2011 Guide of
Academic Programs



CETYS
UNIVERSIDAD

ÍNDICE

Dr. Fernando León
Rector del Sistema CETYS Universidad, reconocido como uno de los 40 Líderes en el ámbito educativo por la Revista Líderes Mexicanos en su edición febrero 2010.

President Message

Welcome to CETYS University

Studying at CETYS University is one of the most important decisions that you will make in your life, since the training you will receive in our classrooms will provide you an added value as an individual and as a professional, by offering you the best opportunities through our faculty and programs, our links with business and the community, agreements with a variety of universities in the world, and infrastructure which maximizes learning inside and outside the classroom, among others, all of this resulting in a transcendent economic and community development.

CETYS has offered the best educational programs so that young people of the region have the opportunity to demonstrate their faculty to excel in a competitive world. At the same time, it has been our commitment to provide a broad support in scholarships and financial aid to those who possess academic talent, because we are confident of the ability of humans to achieve their dreams.

Our institution was founded in 1961 with a strong view that a region is not developed if there is no university of quality education. Today, within the framework of the 50th anniversary, we know more than ever that this is true and so it is reflected in the vision embodied in the 2020 Institutional Development Plan. With High Quality Education, Global Competitiveness, Learning Communities, and Sustainability not only will CETYS become an institution which contributes in a relevant manner to the present needs of the region's development anticipating future situations, but it will also compete and transcend in the global context and will be acknowledged as a pride of Baja California and Mexico.

Dr. Fernando León García
President of the CETYS University System

Profile of the Institution

The Government's Structure

Instituto Educativo del Noroeste, A.C. (IENAC) is a not-for-profit organization which has sponsored Centro de Enseñanza Técnica y Superior (CETYS University) since its foundation in 1961. IENAC is composed by more than one hundred leaders of the region, who share the purposes reflected on the CETYS Mission and work to ensure their permanence and projection in our community.

Administration

IENAC entrusts the Presidency of CETYS University System the development and good progress of the Institution. The Presidency of CETYS University System is constituted and supported by the following members and functions for its regulations and operation in the State.

Dr. Fernando León García
President

Dr. Esther Elena Mulnix
Academic Vice President

Dr. Scott Venezia Corral
Dean of the College of Business and Administration

Dr. Miguel Salinas Yáñez
Dean of the College of Engineering

Dr. Alberto Garate Rivera
Dean of the College of Humanities

Mtra. María Eugenia Espino Aguilar
High School Dean

C. P. y Mtro. Arturo Álvarez Soto
Administrative Vice President

Dr. Luis Jorge Rocha Yáñez
Director of Institutional Effectiveness

Mtro. Héctor Vargas García
Director of Academic Planning and Effectiveness

Ing. Ángel Montañez Aguilar
Director of Domestic Affairs and Special Projects

Lic. Laura Carrillo De Anda
Director of Accreditations and International Affairs

Lic. Francisco Reyes Cervantes
Director of Institutional Communication

Ing. Sergio B. Rebollar McDonough
Director of Mexicali Campus and Director of Information Technology

Mtra. Jessica Ibarra Ramonet
Director of Tijuana Campus and Director of Institutional Development and Promotion

Lic. Carlos Humberto García Alvarado
Director of Ensenada Campus and Director of Institutional Advancement

2020 Mission and Vision

Mission

(Synthesized Version)

It is purpose of Centro de Enseñanza Técnica y Superior to contribute towards the development of individuals with the necessary moral and intellectual character to participate in a prominent way in the economic, social, and cultural advancement of Mexico, consistently promoting: character building, general cultural training, and scientific training.

Vision

For the 2010-2020 period and as a part of the 2020 CETYS Plan, CETYS University will pursue to become a high quality education institution, globally competitive, functioning as a learning community, and recognized by its actions and results in favor of sustainable development.

