clinical Practice in Internal Medicine I	3
ME4170	Internal Medicine I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4171	Clinical Practice in Internal Medicine II	3
ME4172	Internal Medicine II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4173	Clinical Practice in Internal Medicine III	3
ME4174	Internal Medicine III	3
		9

Fourth Semester

Code	Name	CA
ME4175	Clinical Practice in Internal Medicine IV	3
ME4176	Internal Medicine IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME5217	Clinical Practice in Internal Medicine V	3
ME5218	Internal Medicine V	3
		6

Sixth Semester

Code	Name	CA
ME5219	Clinical Practice in Internal Medicine VI	3
ME5220	Internal Medicine VI	3
		6

Seventh Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5221	Clinical Practice in Internal Medicine VII	1.5
ME5222	Internal Medicine VII	3
		6

Eighth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5223	Clinical Practice in Internal Medicine Specialties	1.5
ME5224	Internal Medicine Specialties	3
ME5266	Thesis Defense	.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

REN Residency in Pediatrics

Program and Learning Outcomes

General Program Objectives

The aim of the Residency in Pediatrics of Tecnológico de Monterrey is to train exceptional Pediatricians who meet the healthcare needs of children and adolescents, according to the highest quality and safety standards, in both inpatient and outpatient settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. To prepare pediatricians outstanding leaders in both local and international settings, who contribute to generating innovative medical practices through clinical research, related to attending to the common and complex healthcare problems of the population between the ages of 0 and 21.

Learning Outcomes

On completing the program, students will be able to:

- Apply their knowledge and skills to the attention, prevention and promotion of health in children and adolescents.

- Practice medicine with professionalism and responsibility, committing to the continuous enhancement of pediatrics.

- Participate in the development of medical practices through patient-, student- and colleague- oriented teaching.

- Communicate the results of projects and research to provide possible solutions to pediatric cases.

- Conduct clinical practices in groups of pediatric and multidisciplinary practitioners to share medical experiences.

Target Audience

This program is aimed at all doctors who are interested in acquiring the knowledge, skills and attitudes required to preserve and improve the health of children and adolescents.

They must be committed to their work and self- directed study, with the concern and initiative to solve the serious health issues of children through ongoing progress and updating.

Enrepreneurial doctors who are willing to improve the practice and development of Pediatrics in the environment in which they work.

REN Residency in Pediatrics
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4183	Ambulatory and Hospitalized Care in Pediatrics I	3
ME4184	Pediatrics I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4185	Ambulatory and Hospitalized Care in Pediatrics II	3
ME4186	Pediatrics II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4187	Ambulatory and Hospitalized Care in Pediatrics III	3
ME4188	Pediatrics III	3
		9

Fourth Semester

Code	Name	CA
ME4189	Ambulatory and Hospitalized Care in Pediatrics IV	3
ME4190	Pediatrics IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME5231	Ambulatory and Hospitalized Care in Pediatrics V	3
ME5232	Pediatrics V	3
		6

Sixth Semester

Code	Name	CA
ME5233	Ambulatory and Hospitalized Care in Pediatrics VI	3
ME5234	Pediatrics VI	3
		6

Seventh Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5235	Ambulatory and Hospitalized Care in Pediatrics VII	1.5
ME5236	Pediatrics VII	3
		6

Eighth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5237	Ambulatory and Hospitalized Care in Pediatrics VIII	1.5
ME5238	Pediatrics VIII	3
ME5266	Thesis Defense	.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

REO Residency in Ophthalmology

Program and Learning Outcomes

Admission Profile

The program is aimed at graduates from the Medicine and Physical undergraduate program whose academic performance has been outstanding and who have a specific vocation for this specialty. They must display the following characteristics: the capacity to apply an understanding of basic clinical and social sciences as the foundation for their medical practice; clinical skills; diagnostic and therapeutic resource management; health promotion and disease prevention; effective communication, printed and electronic information management; reasoning, clinical judgement and decision making; self-directed learning; fluency in the English language; personal development, incorporation of ethical attitudes and bases; vocation and the capacity for studying. Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Apply the most up-to-date medical knowledge of Ophthalmology to the comprehensive care of patients with ocular problems, with ethics, professionalism, and a humanistic outlook.

b) Perform surgical procedures to attend to the principal ophthalmological problems prevailing in the community, such as cataracts, strabismus, refractive surgery, and retinal laser surgery, assuring quality care and patient safety.

c) Evaluate the ocular, systemic and external conditions of each patient and of the community, to achieve the best ocular and visual health.

d) Collaborate in multidisciplinary teams in the prevention and early detection of glaucoma, diabetic retinopathy, and visual problems in children, among other ocular diseases.

e) Demonstrate interpersonal and communication skills that facilitate the effective exchange of information and good relations with patients and colleagues.

f) Contribute to the development of Ophthalmology through the consolidation of research and teaching skills.

Graduate Profile

Ophthalmologists who care for the visual health and ocular diseases of the population, according to the highest quality and safety standards, in public and private inpatient and outpatient settings. It also seeks to prepare individuals with integrity and a humanistic outlook and spirit of service in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Ophthalmologists who graduate from this institution are outstanding leaders in both local and international settings, who contribute to generating innovation in diagnostic and therapeutic methods and techniques, as well as to implementing prevention and early detection programs for ocular diseases that are relevant in the general population.

REO Residency in Ophthalmology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4220	Fundamentals in Ophthalmology I	3
ME4221	Medical Care and Surgery in Ophthalmology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4222	Fundamentals in Ophthalmology II	3
ME4223	Medical Care and Surgery in Ophthalmology II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4224	Oculoplastic, Pediatric Ophthalmology and Strabismus	3
ME4225	Medical Care and Surgery in Ophthalmology III	3
		9

Fourth Semester

Code	Name	CA
ME4226	Glaucoma, Anterior Segment and Neurophtalmology	3
ME4227	Medical Care and Surgery in Ophthalmology IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME5273	Cornea, External Diseases and Refractive Surgery	3
ME5274	Medical Care and Surgery in Ophthalmology V	3
		6

Sixth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5275	Retina and Uveitis	3
ME5276	Medical Care and Surgery in Ophthalmology VI	1.5
		6

Seventh Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5277	Ophthalmology Specialties	3
ME5278	Medical Care and Surgery in Ophthalmology VII	1.5
		6

Eighth Semester

Code	Name	CA
ME5266	Thesis Defense	0.3
ME5279	Diagnostic Procedures in Ophthalmolgy	3
ME5280	Medical Care and Surgery in Ophthalmology VIII	3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RER Residency in Diagnostic and Therapeutic Imaging

Program and Learning Outcomes

Admission Profile

This program is aimed at graduates of the Physician and Surgeon whose academic performance is outstanding, who display leadership skills, an interest in serving as educators and researchers, and a psychological profile that can adapt to change and innovation.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Recognize the health needs of patients, family members and society in general, as well as those of medical and third-party payer institutions.

b) Perform their medical practice taking into consideration the risks/benefit, costs/benefit, environmental and legal medical aspects of their professional tasks, within the framework of medical ethics.

c) Investigate problems related to their professional practice in multidisciplinary teams and use the findings obtained to solve them.

d) Communicate effectively and respectfully with patients, family members and other healthcare professionals.

Graduate Profile

Radiologists who attend to the health requirements of patients, according to the highest quality and safety standards, in both inpatient and outpatient settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Radiologists who graduate from this institution are outstanding leaders in both local and international settings and remain at the forefront of their specialty, generating healthcare models based on research and innovation that enable them to compete in a globalized economy.

RER Residency in Diagnostic and Therapeutic Imaging
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4205	Radiology and Image I	3
ME4206	Medical Care in Radiology and Image I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4207	Radiology and Image II	1.5
ME4208	Medical Care in Radiology and Image II	3
ME4209	Advanced Physics	1.5
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4210	Radiology and Image III	3
ME4211	Medical Care in Radiology and Image III	3
		9

Fourth Semester

Code	Name	CA
ME4212	Radiology and Image IV	3
ME4213	Medical Care in Radiology and Image IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME5258	Radiology and Image V	3
ME5259	Medical Care in Radiology and Image V	3
		6

Sixth Semester

Code	Name	CA
ME5260	Radiology and Image VI	3
ME5261	Medical Care in Radiology and Image VI	3
		6

Seventh Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5262	Radiology and Image VII	3
ME5263	Medical Care in Radiology and Image VII	1.5
		6

Eighth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5264	Radiology and Image VIII	3
ME5265	Medical Care in Radiology and Image VIII	1.5
ME5266	Thesis Defense	.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

REU Residency in Neurology

Program and Learning Outcomes

Admission Profile

The program is aimed at doctors who have a deep sense of social responsibility, are willing to receive new knowledge, have the capacity and the desire to acquire skills to seek knowledge in the area of neurological science and, subsequently, the capacity to generate new knowledge within this branch of neuroscience. Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Diagnose, treat, and promote the health of patients with neurological diseases in a comprehensive, effective manner based on scientific evidence, using appropriate resources, demonstrating research- and analysis-oriented thought, with knowledge and applications specific to basic and clinical neurological sciences in the face of clinical situations.

b) Respect the dignity of human beings and the ethical principles of their profession as neurologists.

c) Effectively coordinate the healthcare team that participates in the clinical, rehabilitation and palliative care of the patient with neurological disorders.

d) Apply their knowledge to the planning, design, statistical analysis, discussion, conclusion, and publication of clinical studies aimed at assessing diagnostic and therapeutic effectiveness in their specialization.

e) Participate in the development of clinical research and basic protocols, particularly in the areas of abnormal movements, neurodegenerative diseases, and neoplasia of the central nervous system.

f) Communicate their knowledge effectively to patients, family members and medical colleagues, as well as to other healthcare professionals, displaying an attitude of information, listening, caring, compassion and respect toward the patient and his or her family members, including the patient´s preference in the formulation of disease management plans and practicing their specialty in a cost-efficient manner, without compromising the quality of the care provided.

Graduate Profile

Neurologists who meet the needs of patients with neurological pathologies, according to the highest quality and safety standards, in both inpatient and outpatient settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practices, while strictly adhering to ethical principles and the standards of professional practice. Neurologists who graduate from this institution are internationally competitive leaders, who contribute to the generation of knowledge on the frontiers of Neurology and transfer this knowledge through teaching. They are also committed to lifelong learning in medicine.

REU Residency in Neurology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4214	Neurology I	3
ME4215	Medical Care in Neurology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4216	Neurology II	3
ME4217	Medical Care in Neurology II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4218	Neurology III	3
ME4219	Medical Care in Neurology III	3
		9

Fourth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5267	Neurology IV	3
ME5268	Medical Care in Neurology IV	3
		9

Fifth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5269	Neurology V	3
ME5270	Medical Care in Neurology V	1.5
		6

Sixth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5266	Thesis Defense	0.3
ME5271	Neurology VI	3
ME5272	Medical Care in Neurology VI	1.5
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RGE Residency in Geriatrics

JProgram and Learning Outcomes

General Program Objectives

The principal aim of the Residency in Geriatrics of Tecnológico de Monterrey is to train exceptional Geriatricians who meet the healthcare needs of the elderly, according to the highest quality and safety standards, in inpatient, outpatient and pro- longed-care settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Geriatricians who graduate from this institution are outstanding leaders in both local and international settings, and contribute to designing strategies and generating innovations to solve problems related to the health of the elderly.