History and Educational Model

Centro de Enseñanza Técnica y Superior (CETYS University) is an educational institution of excellence, located in the State of Baja California, Mexico. Half a century ago, on September 20, 1961, with Fernando Macias Rendon as the first President, the CETYS High School was founded in a leased building downtown Mexicali. CETYS was established as a local university alternative for Baja California's youth, since back then, their only choice was to study in other parts of Mexico.

CETYS education labor was extended to Tijuana in 1972 and to Ensenada in 1975, providing the State with an alternative of high quality education under the auspices of a group of visionary entrepreneurs.

Throughout this half a century of educating leaders who have a positive impact in this Mexico-United States bordering zone, over twenty-six thousand students have graduated from the undergraduate and graduate programs in the areas of Business and Administration, Engineering, and Humanities, as well as from the general and international High School programs.

CETYS is currently ranked as one of the best universities in the country. In addition, it is accredited by academic quality supervisory bodies, such as the Federation of Mexican Private Institutions of Higher Education (FIMPES), the Accreditation Council for Engineering Education (CACEI), Accreditation Council for Accounting and Management Education (CACECA), the National Council for Psychology Education and Research (CNEIP), and the Accreditation Council for Law Education (CONAED). It is also in the process of international accreditation with the Western Association of Schools and Colleges (WASC).

With the pursuit of Excellence as a goal, the educational model consists of three essential components: philosophical principles, pedagogical principles, and fields.

Philosophical Principles: They determine the kind of person wanted to prepare, in this case, education has the dimension of a process clearly intentioned towards comprehensive training, and it is explicit and detailed in the CETYS Mission. Pedagogical principles: They define the way the educational process is carried out:

- Learning to Learn
- Learning Skills and Abilities
- Learning Knowledge
- Learning to Coexist
- Learning to Be and to Be Well

Campus and Facilities

Ensenada:

Founded in 1975, CETYS University, Ensenada Campus, began its work with high school. In 1979, the undergraduate programs started with the Accounting and Business Administration School. It currently offers General and Bilingual High School, ten undergraduate programs and seven graduate studies programs. In the first semester of 2010, 957 students were registered in this campus.

At the Ensenada Campus, the patrimony has been permanently increasing, allowing the careful and planned growth of an infrastructure in which students have access to laboratories and specialized workshops, specific classrooms for cultural activities, library with over 15,000 copies, and well-equipped sports areas. In addition, wireless internet access is available throughout the campus.

Here, as in other campuses, student and academic life is offered positively marking the professional life, because there is the interest of maintaining a high quality in the training of its students and work has been done to have faculty experts and skillful in their area of teaching, as well as to maintain resources and educational tools updated for their students.

The Ensenada Campus is located in Km. 1 road to Microondas Trinidad, Ensenada, B.C., Mexico, Zip Code 22860 Tel. +52 (646) 174-5095

Mexicali:

CETYS University, Mexicali Campus, is the oldest and has the largest student population of the system. For the first half of 2010, there were 2,731 students. To date, this campus offers the General High School, as well as 13 undergraduate programs and 6 graduate studies programs with a wide variety of concentrations of study.

The high academic level of our institution is complemented by a vibrant student life full of activities, such as sports competitions, artistic and cultural exhibitions, conferences, symposia and events such as Prom Queen and High School Weeks, and Transcendencias.

The infrastructure of our campus comprises several computing rooms, sports fields, a gymnasium, an auditorium, a cafeteria, a well-stocked library, and pleasant green areas. All of this is built by the tenacity of an academic community that has always been characterized by its unity and its proximity, making studying at CETYS University a truly unique experience.

The Mexicali Campus is located in CETYS Blvd., Col. Rivera, Mexicali, B.C. Mexico, Zip Code 21259 Tel. +52 (686) 567-3700

Tijuana:

CETYS Tijuana Campus began operations in 1972, with the High School and two years later it started two undergraduate programs: Public Accounting and Business Administration. Currently, this campus offers General and International High School, as well as 12 undergraduate programs. In the first semester of 2010, 2105 students attended this campus.