Learning Outcomes

On completing the program, students will be able to:

- Develop geriatric care models for institutional and private environments, based on the human being and the social and family environment, within the framework of medical ethics;

- Coordinate the actions of interdisciplinary healthcare teams for the medical and gerontological care of their patients, constantly seeking to improve their quality of life;

- Conduct clinical research projects in geriatrics;

- Provide the highest quality healthcare based on state-of-the-art geriatrics within a framework of ethics and professionalism;

- Educate healthcare personnel and the community on the attention and care of elderly patients.

Target Audience

This program is aimed at general doctors who have a deep social commitment and an interest in providing quality care for senior citizens from a holistic perspective, identifying the patient as the protagonist of this care.

In order to be admitted to the Residency in Geriatrics of Tecnológico de Monterrey, applicants must satisfactorily meet the graduate admission requirements stipulated by ITESM and the Mexican Ministry of Health.

RGE Residency in Geriatrics
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4170	Internal Medicine I	3
ME4201	Medical Care in Geriatrics and Gerontology I	3
		7.5

Second Semester

Code	Name	CA
ME4142	Quality Health Care	1.5
ME4172	Internal Medicine II	3
ME4202	Medical Care in Geriatrics and Gerontology II	3
		7.5

Third Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4174	Internal Medicine III	3
ME4203	Medical Care in Geriatrics and Gerontology III	3
		7.5

Fourth Semester

Code	Name	CA
ME4143	Research and Innovation Methods	1.5
ME4176	Internal Medicine IV	3
ME4204	Medical Care in Geriatrics and Gerontology IV	3
		7.5

Fifth Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME5249	Geriatrics and Gerontology I	3
ME5250	Medical Care in Geriatrics and Gerontology V	3
		9

Sixth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5251	Geriatrics and Gerontology II	3
ME5252	Medical Care in Geriatrics and Gerontology VI	1.5
		6

Seventh Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5253	Geriatrics and Gerontology III	3
ME5254	Medical Care in Geriatrics and Gerontology VII	3
		9

Eighth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5255	Geriatrics and Gerontology IV	3
ME5257	Medical Care in Geriatrics and Gerontology VIII	1.5
ME5266	Thesis Defense	.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RNE Residency in Neonatology

Program and Learning Outcomes

General Program Objectives

The aim of the Residency in Neonatology of Tecnológico de Monterrey is to train exceptional Neonatologists who are experts in the healthcare of newborns, meeting the highest standards of quality and patient safety, in public and private healthcare institutions. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Neonatologists who graduate from this institution are outstanding leaders able to execute superior work in national and international settings. They are committed to the development and transformation of their communities through programs and actions to enhance the healthcare of newborns. They are creative and innovative, contributing to the generation and practice of clinical research that impacts the health of newborns.

Learning Outcomes

On completing the program, students will be able to:

- Assess, diagnose and care for the health of new- borns in critical, medical or surgical conditions, with integrity, responsibility and a sense of humanity;

- Be competent in the evaluation, diagnosis, monitoring and treatment techniques used in the clinical care of the newborn in critical, medical or surgical conditions;

- Identify the psychosocial implications of disease in their patients, as well as the repercussions on the family environment and/or that of substitute caregivers;

- Identify highisk pregnancies and their subsequent repercussions on the birth process and pathologies in the newborn, and undertake the clinical supervision and monitoring of these patients;

- Make the best use of their patients databases as a guide for making the necessary clinical decisions and understanding the administrative procedures that expedite neonatal medical care;

- Apply and transfer knowledge of the basic medical disciplines in relation to the pregnancy process, the fetus and the newborn;

- Conduct clinical research in their field of specialization and communicate the findings efficintly, both orally and in writing.

Target Audience

This program is aimed at Pediatricians with the knowledge, skills, attitudes and values expected of a specialist in Pediatrics, whose academic performance is outstanding and who displays a vocation for and interest in Neonatology, with a genuine conviction for conducting research and who demonstrates flndings efficintly, in conversational English.

In order to be admitted to the Residency in Neonatology of Tecnológico de Monterrey, applicants must satisfactorily meet the graduate admission requirements stipulated by ITESM and the Mexican Ministry of Health**.** requirements of Tecnológico de Monterrey and of the Ministry of Health.

RNE Residency in Neonatology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4191	Medical Care in Neonatology I	3
ME4192	Neonatology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4193	Medical Care in Neonatology II	3
ME4194	Neonatology II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4195	Medical Care in Neonatology III	3
ME4196	Neonatology III	3
		9

Fourth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5239	Medical Care in Neonatology IV	3
ME5240	Neonatology IV	3
		9

Fifth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5241	Medical Care in Neonatology V	1.5
ME5242	Neonatology V	3
		6

Sixth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5243	Medical Care in Neonatology VI	1.5
ME5244	Neonatology VI	3
ME5266	Thesis Defense	.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RNP Residency in Pediatric Neurology

Program and Learning Outcomes

Admission Profile

The program is aimed at graduates from the residency in pediatrics, whose academic performance is outstanding and who have a vocation for and interest in the discipline, research and teaching, in addition to being committed to lifelong learning.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon, and have graduated from pediatrics.

Student Learning Outcomes

a) Plan, coordinate and execute, based on science and with a humanistic orientation, the comprehensive care of children and adolescents with neurological disorders.

b) Act as a consultant to other specialists or general practitioners and, after a full, appropriate evaluation of their patient, immediately request the collaboration of other specialists if necessary.

c) Design, implement or collaborate in educational programs aimed at their own professional development, the healthcare team to which they belong, and the patients and their family members.

d) Apply the scientific method when researching problems in their professional practice and use the findings obtained to solve them.

Graduate Profile

Pediatric Neurologists who meet the healthcare needs of children and adolescents with neurological disorders, according to the highest quality and safety standards, in public and private healthcare institutions. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Pediatric Neurologists who graduate from this institution are outstanding leaders in both local and international settings; they contribute to the development and transfer of knowledge in their specialty, through publications and active participation in academic and professional forums; and they collaborate with the training of specialists in this discipline through teaching and continuing education activities..

RNP Residency in Pediatric Neurology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4260	Pediatric Neurology I	3
ME4261	Medical Care in Pediatric Neurology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4262	Pediatric Neurology II	3
ME4263	Medical Care in Pediatric Neurology II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4264	Pediatric Neurology III	3
ME4265	Medical Care in Pediatric Neurology III	3
		9

Fourth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5312	Pediatric Neurology IV	3
ME5313	Medical Care in Pediatric Neurology IV	3
		9

Fifth Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5314	Pediatric Neurology V	3
ME5315	Medical Care in Pediatric Neurology V	1.5
		6

Sixth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5266	Thesis Defense	0.3
ME5316	Pediatric Neurology VI	3
ME5317	Medical Care in Pediatric Neurology VI	1.5
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RPS Residency in Psychiatry

Program and Learning Outcomes

Admission Profile

The program is aimed at graduates from the bachelor's degree in Medicine who have a vocation for studying Psychiatry; display the highest moral values; are committed to the ethical practice of their profession; are willing to work in multidisciplinary teams; and display an interest in the field of research.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Proficiency in psychopathology, psychiatric nosology, and psychiatric treatment methods; the ability to define, apply, perform and interpret diverse psychiatric diagnostic tests and therapeutic methodologies.

b) Proficiency in each of the basic learning units related to the specialty, including psychopathology, neuroanatomy and neurophysiology, psychopharmacology, psychotherapies, diagnostic and treatment methodologies, and basic knowledge related to psychiatric subspecialties (children and adolescents, the elderly, addictions, eating disorders, and the oncological patient).

c) The capacity to manage administrative issues, quality control and development of a mental health system (from the consulting room to the clinic), planning, organizing, coordinating, and supervising the activities of the professional technical and auxiliary staff of a mental health system.

d) The capacity to collaborate with practitioners from other specialties to establish the diagnosis, prognosis, and treatment of patients, as well as the required preventive measures; the ability to carry out teaching and research activities applied to psychiatry.

e) Decision-making skills based on ethical principles, responsibility, professionalism, and citizenship.

Graduate Profile

Psychiatrists who successfully meet the healthcare needs of mental health patients in the public and private sectors. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research activities, while strictly adhering to ethical principles and the standards of professional practice. Psychiatrists who graduate from this institution are outstanding leaders in both local and international settings. They are creative and innovative, promoting the development of mental health in the community and conducting relevant clinical research.

RPS Residency in Psychiatry
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4145	Medical Care in Psychiatry I	3
ME4146	Psychiatry I	3
		7.5

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4147	Medical Care in Psychiatry II	3
ME4148	Psychiatry II	3
		7.5

Third Semester

Code	Name	CA
ME4142	Quality Health Care	1.5
ME4149	Medical Care in Psychiatry III	3
ME4150	Psychiatry III	3
		7.5

Fourth Semester

Code	Name	CA
ME4143	Research and Innovation Methods	1.5
ME4151	Medical Care in Psychiatry IV	3
ME4152	Psychiatry IV	3
		7.5

Fifth Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME5193	Medical Care in Psychiatry V	3
ME5194	Psychiatry V	3
		9

Sixth Semester

Code	Name	CA
ME5190	Thesis Project II	3
ME5195	Medical Care in Psychiatry VI	3
ME5196	Psychiatry VI	3
		9

Seventh Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5197	Medical Care in Psychiatry VII	1.5
ME5198	Psychiatry VII	3
		6

Eighth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5199	Medical Care in Psychiatry VIII	1.5
ME5200	Psychiatry VIII	3
ME5266	Thesis Defense	0.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

RUR Residency in Urology

Program and Learning Outcomes

Admission Profile

The program is aimed at graduates from the bachelor's degree in Medicine, whose academic performance is outstanding; who are innate leaders with the capacity for growth and discovery of new frontiers in themselves, in medicine and in their profession; with a spirit of innovation and commitment to lifelong learning, hard work on a daily basis, and the strength to constantly provide top-quality care; with a genuine interest in the pursuit of research and teaching.

Academic background for admission: a Bachelor's Degree in Physician and Surgeon.

Student Learning Outcomes

a) Deliver medical and surgical care for patients with urological disorders, with professionalism and in compliance with ethical principles.

b) Apply their knowledge of urology, clinical judgment, and the bases of contemporary scientific evidence for medical decision making.

c) Communicate knowledge of this specialty effectively to patients, family members, medical colleagues, and other healthcare professionals.

d) Manage inpatient clinical information by integrating scientific files that will have a positive impact on healthcare in urology.

Graduate Profile

Urologists who meet the needs of patients with urological disorders, according to the highest quality and safety standards, in both inpatient and outpatient settings. It also seeks to prepare individuals with integrity and a humanistic outlook in their clinical, teaching and research practice, while strictly adhering to ethical principles and the standards of professional practice. Urologists who graduate from this institution are nationally and internationally competitive leaders who head the development of preventive action strategies, cost-effective diagnostic strategies, and innovative, successful treatments, in public and private institutions.

RUR Residency in Urology
Plan 2013

First Semester

Code	Name	CA
ME4140	Clinical Ethics	1.5
ME4142	Quality Health Care	1.5
ME4161	Medical Care in Urology I	3
ME4162	General Urology I	3
		9

Second Semester

Code	Name	CA
ME4141	Health Sciences Education	1.5
ME4143	Research and Innovation Methods	1.5
ME4163	Medical Care in Urology II	3
ME4164	General Urology II	3
		9

Third Semester

Code	Name	CA
ME4144	Thesis Project I	3
ME4165	Medical Care in Urology III	3
ME4166	General Urology III	3
		9

Fourth Semester

Code	Name	CA
ME4167	Medical Care in Urology IV	3
ME4168	General Urology IV	3
ME5190	Thesis Project II	3
		9

Fifth Semester

Code	Name	CA
ME5209	Medical Care in Urology V	3
ME5210	General Urology V	3
		2

Sixth Semester

Code	Name	CA
ME5211	Medical Care in Urology VI	3
ME5212	General Urology VI	3
		6

Seventh Semester

Code	Name	CA
ME5191	Elective Specialty I	1.5
ME5213	Medical Care in Urology VII	1.5
ME5214	General Urology VII	3
		6

Eighth Semester

Code	Name	CA
ME5192	Elective Specialty II	1.5
ME5215	Medical Care in Urology VIII	1.5
ME5216	General Urology VIII	3
ME5266	Thesis Defense	.3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

MBC Master in Biomedical Sciences

Program and Learning Outcomes

Admission Profile

Graduated from a bachelor's degree in Medicine, Biotechnology, Engineering, Biomedicine, Medical Chemistry, Pharmacy, Nutrition, as well as Biologists and Biochemists, who are interested in continuing their academic training in the path of Research in Applied Medicine

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Demonstrate a high level of theoretical and methodological knowledge of Biomedical Sciences in any professional situation.

b) Perform research in their area of expertise to provide knowledge relevant to the advancement of Biomedical Sciences.

c) Communicate their professional work results in a clear, effective and efficient manner.

d) Work in their professional community of their area of expertise with efficient leadership, collaborative and ethical manner.

Graduation Profile

Researchers in the biomedical area with the necessary skills to integrate interdisciplinary research that are necessary for real progress in medical research in all specialties, validating experimental models, testing new drugs and devices in preclinical models, with immediate application to the needs of the patient.

MBC Master in Biomedical Sciences
Plan 2017

First Semester

Code	Name	CA
BI4000	Translational Medicine and Experimental Models	3
BI4001	Biostatistics	3
BI5000	Research and Innovation Methods	1.5
OP4000	Quality Development Course	1.5
		9

Second Semester

Code	Name	CA
BI4002	Cellular and Molecular Biology and Human Genetics	3
BI4003	Oxidative Stress and Inflammation	3
BI5001	Thesis I	3
		9

Third Semester

Code	Name	CA
BI5002	Thesis II	3
OP5042	Elective I	3
OP5043	Elective II	3
		9

Fourth Semester

Code	Name	CA
BI5003	Thesis III	3
OP5044	Elective III	3
OP5045	Elective IV	3
		9

CA The letters "CA" represents the number of credit hour of the course.

DBC PH. D. in Biomedical Sciences

Program and Learning Outcomes

Admission Profile

Graduates of a master's degree in science in areas related to Biomedical Sciences, Translational Medicine or an equivalent discipline in the biological area who wish to continue their postgraduate studies along the path of applied medical research.

Academic background for admission: a bachelor's degree in medicine, biomedicine, biotechnology, bioscience, nutrition, biomedical engineering, pharmacy, biology, nursing, chemistry, physics, or related fields.

Student Learning Outcomes

a) Understand the application of biomedical sciences and research methodologies on areas of physiopathological mechanisms for discovering therapeutic targets, markers, and diagnosis, trial-running new pharmaceuticals, and designing therapeutic devices.

b) Use research skills for validating experimental models in vivo that reproduce an approximation of the diseases under their study or in vitro.

c) Design experiments from the identification of a problem to the interpretation of results.

d) Communicate effectively orally and in writing with their peers: mentors, research community, society, and grant proposals.

e) Make decisions with scientific judgment and critical thinking in their practice as researchers following legal, ethical and government regulations.

Graduate Profile

Scientists who create knowledge to establish novel and innovative technologies that are relevant for the health sector and understand basic phenomena within the field of Biomedical Sciences. They work as leaders or as collaborators within national and international research groups, on areas such as physiopathological mechanisms for discovering therapeutic targets, markers, and diagnosis, trial-running new pharmaceuticals, and designing therapeutic devices among others. The findings of their discoveries are important outcomes which should be submitted for peer-reviewed and academic publication, patents, or conference proceedings. This knowledge transference as well as all their professional activities follows legal, ethical and official norms.

DBC PH. D. in Biomedical Sciences
Plan 2017

First Semester

Code	Name	CA
BI6000	Guided Research I	3
BI6001	Guided Research II	3
BI6018	Integrated Exam	1.5
GM6000	Research Seminar I	0.5
GM6006	Research Workshop I	1
		9

Second Semester

Code	Name	CA
BI6002	Research Proposal I	3
BI6003	Research Proposal II	3
BI6021	Research Proposal Defense	1.5
GM6001	Research Seminar II	0.5
GM6007	Research Workshop II	1
		9

Third Semester

Code	Name	CA
BI6004	Doctoral Research I	3
BI6005	Doctoral Research II	3
BI6019	Research Integration I	1.5
GM6002	Research Seminar III	0.5
GM6008	Research Workshop III	1
		9

Fourth Semester

Code	Name	CA
BI6006	Doctoral Research III	3
BI6007	Doctoral Research IV	3
GM6003	Research Seminar IV	0.5
GM6009	Research Workshop IV	1
GM6013	Scientific Product I	1.5
		9

Fifth Semester

Code	Name	CA
BI6008	Doctoral Research V	3
BI6009	Doctoral Research VI	3
BI6020	Research Integration II	1.5
GM6004	Research Seminar V	0.5
GM6010	Research Workshop V	1
		9

Sixth Semester

Code	Name	CA
BI6010	Doctoral Research VII	3
BI6011	Doctoral Research VIII	3
GM6005	Research Seminar VI	0.5
GM6011	Research Workshop VI	1
GM6014	Scientific Product II	1.5
		9

Seventh Semester

Code	Name	CA
BI6012	Doctoral Research IX	3
BI6013	Doctoral Research X	3
BI6014	Doctoral Research XI	3
		9

Eighth Semester

Code	Name	CA
BI6015	Doctoral Research XII	3
BI6016	Doctoral Research XIII	3
BI6017	Doctoral Research XIV	3
BI6022	Doctoral Defense	0.3
		9.3

CA The letters "CA" represents the number of credit hour of the course.

DCL PH. D. in Program in Clinical Sciences

Program and Learning Outcomes

Admission Profile

Graduates from a Medical Specialty at the Tecnológico de Monterrey, or from other prestigious universities approved by the Interinstitutional Commission for the Training of Human Resources for Health in areas related to the program, who are interested in continuing their academic training in the path of Applied Research in topics such as Cardiology, Hematology and Cancer, Ophthalmology, Neurosciences and Mental Health and, therefore, wish to train as scientists for the development of clinical research projects in the areas of Health.

Academic background for admission: Medical residency programs.

Student Learning Outcomes

a) Apply in expert level strategies of search, selection, and analysis of relevant knowledge in the area of expertise regarding aspects such as: mechanisms of disease (pathogenesis); detection, diagnosis or history of disease; therapeutic interventions, including trials with medicines or drugs; primary and secondary prevention and health promotion; human behavior; health services and epidemiology, among others.

b) Use qualitative and quantitative research methods and statistical tools for the development of scientific research to provide knowledge for regional or national issues in their field of expertise.

c) Obtain results of their research with critical - scientific thinking clearly establishing the potential application, as well as each of its limitations and areas of opportunity.

d) Transfer knowledge through scientific products such as: articles, patents or technological developments that allow reducing the gap between scientific knowledge relevant and valid and its application at the patient´s bedside.

e) Develop protocols or clinical trials that comply with current regulations in bioethics, quality and safety, ensuring the integrity and dignity of patients and their families as well as the intellectual property of the findings.

Graduate Profile

Experts in clinical research are recognized nationally and / or internationally for their ability to generate medical knowledge in three possible dimensions: individual, institution or society. Generate scientific production based on ethical principles, relevant to understanding human - health and disease, care systems and / or public health. In addition, leaders in prestigious organizations in the implementation of strategies to reduce inequity in health care and increase the use of resources based on best evidence.

DCL PH. D. in Program in Clinical Sciences
Plan 2012

First Semester

Code	Name	CA
DS4000	Leadership for Sustainable Development	1.5
ME5183	Doctoral Research Proposal I	3
ME5184	Research and Innovation Methods	1.5
ME6000	Bioethics and Regulations in Research	3
ME6001	Methodological Structure and Statistics in Biomedical and Clinical Research	3
		12

Second Semester

Code	Name	CA
ME5185	Doctoral Research Proposal II	3
ME5186	Doctoral Research Proposal III	3
ME5187	Research Seminar I	1
ME6002	Epidemiological Research	3
		10

Third Semester

Code	Name	CA
ME6003	Doctoral Research I	3
ME6004	Doctoral Research	3
ME6005	Doctoral Research III	3
ME6006	Doctoral Research IV	3
		12

Fourth Semester

Code	Name	CA
ME6007	Doctoral Research V	3
ME6008	Doctoral Research VI	3
ME6009	Doctoral Research VII	3
ME6010	Doctoral Research VIII	3
		12

Fifth Semester

Code	Name	CA
ME5188	Research Seminar II	1
ME6011	Doctoral Research IX	3
ME6012	Doctoral Research X	3
ME6013	Doctoral Research XI	3
		10