Over the years, the physical space of this campus has brought together the ideal conditions for the learning of languages, including English, French, and Japanese. Nowadays, it offers the services of library, cafeteria, computer room, sports fields, and the Holistic Wellness Center.

In the facilities of the CETYS Tijuana Campus the Student Development Center, provides educational services to the academic community, with the objective of giving comprehensive support in the academic, vocational, and psychological area.

The Tijuana Campus is located in: CETYS Universidad Av. Fracc. El Lago, B.C., Mexico, Zip Code 22550. Tel. +52 (664) 903-1800

2020 CETYS Plan

In view of the development and improvement of CETYS University, ever since 2008, we have been working on the formulation, the approval in April/September 2010, and the eventual launching in January 2011 of the CETYS 2020 Plan. This plan defines the vision of the institution for the next few years and proposes a CETYS committed to its Mission and with the highest quality programs, which allows transcending from regional and national acknowledgement to an international one. The 2020 CETYS Plan will lead us towards a CETYS that honors the vision of its founders, celebrates the achievements of its graduates, and is a pride of Baja California and Mexico.

The 2020 CETYS plan intends to guide CETYS to become an institution of high quality education, competitive worldwide, functioning as a learning community, and acknowledged by its actions and results in favor of sustainable development. Six strategic objectives and initiatives are directed to meet the needs of the system and the campuses:

1) To promote an academic faculty of high level including the increase of doctors, that strengthen teaching excellence, but at the same time enabling substantial progress in applied research and bonding with the economic and social development.

2) To continue to promote comprehensive training through an educational model centered on the student which ensures the improvement of the fields (internationalization, entrepreneur development, and culture of the information), and student life.

3) To operate a multi-campus system which can rely on the physical infrastructure and services needed to support the kind of education that is expected to be achieved in the 2020 CETYS.

4) integrate the best technology platforms and systems for the provision of educational services and quality support.

5) To promote innovation and diversify the educational offering.

6) To improve its structure and organization to achieve more efficiency, diversification and increased sources of financing.

In order to support the execution of the 2020 CETYS, with the joint assistance and work from the students, professors, managers, administrators, IENAC Counselors, and the community in general the Institution will seek for investing the following resources: from Capital Campaign, 50 million dollars; from Own Resources, 19 million dollars; and for Productive Patrimony, 50 million dollars.

Acknowledgments and Accreditations

Official Validity and Institution of Excellence

CETYS University is a private, nonprofit institution which operates with the Official Validity of Studies Acknowledgment (RVOE) protected by two general agreements:

1) 21414 agreement issued by the Secretary of Public Education (SEP) at the Federal level and published in the Official Journal on December 26, 1974. This agreement grants CETYS University the right to offer any Technical, High School, Undergraduate, and Graduate program anywhere in the country and under any modality.

2) Agreement without number issued by Secretary of Education and Welfare SEBS from the State Government and published in the official journal of the State of Baja California on October 10, 1983. This agreement grants CETYS University the same possibilities as in the 21414 Federal agreement statewide.

All CETYS programs are acknowledged either by SEBS, or SEP. In all cases, besides the general agreement, there is a particular written acknowledgment for each Bachelor's Degree, program, or curriculum offered in each campus.

Find further information on www.cetys.mx/?page=387.

Acknowledgements

CETYS University is acknowledged as Institution of Excellence by the State Government and High Academic Level by the Federal Government. At the same time, the Institution was recognized with the highest award given by Baja California Institute for Quality (IBCC) within the category of Education.

Institutional Accreditations

Accreditations are related mainly to the improvement of the quality of education in Mexico and with the guarantee that, institutions and their accredited academic programs meet the established standards. They represent a public acknowledgement of the quality and constitute the guarantee that the program complies with adequate infrastructure and human capital to be offered with the highest efficiency.