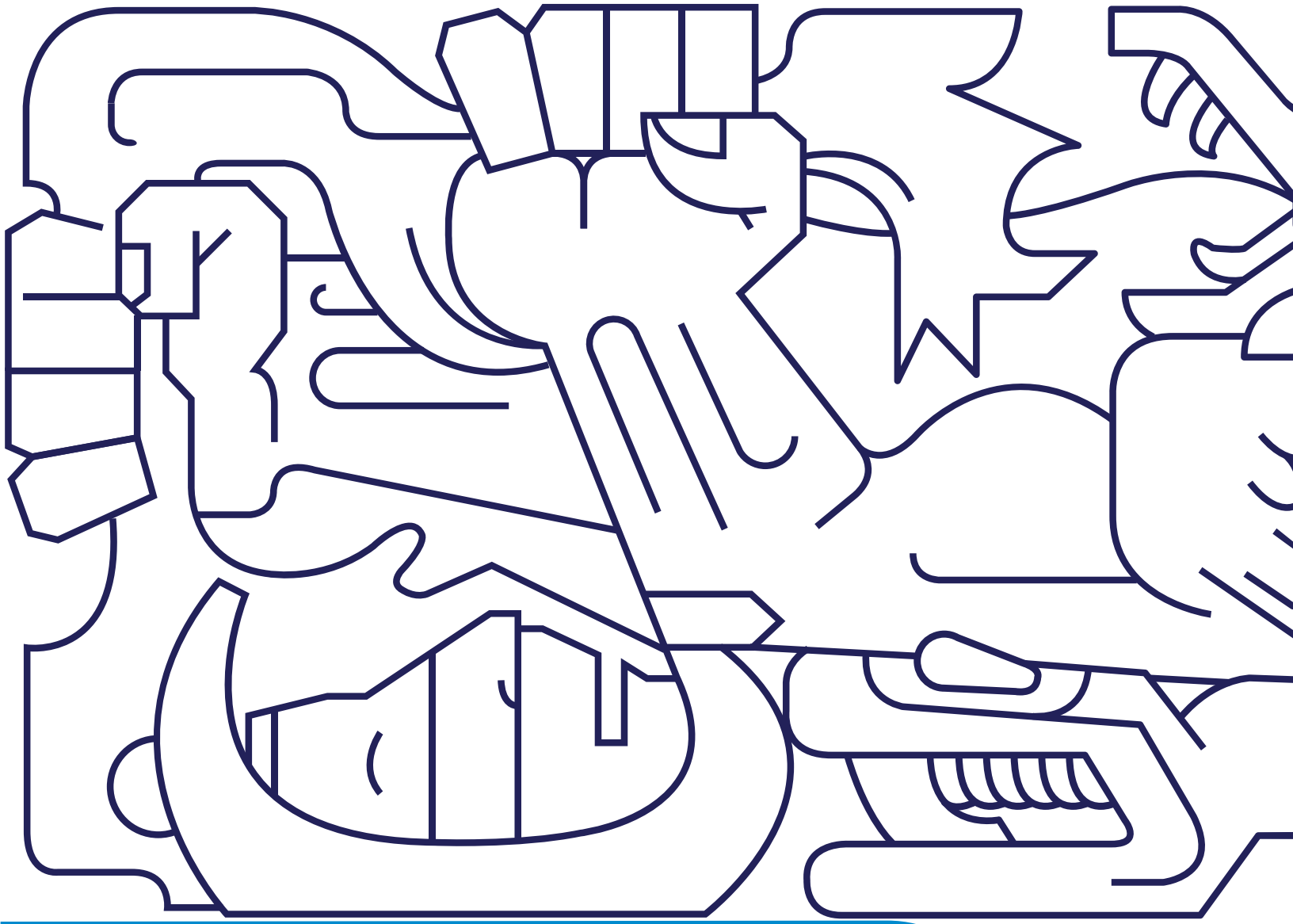
Sixth Semester

Code	Name	CA
ME5189	Research Seminar III	1
ME6014	Doctoral Research XII	3
ME6015	Doctoral Research XIII	3
ME6016	Doctoral Research XIV	3
		10

Seventh Semester

Code	Name	CA
ME6017	Doctoral Research XV	3
ME6018	Doctoral Research XVI	3
ME6019	Doctoral Research XVII	3
ME6020	Doctoral Defense	0.3
		9.3

CA The letters "CA" represents the number of credit hour of the course.



School of Business

EED Specialization in Digital Strategy

Justification

Today's society lives in a world with unprecedented challenges where the exponential advancement of technology, the fluctuations of the economy, climate change, the scarcity of natural resources, health contingencies, among others. This technological advance goes hand in hand with an exponential growth of the data which requires to be analyzed, processed and thus extract relevant information that supports decision making in uncertain environments. Said information extraction must be carried out intelligently through particular tools and algorithms so that based on the information obtained from the past, new creative solutions to current problems are obtained, as well as innovative ideas for future planning.

All this enormous amount of structured and unstructured data generated day by day, immediately requires complete leaders, with a high level of interconnectivity, capable of understanding the changes in the environment and quickly adapting to them based on strategic thinking, understanding of data analytics and being able to manage multi-functional and multi-generational work teams. In order to satisfy the market needs described above, the Specialization in Digital Strategy (EDS) is proposed, which develops the knowledge and skills mentioned above and responds to the requirements of current organizations on the use of best practices at the strategic level for decision making based on data extraction and analysis applying quantitative tools from a corporate vision.

Target Audience

The program is aimed at professionals in charge of defining a digital transformation strategy in their organizations through the design of a plan that involves both business, and state of the art technology key elements.

Program Objectives

The program of the Specialty in Digital Strategy aims to train professional agents of change in organizations, capable of making innovation, technological development and technology transfer, making use of data analytics, data science, strategic thinking, as well such as the management of processes and multi-functional and multi-generational work teams.

Learning Outcomes

After completing their studies, the graduate will be able to:

- Understand the importance of disruptive technologies and their business application in order to respond the demands of the current environment: volatile, uncertain and complex.

- Perform empirical analysis in applications for digital transformation through the management of science and data analytics in a corporate environment.

- Apply advanced quantitative tools for information extraction in business strategy and management processes, to respond with opportunity to the demands of the current environment: volatile, uncertain and complex.

- Understand the relevance of the effective use of data.

- Lead change processes to ensure the relevance of the organization, in order to exercise leadership with a human sense and consistent with the strategic objectives of the organization.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).

- The overall grade point average (GPA) in their undergraduate studies.

- Each School may have additional requirements.

EED Specialization in Digital Strategy
Plan 2021

First Trimester

Code	Name	CA
AD4056	Disruptive Strategy and Digital Transformation	3
TC4027	User Experience and User Interface	3
		6

Second Trimester

Code	Name	CA
AD4058	Leading Transformation Office	3
AD4060	Project I	1.5
IN4035	Digital Transformation and Industry 4.0	3
		7.5

Third Trimester

Code	Name	CA
AD4059	Corporate Performance Management	3
AD5158	Project II	1.5
FZ4026	Data Science in Finance	3
		7.5

CA The letters "CA" represents the number of credit hour of the course.

MAF Master in Finance

Justification

Since the 1990s, the Mexican economy has aligned itself with the worldwide trend of global integration of production processes, supply chain, as well as capital mobility, risks and talents. However, because of the great crisis of 2008-2010, various economies have initiated reflection processes regarding positive and negative effects of globalization, such as access to more competitive markets, on one hand, as well as concentration of wealth or regulation so restrictive that it slows down competitiveness; the above has left as a side effect a general deceleration of the global economy.

Additionally, information and communication technologies (ITC) have modified behavior patterns among more atomized decision makers such as families. The aforementioned has had an impact on the consumption habits of products and services, on the information flows, on the location of the opinion polls, which is transforming various industries of the different sectors of economic activity. Examples of these transformations include disintermediation, virtualization, robotization / automation and the "financialization" of the economy (ILO, 2017). This financialization would manifest itself as the proportion of the economic activity measured as international flows, of financial transactions as positions in derivatives or in investment portfolios.

On the other hand, the decrease in the demographic bonus in developed countries opens the possibility of flexibility in the migration policies of these economies, which in principle will seek to attract the most qualified and competitive talent internationally. However, this possibility also presupposes the challenge of multicultural integration in the fields of work and society as a whole.

Target Market

The profile of the potential student of the Master in Finance program of EGADE Business School is mainly professionals who ideally have two years of relevant work experience and meet at least one of the following criteria in their professional development profile:

- They have positions with perspectives of organizational growth, considering important the systemic understanding of the organization and the quantitative methodologies of support for decision-making regarding funding and investment.
- They have enough experience and interest in developing new business models, to improve the competitiveness of existing companies or create new businesses through knowledge and use of advanced technological tools and financial models.
- They want or require developing consultancy or advisory skills, to support the continuous improvement, competitiveness and sustainability of organizations, through diagnostic methodologies designed within diverse referential frameworks, as well as effective financial solutions and innovative business models.

- They demonstrate willingness to acquire or improve knowledge, practices and techniques, with critical thinking and innovative attitude, that impacts their professional field or the communities in which they have influence, through the generation of value in organizations using their creativity, their deep knowledge of financial markets and financing and investment mechanisms, as well as of the technologies that allow the realization of these changes.

Program Objective

The Master in Finance program (MAF) has as its main purpose to train full leaders with competences based on the values of Innovation, Integrity, Collaboration, Empathy, Inclusion and Global Citizenship, as well as fundamental financial skills of the profession, to understand the macro-financial and sectoral variables, promote the financial health of the company and contribute to the transformation of the organization by adapting to a professional and dynamic environment.

Learning Outcomes

At the end of the program the student will be able to:

- Continuously validate the value proposition and performance, based on variables and economic-financial criteria and the best practices of the profession.
- Ethically implement a financial management within the organization, according to best practices, following the current and potential regulatory framework, local, national and international.
- Make use of creative thinking, to design new business models identifying and taking advantage of financial disruptions of technological origin.
- Communicate the optimal financial decisions for the organization with leadership and conviction attitude.
- Address effective financial solutions that generate value in organizations and that adapt to a changing regulatory and technological environment.
- Proactively challenge current financial management processes or professional practice.
- Select from among various traditional and disruptive financial methodologies, those that allow them to optimize their performance at a professional level and even at a personal level.
- Proactively transform their financial conduct and professional practice based on world class financial standards.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average (GPA) in their undergraduate studies.

Each School may have additional requirements.

MAF Master in Finance
Plan 2020

First Trimester

Code	Name	CA
AD4045	Ethics and Governance in Business	1.5
AD4046	Responsible Leadership	1.5
EO4018	Macroeconomics	1.5
FZ4019	Financial Performance Assessment	1.5
FZ4020	Analytical Foundations for Finance	1.5
FZ4021	Economic and Managerial Foundations for Finance	1.5
		9

Second Trimester

Code	Name	CA
FZ5056	Advanced Financial Analysis	1.5
FZ5057	Data Science Applied	1.5
FZ5058	Macrofinance	1.5
FZ5059	Quantitative Methods in Finance	1.5
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
FZ5060	Tactical Financial Management	1.5
FZ5061	Financial Engineering	1.5
FZ5062	Markets and Fixed Income Instruments	1.5
FZ5063	Derivative Products	1.5
OP5086	Elective II	3
		9

Fourth Trimester

Code	Name	CA
FZ5064	Long-term Financial Strategy.	1.5
FZ5065	Investment Strategies	1.5
FZ5066	Market and Equity	1.5
FZ5067	Finance Project Planning	1.5
OP5087	Elective III	3
		9

Fifth Trimester

Code	Name	CA
AD5137	Managerial Skills	1
FZ5068	Finance Project Execution	1.5
FZ5069	Investment Portfolios Management	1.5
FZ5070	Risk Management	2
		6

CA The letters "CA" represents the number of credit hour of the course.

MAF-V Master in Finance (Online Program)

Program and Learning Outcomes

Admission Profile

Professionals with work experience in labor that seek to transform their professional profiles and update themselves with cutting-edge content in the discipline. Professionals that hold decision-making and people management positions, with perspectives for organizational growth, considering a systemic understanding of the organization and methodologies that support decision-making as crucial. Individual that are experienced in their professional domains and are interested in developing innovative business models aimed at enhancing company competitiveness or creating new businesses through the knowledge and use of cutting-edge management tools and entrepreneurship models. Likewise, applicants to the program are people with work experience who wish to develop and/or strengthen consultancy skills to support continuous improvement, competitiveness, and sustainability of regional organizations by applying diagnostic methodologies that generate innovative and effective solutions.

Prerequisite for entry: a bachelor's degree.

Student Learning Outcomes

a) Continuously validate the value proposition and performance, based on variables and economic-financial criteria and the best practices of the profession.

b) Ethically implement financial management within the organization, according to best practices, following the current and potential regulatory framework, local, national and international.

c) Make use of creative thinking, to design new business models identifying and taking advantage of financial disruptions of technological origin.

d) Communicate the optimal financial decisions for the organization with leadership and conviction attitude.

e) Address effective financial solutions that generate value in organizations and that adapt to a changing regulatory and technological environment.

f) Proactively challenge current financial management processes or professional practice.

g) Select from among various traditional and disruptive financial methodologies, those that allow them to optimize their performance at a professional level and even at a personal level.

h) Proactively transform their financial conduct and professional practice based on world class financial standards.

Graduation Profile

Leaders with competences based on the values of Innovation, Integrity, Collaboration, Empathy, Inclusion and Global Citizenship, as well as fundamental financial skills of the profession, to understand the macro-financial and sectoral variables, promote the financial health of the company and contribute to the transformation of the organization by adapting to a professional and dynamic environment.

MAF-V Master in Finance (Online Program)
Plan 2020

First Trimester

Code	Name	CA
AD4045	Ethics and Governance in Business	1.5
AD4046	Responsible Leadership	1.5
EO4018	Macroeconomics	1.5
FZ4019	Financial Performance Assessment	1.5
FZ4020	Analytical Foundations for Finance	1.5
FZ4021	Economic and Managerial Foundations for Finance	1.5
		9

Second Trimester

Code	Name	CA
FZ5056	Advanced Financial Analysis	1.5
FZ5057	Data Science Applied	1.5
FZ5058	Macrofinance	1.5
FZ5059	Quantitative Methods in Finance	1.5
OP5085	Elective I	3
		9

Third Trimester

Code	Name	CA
FZ5060	Tactical Financial Management	1.5
FZ5061	Financial Engineering	1.5
FZ5062	Markets and Fixed Income Instruments	1.5
FZ5063	Derivative Products	1.5
OP5086	Elective II	3
		9

Fourth Trimester

Code	Name	CA
FZ5064	Long-term Financial Strategy.	1.5
FZ5065	Investment Strategies	1.5
FZ5066	Market and Equity	1.5
FZ5067	Finance Project Planning	1.5
OP5087	Elective III	3
		9

Fifth Trimester

Code	Name	CA
AD5137	Managerial Skills	1
FZ5068	Finance Project Execution	1.5
FZ5069	Investment Portfolios Management	1.5
FZ5070	Risk Management	2
		6

CA The letters "CA" represents the number of credit hour of the course.

MBA Master in Business Administration (Tiempo parcial)

Program and Learning Outcomes

Admission Profile

Applicants are professionals with at least three years of professional experience and are interested in one of the following criteria for their professional development profile:

- Occupy leadership positions with organizational growth opportunities, considering as important the systematic understanding of the organization and the use of methodologies to support the decision-making process.

- Experienced professionals with interest in developing innovative business models, seeking to increase the competitiveness of the company or create new business through the knowledge application, use of tools and cutting-edge management models.

- With work experience who wish to develop and/or strengthen consulting skills to support continuous improvement, competitiveness and sustainability of organizations in the region through the application of diagnostic methodologies generating innovative and effective solutions.

- With leadership potential showing passion for learning, critical thinking and professional growth to impact value creation in organizations, using leadership skills and knowledge, techniques and effective management tools.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Understand the needs and demands of interest groups to recognize business opportunities and guarantee the successful operation of the company; propose business models based on a constant innovation process; and manage the interactions of the actors to integrate resources in the creation of value, in order to generate economic, social and environmental value in high connectivity and disruptive environments.

b) Generate creative solutions based on the analysis of scenarios using quantitative and qualitative methods; propose improvements in the organization based on internal and external analysis to ensure the market approach; and demonstrate the practicality of their proposals in order to implement the best solution with a systemic approach, to make effective decisions in the organization based on strategic thinking.

c) Communicate effectively with stakeholders; develop human talent through processes of attraction, selection, training, empowerment, evaluation, and retention; strengthen interdisciplinary, generational and culturally diverse work teams; and lead change processes to assure the relevance of the organization, in order to exercise leadership with a human sense and in line with the strategic objectives of the organization.

d) Evaluate the information obtained through observation, experience, reflection, reasoning and communication; persuade stakeholders about the practicality and do-ability of solutions to complex problems based on consistent evidence, arguments and coherent conclusions; and implement solutions to complex problems to achieve the objectives of the organization, in order to solve complex problems through an iterative process of logical, objective and autonomous reasoning.

Graduation Profile

Comprehensive leaders who generate economic, social and environmental value in the new environments in which they operate, characterized by their volatility, their high level of interconnectivity and disruption due to constant social and technological changes. Likewise, they are capable of making effective decisions based on critical thinking and human sense, to help organizations achieve their strategic objectives in a sustainable manner. Graduates are capable of proposing business models based on a process of constant innovation, the generation of creative solutions that incorporate elements of shared economies, the development of human talent and social inclusion. In addition, they work collaboratively to provide answers to complex problems faced by society and companies, with a global vision, that are sustainable and adhere to ethical principles.

MBA Master in Business Administration (Tiempo parcial)
Plan 2020

First Trimester

Code	Name	CA
EO4016	Managerial Economics	2
FZ4018	Strategic Financial Management	2
MT4019	Innovative Marketing for Value Creation	2
OP4046	Quality Development Course	3
		9

Second Trimester

Code	Name	CA
AD4043	Global Leadership	2
AD4044	Dynamics of Negotiation and Influence	1.5
EM4001	Innovation and Future Thinking	1.5
EM4002	Entrepreneurial Mindset	2
MT4020	Business Intelligence	2
		9

Third Trimester

Code	Name	CA
AD5120	Global Operations Management	2
AD5121	Project I	1
OP5085	Elective I	3
OP5086	Elective II	3
		9

Fourth Trimester

Code	Name	CA
AD5122	Change Management and Organizational Behavior	3
AD5123	Strategy	2
AD5124	Project II	1
OP5087	Elective III	3
		9

Fifth Trimester

Code	Name	CA
AD5125	Top Management	2
AD5126	Project III	1
OP5088	Elective IV	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MBA-G MBA in Global Business & Strategy

Program and Learning Outcomes

Admission Profile

Applicants are professionals with at least three years of professional experience and are interested in one of the following criteria for their professional development profile:

- Occupy leadership positions with organizational growth opportunities, considering as important the systematic understanding of the organization and the use of methodologies to support the decision-making process.

- Experienced professionals with interest in developing innovative business models, seeking to increase the competitiveness of the company or create new business through the knowledge application, use of tools and cutting-edge management models.

- With work experience who wish to develop and/or strengthen consulting skills to support continuous improvement, competitiveness and sustainability of organizations in the region through the application of diagnostic methodologies generating innovative and effective solutions.

- With leadership potential showing passion for learning, critical thinking and professional growth to impact value creation in organizations, using leadership skills and knowledge, techniques and effective management tools.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Make business decisions based on ethical reasoning, applying concepts and ethical principles and taking their stakeholders into consideration.

b) Identify and evaluate opportunities that allow them to innovate and undertake profitable business models using analytical techniques that contribute to sustainable development of their communities.

c) Apply knowledge and skills for effective systemic functioning of the organization, through the application of management methodologies to explote opportunities and adaptation of environmental challenges.

d) Lead effective teams, valuing diversity and being competent in management processes that enable the implementation of organizational changes.

e) Strengthen a global vision of business to function in international environments incorporating the cultural, political, economic and social context.

Graduation Profile

Professionals who lead organizations and operate in global environments, through effective and ethical decision-making supported by cutting-edge management techniques and models. They lead strategic projects that generate value for the organization and its local, national and international environment, through the application of leadership skills, systemic knowledge of the organization and a global vision. They identify areas of opportunity in the environment and, accordingly, design and develop innovative and sustainable business models through the application of analytical and financial tools. They also contribute to the economic, social and environmental development of their community through innovative and sustainable projects.

MBA-G MBA in Global Business & Strategy
Plan 2017

Remedial Trimester

Code	Name	CA
AD4024	Business Analytics Foundations	3
		3

First Trimester

Code	Name	CA
AD4025	Managerial Skills I	1
AD4026	Business Intelligence	1.5
AD4027	Corporate Governance and Ethics	1.5
MT4016	Consumer Behavior and Marketing Strategies	3
RH4003	Leadership and Managing People in Organizations	3
		10

Second Trimester

Code	Name	CA
AD4028	Operations Management	3
EC4005	Managerial Economics	3
FZ4001	Corporate Finance	3
		9

Third Trimester

Code	Name	CA
AD5086	Strategic Management	3
AD5087	Strategy and Negotiations in Multicultural Environments	3
AD5088	Service Management	1.5
DS4005	Corporate Sustainability	1.5
		9

Fourth Trimester

Code	Name	CA
AD5089	Innovation and Entrepreneurship	3
AD5090	Managerial Skills II	1
OP5053	Elective I	3
OP5054	Elective II	3
		10

Fifth Trimester

Code	Name	CA
AD5107	Applied Project	3
OP5055	Elective III	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MBA-I Master in Business Administration (Tiempo completo)

Program and Learning Outcomes

General Program Objectives

The objective of the Master in Business Administration is to prepare professionals that:

- Manage organizations that operate in global environments, making effective and ethical decisions supported in cutting edge techniques and management models.

- Lead strategic projects that add value to the organization and its local, national and international environment, applying leadership skills, systemic understanding of the organization and global vision.

- Identify opportunity areas in business environment and, accordingly, design and develop innovative and sustainable business models applying analytical and financial tools.

- Contribute to the economic, social and environmental development of their community through innovative and sustainable projects.

Learning Outcomes

On completing the program, students will be able to:

- Make business decisions based on ethical reasoning, applying concepts and ethical principles and taking their stakeholders into consideration.