The institutional accreditation is linked to the fulfillment of its mission, appropriate in the context of higher education and that offers the resources, programs, and adequate services for its fulfillment, all of this before local and international bodies, such as FIMPES and WASC.

Evaluation, an institutional accreditation, focuses on the implementation of the objectives of higher education institutions including as universal elements, comprehensive training, the creation, development and transmission of knowledge, and the contribution to the training of professionals and consolidation of the academic communities.

Also, it is focused on the achievement of institutional projects and in the relevant social, cultural, pedagogical projects; in addition, it attends to the way the institution faces the fulfillment of its core functions in the different fields of action of higher education, institutional climate, available resources, and the overall performance.

National Accreditation

CETYS University is the only institution of Baja California accredited by FIMPES for the second time (2006 to 2013) and with the highest distinction "LISA Y LLANA".

With the FIMPES accreditation, our students are certain that they study in an institution with its own, proven quality model, in addition to the confidence in the education they will receive, for its quality, as well as for an educational environment suitable for the training in values combined with a vision of the Mexican reality and the opportunities of social participation and the prestige of belonging to a school committed to society.

International Accreditations

a) Western Association of Schools and Colleges (WASC)

In a process of increasing academic quality in international terms, CETYS University aims to become, in summer 2011, the first institution in Latin America in being accredited by the Western Association of Schools and Colleges (WASC).

WASC is one of six most important certifying bodies in the United States, by being endorsed by the latter CETYS will be at the academic level of institutions as the University of California, Los Angeles (UCLA); University of Southern California (USC); Stanford University and San Diego State University (SDSU), among other 150 affiliated universities.

In February 2010, the WASC nomination, the second of three stages, was achieved. Thereby, CETYS evidences its commitment to learning, improving, and developing a culture of research, as well as emphasizing the optimization of new technologies of information.

Once CETYS University is accredited by WASC, students may revalidate their undergraduate and graduate studies level in any university in the United States. This will also facilitate the obtaining of dual diplomas, international exchange, and transfer of credits for CETYS students.

b) Accreditation Council for Business Schools and Programs (ACBSP)

El pasado 28 de junio de 2010, la acreditadora de programas de negocios, Association of Collegiate Business Schools and Programs (ACBSP), otorgó durante su conferencia anual efectuada en Los Angeles, California el certificado de Candidatura a CETYS Universidad. Nuestra Institución estará tomando los pasos correspondientes con ACBSP para que en los próximos dos años logre cubrir los requisitos para pasar de Candidatura a Acreditación.

Accreditation of Programs

a) National Council for Psychology Education and Research (CNEIP)

The National Council for Psychology Education and Research (CNEIP) is the body in the area of Human Behavior, whose function is to carry out processes of assessment and accreditation of educational programs in the following disciplines: Clinical, Educational, Organizational, and Child Psychology.

CETYS educational programs assessed and in process of being reaccredited:

Clinical Psychology	Tijuana
Educational Psychology	Tijuana
Organizational Psychology	Tijuana
Child Psychology	Tijuana

b) Accreditation Council for Engineering Education (CACEI)

The Accreditation Council for Engineering Education (CACEI) is the body that assesses and certifies the engineering programs that CETYS University offers:

CETYS educational programs assessed and accredited:

Industrial Engineering	Mexicali
Industrial and Systems Engineering	Tijuana
Mechanical Engineering	Mexicali
Electronic Cybernetics Engineering	Mexicali
Computer Science Engineering	Mexicali Tijuana

c) Accreditation Council for Accounting and Management Education (CACECA)

The Certification Council for Accounting and Management Education (CACECA) is the body that assesses and accredits some of the graduate programs that CETYS University offers.

CETYS educational programs assessed and accredited:

Bachelor's of Arts in Business Administration	Mexicali Tijuana
Bachelor's of Arts in International Business	Mexicali Tijuana
International Public Accounting	Mexicali Tijuana
Marketing Management	Mexicali Tijuana

d) Accreditation Council for Law Education (CONAED)

The Certification Council for Law Education (CONAED) is promoting the improvement of the quality of legal education, which through accreditation, the basic criteria of quality is established in order to verify that the schemes are consistent with advances in scientific and legal techniques, as well as the social requirements of a responsible and ethical practice.

CETYS educational programs assessed and accredited:

Bachelor's of Arts in Law	Mexicali

CENEVAL

The quality of education is a recurring theme in our society. Some bodies assess programs, others, inputs or processes, and some others emphasize the assessment based on results. The National Center for Higher Education Assessment (CENEVAL) deals with the assessment of people and provides information on the results of the educational action of schools, universities, companies, educational authorities, organizations of professionals of the country, and other governmental and private bodies.

Each year, the graduating students from the CETYS University System take the General Exam for Completion of the Bachelor's degree (EGEL), a test of national coverage applied by CENEVAL, which assesses the level of knowledge and academic skills of the newly graduates. With this, CETYS University seeks to provide increasingly better academic programs and to train more skillful students, since our prestige depends on it.

CONACYT Quality Graduate Studies Program

CETYS University owns registration and certification of the National Quality Graduate Studies Program (PNPC), which offers grants to study MBA's and its ten different concentrations: Marketing, Finance, Human Resources, Public Administration, Senior Management, International Business, Supply Chain, Quality, Economic Development, and Agro-business. This will allow students with high academic performance to apply for and receive a support grant to study our MBA. CETYS is the only institution y the Northwest of Mexico to own this distinction.

Rankings

CETYS MBAs in their Finance, Marketing, and Human Resources concentrations are highlighted in The Best MBAs in Mexico edition of Líder magazine in the field of Expansion business.

Faculty

CETYS University faculty, in all its campuses, is integrated with professional and academic experienced professors. The Full Time teachers are the mainstay that encourages the development of the academic model in the students, giving personalized attention, imperative for their training, achieving every semester that 4 out of 10 classes are taught by Full Time professors in the system. Here is a list of the Full Time professors per campus and per college.

Ensenada Campus

College of Business Administration

Dr. Scott Venezia Corral
Bachelor's Degree in Business Administration, MBA specialization in Finance, and Doctor in Business Management by CETYS University, specialization in Strategic Management.

Prof. Diana Esther Woolfolk Ruiz
Bachelor's degree in International Business, CETYS University, Master's in Business Administration, specialization in Finance, CETYS University and PhD candidate - Doctorate in Administration, specialization in Strategic Management, CETYS University .

Dámaso Ruiz González
Bachelor's Degree in International Business, CETYS University, Master's in Business Administration specialization in Finance, CETYS University.

Prof. Margarita Rubio Aguilar
Bachelor's degree in Graphic Design, Universidad Autónoma de Guadalajara, MBA specialization in Marketing, CETYS University.

Prof. Sialia Mellink
Bachelor's Degree in Graphic Design, by CETYS University Ensenada Campus with a M. Ed specialization in Organizational Development, CETYS University (in progress).

College of Engineering

Prof. Carlos González Campos
Industrial Engineer in Production, CETYS University, Master's Degree in Manufacturing Systems Sciences, ITESM, Doctorate in Engineering specialization in Manufacturing Systems, CETYS University.

Prof. Socorro Lomelí
Industrial Engineer, CETYS University, Master's of Management Sciences, specialization in Corporate Finance, CETYS University.

Dr. Isaac Azuz Adeath
Bachelor's Degree in Physics Oceanology, University of Colima, with credits of Master's Degree in Physical Oceanography (CICESE) and Doctor of Science of the Sea, UPC-Spain.