- Identify and evaluate opportunities that allow them to innovate and undertake profitable business models using analytical techniques that contribute to sustainable development of their communities.

- Apply knowledge and skills for effective systemic functioning of the organization, through the application of management methodologies to explote opportunities and adaptation of environmental challenges.

- Lead effective teams, valuing diversity and being competent in management processes that enable the implementation of organizational changes.

- Strengthen a global vision of business to function in international environments incorporating the cultural, political, economic and social context.

Target Audience

Applicants are professionals with at least three years of professional experience and are interested in one of the following criteria for their professional development profile:

- Occupy leadership positions with organizational growth opportunities, considering as important the systematic understanding of the organization and the use of methodologies to support the decision making process.

- Experienced professionals with interest in developing innovative business models, seeking to increase the competitiveness of the company or create new business through the knowledge application, use of tools and cutting edge management models.

- With work experience who wish to develop and/or strengthen consulting skills to support continuous improvement, competitiveness and sustainability of organizations in the region through the application of diagnostic methodologies generating innovative and effective solutions.

- With leadership potential showing passion for learning, critical thinking and professional growth to impact value creation in organizations, using leadership skills and knowledge, techniques and effective management tools.

MBA-I Master in Business Administration (Tiempo completo)
Plan 2017

Remedial Trimester

Code	Name	CA
AD4024	Business Analytics Foundations	3
		3

First Trimester

Code	Name	CA
AD4025	Managerial Skills I	1
AD4026	Business Intelligence	1.5
AD4027	Corporate Governance and Ethics	1.5
MT4016	Consumer Behavior and Marketing Strategies	3
RH4003	Leadership and Managing People in Organizations	3
		10

Second Trimester

Code	Name	CA
AD4028	Operations Management	3
EC4005	Managerial Economics	3
FZ4001	Corporate Finance	3
		9

Third Trimester

Code	Name	CA
AD5086	Strategic Management	3
AD5087	Strategy and Negotiations in Multicultural Environments	3
AD5088	Service Management	1.5
DS4005	Corporate Sustainability	1.5
		9

Fourth Trimester

Code	Name	CA
AD5089	Innovation and Entrepreneurship	3
AD5090	Managerial Skills II	1
OP5053	Elective I	3
OP5054	Elective II	3
		10

Fifth Trimester

Code	Name	CA
AD5107	Applied Project	3
OP5055	Elective III	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MBA-V MBA Online (Online Program)

Program and Learning Outcomes

Admission Profile

Applicants are professionals with at least three years of professional experience and are interested in one of the following criteria for their professional development profile:

- Occupy leadership positions with organizational growth opportunities, considering as important the systematic understanding of the organization and the use of methodologies to support the decision-making process.

- Experienced professionals with interest in developing innovative business models, seeking to increase the competitiveness of the company or create new business through the knowledge application, use of tools and cutting-edge management models.

- With work experience who wish to develop and/or strengthen consulting skills to support continuous improvement, competitiveness and sustainability of organizations in the region through the application of diagnostic methodologies generating innovative and effective solutions.

- With leadership potential showing passion for learning, critical thinking and professional growth to impact value creation in organizations, using leadership skills and knowledge, techniques and effective management tools.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

- a) Make business decisions based on ethical reasoning, applying concepts and ethical principles and taking their stakeholders into consideration.

- b) Identify and evaluate opportunities that allow them to innovate and undertake profitable business models using analytical techniques that contribute to sustainable development of their communities.

- c) Apply knowledge and skills for effective systemic functioning of the organization, through the application of management methodologies to explote opportunities and adaptation of environmental challenges.

- d) Lead effective teams, valuing diversity and being competent in management processes that enable the implementation of organizational changes.

- e) Strengthen a global vision of business to function in international environments incorporating the cultural, political, economic and social context.

Graduation Profile

Professionals who lead organizations and operate in global environments, through effective and ethical decision-making supported by cutting-edge management techniques and models. They lead strategic projects that generate value for the organization and its local, national and international environment, through the application of leadership skills, systemic knowledge of the organization and a global vision. They identify areas of opportunity in the environment and, accordingly, design and develop innovative and sustainable business models through the application of analytical and financial tools. They also contribute to the economic, social and environmental development of their community through innovative and sustainable projects.

MBA-V MBA Online (Online Program)
Plan 2019

Remedial Trimester

Code	Name	CA
AD4024	Business Analytics Foundations	3
		3

First Trimester

Code	Name	CA
AD4025	Managerial Skills I	1
AD4026	Business Intelligence	1.5
AD4027	Corporate Governance and Ethics	1.5
MT4016	Consumer Behavior and Marketing Strategies	3
RH4003	Leadership and Managing People in Organizations	3
		10

Second Trimester

Code	Name	CA
AD4028	Operations Management	3
EC4005	Managerial Economics	3
FZ4001	Corporate Finance	3
		9

Third Trimester

Code	Name	CA
AD5086	Strategic Management	3
AD5087	Strategy and Negotiations in Multicultural Environments	3
AD5088	Service Management	1.5
DS4005	Corporate Sustainability	1.5
		9

Fourth Trimester

Code	Name	CA
AD5089	Innovation and Entrepreneurship	3
AD5090	Managerial Skills II	1
OP5053	Elective I	3
OP5054	Elective II	3
		10

Fifth Trimester

Code	Name	CA
AD5107	Applied Project (A)	3
OP5055	Elective III	3
		6

CA The letters "CA" represents the number of credit hour of the course.

MBD Master in Business Analytics

Justification

The exponential growth of information that day after day is generated through the use of mobiles, social networks, the web, the 4.0 industry, as well as the immense number of applications and solutions, requires expert professionals in issues related to the internet of things and autonomous mobility. This enormous amount of structured and unstructured data generated daily, immediately requires professionals with the necessary technical knowledge to process them wisely and extract the information hidden from traditional analysis, and vital for proposing innovative and creative solutions.

The digitalization of information and the mobility of business operations to the cloud requires trained personnel to face this new global trend. This transformation will not be exclusive to large companies or research centers, but involves any type of company, hence the great demand for professionals who know how to smartly analyze their databases.

Companies need to analyze, process and extract relevant information from all these data groups that are generated day by day through the companies' pages and applications, from their own internal manufacturing processes or through the different work dynamics of the company's employees, or through the opinions expressed by consumers through social networks. However, such information extraction must be carried out logically through tools and algorithms of the so-called data science, which based on information obtained from the past, new creative solutions to current problems are obtained, as well as innovative ideas for future planning.

The Master in Business Analytics program is presented as an option to enrich the current academic offer of Tecnológico de Monterrey portfolio, particularly in the convergence of the areas of data science, software engineering and business management.

Target Audience

The program is aimed at professionals who have relevant professional experience and who meet at least one of the following criteria in their professional development profile:

- They are in leadership positions with perspectives of organizational growth, considering important the systemic understanding of the organization and support methodologies for decision making.
- Professionals interested in solving data science and digital transformation problems within their work area in a multidisciplinary and innovative way.
- Experts with work experience who wish to develop and / or strengthen consulting skills to support continuous improvement, competitiveness and sustainability of organizations in the region through the application of diagnostic methodologies, generating innovative and effective solutions.
- Have an excellent academic record; talent in the generation of knowledge; fluency of communication; work professionally under strict ethical standards; open to new ways of assimilating knowledge and professional practice, as well as being intellectually curious.

Program Objectives

The Master in Business Analytics program aims to train professionals who:

- Have technological tools to help identify and lead data science, smart manufacturing, and software engineering projects to respond in a timely and innovative way to the particular needs of organizations in today's digitalization era.
- Have technical engineering and management knowledge, as well as the necessary skills to face multidisciplinary and innovative real problems within a large company in constant transformation, always keeping in mind supporting the technological and economic development of the country.

Learning Outcomes

The graduates from this program will be able to:

- Identify opportunities in the changing environment that allow them to design sustainable business models based on organizational and digital transformation processes. This in order to generate economic, social and environmental value in the community.
- Understand the needs of stakeholders to lead change processes and ensure the relevance of the group, in order to exercise leadership with a human sense and consistent with the strategic objectives of the organization.
- Understand the importance of disruptive technologies and their business application in order to respond the demands of the current environment: volatile, uncertain and complex.
- Design descriptive, prescriptive and predictive models to support agile, effective and dynamic decision making.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average (GPA) in their undergraduate studies.

Each School may have additional requirements.

MBD Master in Business Analytics
Plan 2021

First Trimester

Code	Name	CA
AD4046	Responsible Leadership	1.5
AD4056	Disruptive Strategy and Digital Transformation	3
TC4027	User Experience and User Interface	3
		7.5

Second Trimester

Code	Name	CA
AD4045	Ethics and Governance in Business	1.5
AD4057	Data Analytics in Business I	3
IN4036	Data Mining for Decision Making	3
		7.5

Third Trimester

Code	Name	CA
AD4058	Leading Transformation Office	3
IN4037	Simulation Models	3
OP5085	Elective I	3
		9

Fourth Trimester

Code	Name	CA
AD4059	Corporate Performance Management	3
OP5086	Elective II	3
TC4028	Artificial Intelligence and Machine Learning	3
		9

Fifth Trimester

Code	Name	CA
AD5156	Business Analytics in Business II	3
AD5157	Project	3
OP5087	Elective III	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MBD-M Master in Business Analytics (Mixed Program)

Justification

The exponential growth of information that day after day is generated through the use of mobiles, social networks, the web, the 4.0 industry, as well as the immense number of applications and solutions, requires expert professionals in issues related to the internet of things and autonomous mobility. This enormous amount of structured and unstructured data generated daily, immediately requires professionals with the necessary technical knowledge to process them wisely and extract the information hidden from traditional analysis, and vital for proposing innovative and creative solutions.

The digitalization of information and the mobility of business operations to the cloud requires trained personnel to face this new global trend. This transformation will not be exclusive to large companies or research centers, but involves any type of company, hence the great demand for professionals who know how to smartly analyze their databases.

Companies need to analyze, process and extract relevant information from all these data groups that are generated day by day through the companies' pages and applications, from their own internal manufacturing processes or through the different work dynamics of the company's employees, or through the opinions expressed by consumers through social networks. However, such information extraction must be carried out logically through tools and algorithms of the so-called data science, which based on information obtained from the past, new creative solutions to current problems are obtained, as well as innovative ideas for future planning.

The Master in Business Analytics program is presented as an option to enrich the current academic offer of Tecnológico de Monterrey portfolio, particularly in the convergence of the areas of data science, software engineering and business management.

Target Audience

The program is aimed at professionals who have relevant professional experience and who meet at least one of the following criteria in their professional development profile:

- They are in leadership positions with perspectives of organizational growth, considering important the systemic understanding of the organization and support methodologies for decision making.
- Professionals interested in solving data science and digital transformation problems within their work area in a multidisciplinary and innovative way.
- Experts with work experience who wish to develop and / or strengthen consulting skills to support continuous improvement, competitiveness and sustainability of organizations in the region through the application of diagnostic methodologies, generating innovative and effective solutions.
- Have an excellent academic record; talent in the generation of knowledge; fluency of communication; work professionally under strict ethical standards; open to new ways of assimilating knowledge and professional practice, as well as being intellectually curious.