Prof. Lucía Beltrán Rocha
Bachelor's Degree in Computer Systems, CETYS University, Master's in Business Adminstration, concentration in Marketing

Mexicali Campus

College of Business Administration

Prof. Federico Sada de la Mora
Master's Degree in Business Administration

Dr. Helia Cantellano Gutiérrez
Doctorate in International Business Management

Prof. Jaime Álvarez Jiménez
Master's Degree in Taxation

Prof. Francisco Villalba Rosario
Master's Degree in Business Administration

Prof. Mónica Acosta Alvarado
Master's Degree in Business Administration, Master's Degree in Human Resources and candidate for Doctor in Administration.

Dr. Carmina Contreras
Master's Degree in Business Administration with specialization in International Business, Marketing and Human Resources, Doctorate in International Business Administration.

Dr. Carlos Humberto Castellanos León
Master's Degree in Business Administration with specialization in Marketing, Doctorate in Strategic Management.

Prof. Ernesto Montaño Rodríguez
Master's Degree in Business Administration with specialization in Marketing.

Prof. Luis Fernando Oviedo Villavicencio
Master's Degree in Business Administration

Dr. Victoria González Gutiérrez
Master's Degree in International Administration and Ph.D. in Education, intern for the Doctorate in Tax Law.

Prof. Saida Pérez Córdova
Master's Degree in Business Administration and Management of Trade and Distribution

Prof. Cinthia Irene Carrazco Soto
Master's Degree in Business Administration, specialization in Plant

Operations, candidate to the PhD in Strategic Management.

Prof. Paulina A. Vargas Larraguível
Master's Degree in Business Administration, specialization in Senior Management.

Prof. Joaquin Castillo Cardenas
Bachelor of Architectural Engineering, Universidad del Valle de Atemajac, Master's Degree in Education, Universidad del Valle de Atemajac.

Prof. Francisco A. Melo Walther
Digital Graphic Design Engineer, CETYS University, Master's of Arts in Advertisement with a specialization in Creativity, University of Austin, Texas

College of Humanities and Social Sciences

Prof. María Cecilia Angélica Contreras Trejo
Bachelor's Degree in Sociology, Master's Degree in Environmental Education (in process), Credits in the Doctorate in Education and Values.

Prof. Teresita del Niño Jesús Higashi Villalvazo
Bachelor's Degree in Psychology, Master's Degree in Networks and Information Technology, candidate for the Doctorate in Education and Values

Prof. Luis Enrique Linares Borboa
Bachelor's Degree in Sociology, Master's Degree in Environmental Education, candidate for the Doctorate in Education and Values

Dr. Jorge Arturo Ortega Acevedo
Bachelor's Degree in Business Administration, Master's Degree in Hispanic Philology, Doctorate in Hispanic Philology

Prof. María Luisa Walther Cuevas
Bachelor's Degree in Law specialization in Human Resources, Master's Degree in Corporate and International Law

Prof. Rosa Marcela Guzmán González
Bachelor's Degree in Law, Master's Degree in Corporate and International Law

Prof. Omar Castro García
Bachelor's Degree in Law, Master's Degree in Corporate and International Law, Master's Degree in Education

Graduate Programs

Prof. Rosa María Lamadrid Velazco
Industrial Engineer, Master's Degree in Human Resources

Prof. Alma Rosa Martínez Castro
Bachelor's Degree in Law, Master's Degree in Organizational Development

Prof. María del Carmen Echeverría del Valle
Bachelor's Degree in Philosophy and Letters, Master's Degree in Education

College of Engineering

Dr. Miguel Alberto Salinas Yáñez
Computer Systems Engineer, Master's Degree in Computer Systems, ITESM, Doctorate in Engineering with specialization in Communication Systems and Networks

Prof. Jorge Sosa López
Cybernetics Electronics Engineer with a specialization in Process Control, CETYS University, Master's Degree in Networks Technology and Computing, CETYS University, Master's Degree in Microelectronic

Prof. Mauro Antonio Chávez López
Industrial Engineer with focus on Production, CETYS University, Master's Degree in Administration with specialization in Finance, CETYS University, Doctorate in Engineering with specialization in Manufacturing (in process)

Prof. César Barraza Montoya
Industrial Engineer, CETYS University, Master's of Science in Operations Research, ITESM and MBA, CETYS

Prof. José Bernardo Valadez Rivera
Industrial Engineer with focus on Production, CETYS University, Master's Degree in Mechanical Engineering (no degree), ITESM, candidate to Doctor in Engineering, CETYS University.

Prof. María Josefina Becerra Paredes
Computer Science Engineer, CETYS University, Master's Degree in Technology of Networks and Computer Science, CETYS University

Prof. Guillermo Cheang León
Computer Science Engineer, CETYS University, Master's Degree in Taxation, CETYS University, Master's Degree in Technology of Networks and Information Technology, CETYS University

Prof. Cristóbal Capiz Gómez
Cybernetics Electronics Engineer, CETYS University, Master of Technology, Arizona State University

Prof. Miguel Ángel Ponce Camacho
Industrial Physicist Engineer, ITESM Monterrey Campus, Master's Degree of Science in Applied Physics, CICESE

Prof. Dania Licea Verduzco
Computer Science Engineer, CETYS University, Master's Degree in Computer Science with specialization in Computer Graphics, ITESM

Prof. Salvador Baltazar Murrieta
Civil Engineer, Universidad Autónoma de Baja California, Master's Degree in Industrial Administration, CETYS University

Prof. Alfredo Rodríguez Carrazco
Mathematician, Universidad Autónoma de Guadalajara, Master's in Business Administration specialization in Plant Operations, CETYS University

Prof. Ezequiel Rodríguez Ríos
Industrial Engineer, CETYS University, Master's Degree in Science with specialization in Operations Research, ITESM, candidate to Doctor in Business Management from CETYS University

Prof. David Sánchez Urzua
Civil Engineer, Universidad Autónoma de Guadalajara, Master's Degree in Pedagogy, Universidad Estatal de Estudios Pedagógicos, Master's Degree in Education (partial studies), Universidad Autónoma de Guadalajara.

Prof. Jesús Heriberto Corona de la Fuente
Mechanical Engineer with specialization in Design, CETYS Universidad, MBA in International Management, Thunderbird, The School of Global Management and ITESM. M.C. in Aeronautics and Space Technology, Universita di Pisa and Universidad Politécnica de Madrid.

Prof. Alma Herlinda Abad Padilla
Bachelor's Degree in Mechanical Engineering, CETYS University, Master's Degree in Sciences of Systems and Manufacture Processes, CETYS University.

Tijuana Campus

College of Business Administration

Prof. Enrique Pérez Santana
Instructor of Regional Development

Prof. Maria Eugenia Corella Torres
Master's Degree in Corporate Finance, she is an expert in Financial Accounting (I), Financial Management, Investment Projects.

Prof. Rosa Sumaya Tostado
Master's Degree in Corporate Finance

Prof. Juan Francisco González Bermúdez
Candidate to Doctor in Latin American Studies

Prof. Eduardo Raúl Díaz Gómez
Master's Degree in Marketing

Dr. Carlos Rodríguez Rubio
Doctor of Business Administration

Prof. Lisette Salgado Patiño
Candidate to Doctor of Administration

Prof. Guadalupe Sánchez Vélez
Master's Degree in Corporate Finance

Dr. Patricia Valdés Flores
Doctorate in Psychology

Dr. Lorena Jáuregui Ollivier
Bachelor's Degree in Business Administration, CETYS University, Master's Degree in Marketing, CETYS University, Master's Degree in Human Resources, CETYS University and Doctorate in Psychology, CETYS University.

College of Humanities and Social Sciences

Dr. Alberto Álvarez Noriega
Bachelor's Degree in Psychology, CETYS University, Bachelor's Degree in Junior High School Education and Normal Superior of Nayarit, with specialization in Human Resources, CETYS University, and candidate to Doctor in Psychology, CETYS University.