Program Objectives

The Master in Business Analytics program aims to train professionals who:

- Have technological tools to help identify and lead data science, smart manufacturing, and software engineering projects to respond in a timely and innovative way to the particular needs of organizations in today's digitalization era.

- Have technical engineering and management knowledge, as well as the necessary skills to face multidisciplinary and innovative real problems within a large company in constant transformation, always keeping in mind supporting the technological and economic development of the country.

Learning Outcomes

The graduates from this program will be able to:

- Identify opportunities in the changing environment that allow them to design sustainable business models based on organizational and digital transformation processes. This in order to generate economic, social and environmental value in the community.

- Understand the needs of stakeholders to lead change processes and ensure the relevance of the group, in order to exercise leadership with a human sense and consistent with the strategic objectives of the organization.

- Understand the importance of disruptive technologies and their business application in order to respond the demands of the current environment: volatile, uncertain and complex.

- Design descriptive, prescriptive and predictive models to support agile, effective and dynamic decision making.

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).

- The overall grade point average (GPA) in their undergraduate studies.

Each School may have additional requirements.

MBD-M Master in Business Analytics (Mixed Program)
Plan 2022

First Trimester

Code	Name	CA
AD4046	Responsible Leadership	1.5
AD4056	Disruptive Strategy and Digital Transformation	3
TC4027	User Experience and User Interface	3
		7.5

Second Trimester

Code	Name	CA
AD4045	Ethics and Governance in Business	1.5
AD4057	Data Analytics in Business I	3
IN4036	Data Mining for Decision Making	3
		7.5

Third Trimester

Code	Name	CA
AD4058	Leading Transformation Office	3
IN4037	Simulation Models	3
OP5085	Elective I	3
		9

Fourth Trimester

Code	Name	CA
AD4059	Corporate Performance Management	3
OP5086	Elective II	3
TC4028	Artificial Intelligence and Machine Learning	3
		9

Fifth Trimester

Code	Name	CA
AD5156	Business Analytics in Business II	3
AD5157	Project	3
OP5087	Elective III	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MBM Master in Business Management

Program and Learning Outcomes

Admission Profile

Recent graduates or young professionals with relevant work experience of less than three years, who seek to transform their professional profile, enhance their business skills and competencies, as well as acquire cutting-edge knowledge. Professionals that aspire to take on leadership roles, whether within a family business or an organization, pondering a systemic understanding of the organization and supportive methodologies for decision-making. Individuals that aim to develop and implement strategies of innovation and digital transformation through a profound understanding of new technologies and the implications of achieving standardized adaptation within the company. Likewise, people who aim to excel in consultancy roles to support the development of regional organizations by applying novel methodologies to generate innovative and effective solutions.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Participate effectively in collaborative networks (national and international) appreciating diversity and new trends, promoting knowledge exchange and interaction.

b) Identify constantly new ways of doing things, promoting knowledge creation and business innovation through the design of innovative projects that contribute to the sustainable development of the organization.

c) Prioritize and solve complex projects, evaluate diverse solution alternatives through the analysis, the interpretation and the evaluation of existing resources, organizational processes and their impact on the environment.

d) Seek the development of other colleagues for the greater good.

e) Understand the digital impact on business and industry, identify and evaluate new technologies that help rethink new business models and new ways of operating that contribute to the efficiency and survival of the organization.

Graduation Profile

Leaders who focus on managing projects and initiatives within the organization, in order to make effective decisions and help organizations achieve their strategic objectives in a sustainable way.

MBM Master in Business Management
Plan 2020

First Trimester

Code	Name	CA
AD4042	Management Core	3
AD4047	Leadership and Human Capital	3
CF4011	Accounting	1.5
EO4017	Global Economy	1.5
MT4021	Consumer Behavior	3
		12

Second Trimester

Code	Name	CA
AD4048	Business Model Innovation and Design	3
AD4049	Immersion Project I	3
MT4022	Marketing	2
OP5085	Elective I	3
		11

Third Trimester

Code	Name	CA
AD5132	Global Business Environment	3
AD5133	Immersion Project II	3
OP4046	Quality Development Course	3
OP5086	Elective II	3
		12

Fourth Trimester

Code	Name	CA
AD5134	Change Management	1.5
AD5135	Career Builder	2
AD5136	Immersion Project III	2
OP5087	Elective III	3
		8.5

CA The letters "CA" represents the number of credit hour of the course.

MBM-V Master in Business Management (Online Program)

Justification

Nowadays, companies and other organizations´ trend is to work with a more horizontal structure, which leads to the need for people prepared in business, competent to perform a self-regulated work that adds value to the company and strengthens the profiles of high potentials since the beginning of their work.

In response to this need, the Master's in Business Management (MBM) program is proposed to be updated, in line with the Tec21 model of Tecnológico de Monterrey that seeks to develop key skills of professionals who are at an early stage of their working life.

In this program update, Tec21 pedagogical model based on challenges (Practicums) with associated organizations that allow students to face existing problems is incorporated in order to identify effective execution methods and possible solutions. The above is planned with the guidance and mentoring of expert professors in the business area and of professionals recognized for their experience in the different related organizations, responsible for implementing solutions to relevant and current problems.

Target Audience

The Master in Business Management program (MBM) is aimed for diverse career /industry professionals who are in the early stages of their working life and who are looking for:

- Leadership positions with perspective of organizational growth, considering important the systemic understanding of the organization and support methodologies for decision making.
- Developing and implementing innovation and digital transformation strategies through an in-depth knowledge of new technologies and achieving homologated adaptation in the company.
- Developing in consulting areas to support the development of organizations in the region through the application of diagnostic methodologies generating innovative and effective solutions.
- Empowering their professional career and exceling in professional life through the development of key leadership and digital skills.
- Networking with companies and institutions.
- Solving real problems in business environments.

Program Objective

The Master in Business Management program (MBM) has as its main purpose to train full leaders who focus on managing projects and initiatives within the organization, in order to make effective decisions and help organizations achieve their strategic objectives in a sustainable way.

Learning Outcomes

At the end of the program the student will be able to:

- Participate effectively in collaborative networks (national and international) appreciating diversity and new trends, promoting knowledge exchange and interaction.
- Identify constantly new ways of doing things, promoting knowledge creation and business innovation through the design of innovative projects that contribute to the sustainable development of the organization.
- Prioritize and solve complex projects, evaluate diverse solution alternatives through the analysis, the interpretation and the evaluation of existing resources, organizational processes and their impact on the environment.
- Seek the development of other colleagues for the greater good.
- Understand the digital impact on business and industry, identify and evaluate new technologies that help rethink new business models and new ways of operating that contribute to the efficiency and survival of the organization

Admission Profile

Tecnológico de Monterrey seeks to integrate a new generation of students in all its graduate programs, who have completed their undergraduate studies and distinguished themselves by being: talented, enthusiastic people, committed to the development of their environment and to the well-being of society; people who have the potential to successfully complete their graduate program and become leaders with entrepreneurial spirit, human sense and internationally competitive.

Therefore, for admission, the applicant participates in a complete selection process that considers:

- The result of the Admission Test for Postgraduate Studies (PAEP).
- The overall grade point average (GPA) in their undergraduate studies.

Each School may have additional requirements.

MBM-V Master in Business Management (Online Program)
Plan 2020

First Trimester

Code	Name	CA
AD4042	Management Core	3
AD4047	Leadership and Human Capital	3
CF4011	Accounting	1.5
EO4017	Global Economy	1.5
MT4021	Consumer Behavior	3
		12

Second Trimester

Code	Name	CA
AD4048	Business Model Innovation and Design	3
AD4049	Immersion Project I	3
MT4022	Marketing	2
OP5085	Elective I	3
		11

Third Trimester

Code	Name	CA
AD5132	Global Business Environment	3
AD5133	Immersion Project II	3
OP4046	Quality Development Course	3
OP5086	Elective II	3
		12

Fourth Trimester

Code	Name	CA
AD5134	Change Management	1.5
AD5135	Career Builder	2
AD5136	Immersion Project III	2
OP5087	Elective III	3
		8.5

CA The letters "CA" represents the number of credit hour of the course.

MDE Executive Master in Business Administration

Program and Learning Outcomes

Admission Profile

Professionals who have at least three relevant years of professional experience and who meet at least one of the following criteria in their professional development profile:

- They have leadership positions with perspectives of organizational growth, considering important the systemic understanding of the organization and support methodologies for decision making.

- They have experience in their professional area and with interest in developing innovative business models, which seek to increase the competitiveness of the company or create new businesses through the knowledge and use of state-of-the-art management and entrepreneurship tools and models.

- Applicants who wish to develop and / or strengthen consultancy skills to support the continuous improvement, competitiveness and sustainability of organizations in the region through the application of diagnostic methodologies generating innovative and effective solutions.

- With leadership potential to show passion for learning, critical thinking and professional growth that impacts the generation of value in organizations through the use of leadership skills, knowledge, techniques and effective management tools.

Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Understand the needs and demands of stakeholders to recognize business opportunities and ensure the successful operation of the company; propose business models based on a constant innovation process; and manage the interactions of the actors to integrate resources in the creation of value, in order to generate economic, social and environmental value in high connectivity and disruptive environments.

b) Generate creative solutions based on the analysis of scenarios using quantitative and qualitative methods; propose improvements in the organization based on internal and external analysis to guarantee the market approach; and demonstrate the viability of their proposals in order to implement the best solution with a systemic approach, with the aim of making effective decisions in the organization based on strategic thinking.

c) Communicate effectively with stakeholders; develop human talent through processes of attraction, selection, training, empowerment, evaluation, and retention; strengthen interdisciplinary, generational and culturally diverse work teams; and lead change processes to assure the relevance of the organization, in order to exercise their leadership with a human sense and in line with the strategic objectives of the organization.

d) Evaluate the information obtained through observation, experience, reflection, reasoning and communication; convince stakeholders about the viability of solutions to complex problems based on

- Generate creative solutions based on the analysis of scenarios using quantitative and qualitative methods; propose improvements in the organization based on internal and external analysis to guarantee the market approach; and demonstrate the viability of their proposals in order to implement the best solution with a systemic approach, with the aim of making effective decisions in the organization based on strategic thinking.

- Communicate effectively with stakeholders; develop human talent through processes of attraction, selection, training, empowerment, evaluation, and retention; strengthen interdisciplinary, generational and culturally diverse work teams; and lead change processes to assure the relevance of the organization, in order to exercise their leadership with a human sense and in line with the strategic objectives of the organization.

- Evaluate the information obtained through observation, experience, reflection, reasoning and communication; convince stakeholders about the viability of solutions to complex problems based on consistent evidence, arguments and conclusions; and implement solutions to problems to achieve the objectives of the organization, in order to solve those problems through an iterative process of logical, objective and autonomous reasoning.

Graduation Profile

Professionals who lead organizations that operate in global environments, through effective and ethical decision-making supported by cutting-edge management techniques and models. They also lead strategic projects that generate value for the organization and its local, national and international environment, through the application of leadership skills, systemic knowledge of the organization and a global vision. They identify areas of opportunity in the environment and, accordingly, design and develop innovative and sustainable business models through the application of analytical and financial tools. Likewise, they contribute to the economic, social and environmental development of their community through innovative and sustainable projects.

MDE Executive Master in Business Administration
Plan 2020

First Semester

Code	Name	CA
AD4054	Roles & Responsibilities for Managers / Business Ethics	3
EO4019	Economic Context of Global Business	3
MT4023	Strategy for Customer Development	3
RH4004	Leadership & Power in Organizations	3
		12

Second Semester

Code	Name	CA
AD5148	Supply Chain & Improvement for Global Companies	3
AD5149	Transformational Leadership	3
EO4020	Microeconomics	1.5
FZ4023	Financial Accounting / Reporting Analytics	1.5
FZ4024	Corporate Finance	3
		12

Third Semester

Code	Name	CA
CD4002	Data Analytics for Decision Making	3
OP5090	Elective I	3
OP5091	Elective II	3
		9

Fourth Semester

Code	Name	CA
AD5150	International Practicum	1.5
CF5001	Intrafirm Analytics for Decision Making	1.5
MT4024	Data Analytics for Business Value Creation	3
OP5092	Elective III	3
		9

CA The letters "CA" represents the number of credit hour of the course.

MGN-V Master in Enterprise Administration (Online Program)

Program and Learning Outcomes

Admission Profile

Executives who wish to enrich their global perspective in the multinational business environment, and apply this knowledge in companies, enterprises and organizations, in order to progress in their business career. Also, consultants, entrepreneurs and business owners who wish to participate in high-level projects and progress within a business career or improve their business from an innovative perspective. Academic background for admission: a bachelor's degree.

Student Learning Outcomes

a) Be resilient to different organizational dynamics.

b) Generate sustainable solutions to institutional problems through abilities, ideas, and entrepreneurship within an ethical framework.

c) Generate results with value added using innovative business models.

d) Interact in multicultural and global environments taking advantage of diversity.

e) Visualize and create the future of organizations and companies, identifying opportunities to generate value.

f) Use information technologies for business intelligence that allows analytic decision-making.

g) Apply and promote interdisciplinary and collaborative work, being a guide for high-performance teams.

h) Communicate, interact and influence stakeholders in the organization.

i) Perform in virtual environments without time and space limitations.

Graduation Profile

Professionals in organizational management who develop strategic thinking and skills to make assertive and valuable decisions, skills to design and implement solutions with an ethical and socially responsible perspective to complex business problems, through the use of analytical methods and innovative technologies. As well as capabilities to interact with specialists from all functional areas of the company in order to define organizational strategies, guidelines and objectives, character to lead change processes in complex environments that strengthen organizational transformation and understanding of the design and undertaking of innovative business models that add value to the organization.

MGN-V Master in Enterprise Administration (Online Program)
Plan 2017

Remedial Trimester

Code	Name	CA
AD4035	Quantitative Methods for Decision Making	3
FZ4017	Analysis and Interpretation of Financial Information	3
		6

First Trimester

Code	Name	CA
AD4036	Social Responsibility, Ethics and Sustainability	3
AD4037	Management and Managerial Philosophy	3
		6

Second Trimester

Code	Name	CA
AD4038	Management and Direction of Human Capital	3
EC4019	Managerial Economics	3
		6

Third Trimester

Code	Name	CA
AD4039	Financial Management	3
MT4017	Strategic Marketing Management	3
		6

Fourth Trimester

Code	Name	CA
AD4040	Value Chain Management	3
AD5109	Strategic Planning	3
		6

Fifth Trimester

Code	Name	CA
AD5110	Business Intelligence	3
AD5111	Entrepreneurship and Business Model Design	3
		6

Sixth Trimester

Code	Name	CA
OP5053	Elective I	3
OP5054	Elective II	3
		6

Seventh Trimester

Code	Name	CA
AD5112	Field Project	3
OP5055	Elective III	3
		6

CA The letters "CA" represents the number of credit hour of the course.

DCA PH. D. in Business Administration

Program and Learning Outcomes

Admission Profile

Professionals who have a master's degree in the areas of management, administration and social sciences. Interested in carrying out high-impact applied research, to contribute to the knowledge of any of the specialty areas of Administrative Sciences.

Academic background for admission: Master's degree in the areas of management, administration and social sciences.

Student Learning Outcomes

a) Develop theoretical and empirical models typical of administrative sciences to generate applied research projects, based on original critical knowledge.

b) Publish research products in different high-quality academic media.

c) Develop research projects aimed at transforming organizations with ethical awareness and social responsibility.

d) Generate effective collaborative environments in high-level research and teaching groups in higher education institutions.

Graduate Profile

Research leaders who generate value through the generation of state-of-the-art applied knowledge in the fields of administrative sciences. This knowledge will contribute to the design of effective decisions for organizations, based on critical thinking and human sense.

DCA PH. D. in Business Administration
Plan 2020

First Semester

Code	Name	CA
GD6030	Guided Research I	3
GD6031	Guided Research II	3
GD6032	Guided Research III	3
		9

Second Semester

Code	Name	CA
GD6033	Research Proposal I	3
GD6034	Research Proposal II	3
GD6036	Research Seminar I	0.5
GD6042	Research Integration I	1.5
GD6046	Integrated Exam	1.5
GD6047	Research Workshop I	1
		10.5

Third Semester

Code	Name	CA
GD6017	Doctoral Research I	3
GD6018	Doctoral Research II	3
GD6035	Research Proposal Defense	1.5
GD6037	Research Seminar II	0.5
GD6048	Research Workshop II	1
		9

Fourth Semester

Code	Name	CA
GD6019	Doctoral Research III	3
GD6020	Doctoral Research IV	3
GD6038	Research Seminar III	0.5
GD6044	Scientific Product I	1.5
GD6049	Research Workshop III	1
		9

Fifth Semester

Code	Name	CA
GD6021	Doctoral Research V	3
GD6022	Doctoral Research VI	3
GD6039	Research Seminar IV	0.5
GD6043	Research Integration II	1.5
GD6050	Research Workshop IV	1
		9

Sixth Semester

Code	Name	CA
GD6023	Doctoral Research VII	3
GD6024	Doctoral Research VIII	3
GD6040	Research Seminar V	0.5
GD6045	Scientific Product II	1.5
GD6051	Research Workshop V	1
		9

Seventh Semester

Code	Name	CA
GD6025	Doctoral Research IX	3
GD6026	Doctoral Research X	3
GD6027	Doctoral Research XI	3
GD6041	Research Seminar VI	0.5
GD6052	Research Workshop VI	1
		10.5

Eighth Semester

Code	Name	CA
GD6000	Doctoral Defense	0.3
GD6028	Doctoral Research XII	3
GD6029	Doctoral Research XIII	3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

DCF Ph. D. in Financial Science

Program and Learning Outcomes

Admission Profile

Professionals who have the desire and capacity for conducting research and expanding the borders of knowledge in the field of financial science, as well as the discipline and intellectual curiosity to ask fundamental questions and conduct research that will contribute to creating and disseminating original, innovative knowledge and/or practices in the context of financial theory, management and economics. We are looking for individuals with the intention of studying a program that will position them as opinion leaders and generators of trends of thought in the areas of finance and economics. In addition to people who wish to participate in research, teaching and consulting in the financial sciences.

Academic background for admission: Master's degree in an area related to the research lines of the program.

Student Learning Outcomes

a) Develop theoretical and empirical financial models typical to generate applied research projects, based on original critical knowledge.

b) Develop research projects aimed at the transformation of organizations with ethical awareness and social responsibility.

c) Generate effective collaborative environments in research and teaching groups, whether in public or private organizations, in interaction with higher education institutions.

d) Publish research products in high quality academic journals but also in finance industry reports or practitioner-oriented journals.

Graduate Profile

Integrity research leaders who promote applied research in finance as a source of innovative solutions to the challenges posed by the dynamics of organizations. In addition, they create and strengthen research networks, where economic-financial phenomena are analyzed to develop knowledge that is transferred to different audiences, not only companies but to society. And, finally, professionals who develop an open community of researchers in the field of finance that generates economic and social value in a plural, diverse and inclusive environment.

DCF Ph. D. in Financial Science
Plan 2022

First Semester

Code	Name	CA
GF5025	Assisted Research I	3
GF5026	Assisted Research II	3
GF5027	Assisted Research III	3
		9

Second Semester

Code	Name	CA
GF5019	Research Proposal I	3
GF5020	Research Proposal II	3
GF6039	Integrated Exam	1.5
GF6041	Research integration I	1.5
GF6049	Research Seminar I	0.5
GF6050	Research Workshop I	1
		10.5

Third Semester

Code	Name	CA
GF6027	Doctoral Research I	3
GF6028	Doctoral Research II	3
GF6040	Research Proposal Defense	1.5
GF6046	Research Seminar II	0.5
GF6051	Research Workshop II	1
		9

Fourth Semester

Code	Name	CA
GF6029	Doctoral Research III	3
GF6030	Doctoral Research IV	3
GF6043	Scientific Product I	1.5
GF6047	Research Seminar III	0.5
GF6052	Research Workshop III	1
		9

Fifth Semester

Code	Name	CA
GF6031	Doctoral Research V	3
GF6032	Doctoral Research VI	3
GF6042	Research Integration II	1.5
GF6048	Research Seminar IV	0.5
GF6055	Research Workshop IV	1
		9

Sixth Semester

Code	Name	CA
GF6033	Doctoral Research VII	3
GF6034	Doctoral Research VIII	3
GF6044	Scientific Product II	1.5
GF6053	Research Seminar V	0.5
GF6056	Research Workshop V	1
		9

Seventh Semester

Code	Name	CA
GF6035	Doctoral Research IX	3
GF6036	Doctoral Research X	3
GF6037	Doctoral Research XI	3
GF6054	Research Seminar VI	0.5
GF6057	Research Workshop VI	1
		10.5

Eighth Semester

Code	Name	CA
GF6000	Doctoral Defense	0.3
GF6038	Doctoral Research XII	3
GF6045	Doctoral Research XIII	3
		6.3

CA The letters "CA" represents the number of credit hour of the course.

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/3_3EN.htm

This catalogue presents information on the **Graduate Programs Catalogue 2022**
of Tecnológico de Monterrey. Its content reflects the information available in official media
at the time of its publication.

The edition is the responsibility of the Vice-Rectorate for Educational Innovation and Academic Regulations
and of the Tecnológico de Monterrey and is available on the Mitec Portal
(https://mitec.itesm.mx).
Edited and published by:
Directorate of the Vice-Rectorate for Educational Innovation and Academic Regulations