Dr. José de Jesús Torres Vera
Bachelor's Degree in Psychology, ITESO, Master's Degree in Clinical Psychology, CETYS University and Doctorate in Psychology, CETYS University

Dr. José Miguel Guzmán Pérez
Bachelor's Degree in Psychology, Universidad Nacional Autónoma de Mexico, with Master's Degree in Public Health, Universidad Autónoma de Baja California, Doctorate in Psychology, CETYS University

Dr. Berenice Villalpando Aguilar
Bachelor's Degree in Psychology, ITESO, Master's Degree in Psychology, CETYS University, and Doctorate in Psychology, CETYS University

Prof. Victoria Castillo Sotelo
Bachelor's Degree in Educational Psychology, CETYS University, Master's Degree in Administration of Human Resources, CETYS University

Prof. Adriana Aurora López Bañuelos
Bachelor's Degree in Educational Psychology, CETYS University, Master's Degree in Gestalt Therapy, Instituto de Terapia Gestalt Region

Occidente, and Master's Degree in Education, CETYS University.

Law School

Prof. Alfredo Estrada Cervantes
Bachelor's Degree, UNAM, Master's Degree in Law, Georgetown University, USA.

Graduate Studies
Prof. Raúl Romero Romero
Bachelor's Degree in Physics, UNAM, Master's Degree in Education, CETYS University.

College of Engineering

Prof. Roberto Salas Corrales
Bachelor's Degree in Physics, UNAM, Master's Degree in Education, CETYS University.

Prof. Fabián Bautista Saucedo
Bachelor's Degree in Graphic Communication Design, Universidad Autónoma Metropolitana Xochimilco, Master's Degree in Sciences and Arts for Design, Universidad Autónoma Metropolitana Xochimilco

Prof. Enrique Fitch Manjarrez
Biochemical Engineer, ITESM Monterrey Campus, Master's Degree in Optimization of Productive Systems, Instituto Tecnológico de Sonora

Prof. Leopoldo Uribe Reyna
Civil Engineer, Universidad Nacional de México, Master's Degree in Information Technology Sciences and Networks, CETYS University.

Prof. Rubén Magdaleno Ramírez
Industrial Engineer with focus on Production, CETYS University, Master's Degree in Mechanical Engineering, Instituto Politécnico Nacional, Coordinator of the Mechanical Engineering Program and special projects.

Dr. Salvador Chiu
Bachelor's Degree in Chemistry, Universidad Autónoma de Baja California, Master's Degree in Environmental Sciences and Regional Development, Washington State University, Doctorate in Strategic Management, CETYS University-Alliant University.

Dr. Moisés Sánchez Adame
Electrical Engineer, Instituto Politécnico Nacional, Master's Degree in Electrical Engineering, Instituto Politécnico Nacional, Doctorate in Engineering, specialization in Systems and Networks, CETYS University.

Prof. Adolfo Esquivel
Communications and Electronics Engineer, Instituto Politécnico Nacional, Master's Degree in Digital Systems, Instituto Politécnico Nacional, candidate to Doctorate in Electronic Engineering, UPC Spain.

STUDENT COMPREHENSIVE DEVELOPMENT

Library and Learning Resources

CETYS University system offers three Information Centers in its three campuses, the Norberto Corella Gil Samaniego Library in Mexicali, the Luis Fimbres Moreno Library in Tijuana, and the Community Library in Ensenada. Each one of them is open to members of the community in general with the purpose of promoting universal culture and the habit of reading in those who take part of any educational program in the institution. They are also intended to become important support tools in the teaching-learning process as well as a dynamic source of knowledge, whether it is in High School, Undergraduate, and Graduate studies, or in Extended Studies.

Our collection consists of over 100 thousand books, print and electronic; nearly 300 magazine titles; around 500 videos; almost 800 compact discs; and 8 data bases. The facilities, bibliographical material, and the technological equipment used in the Information Centers, contribute in a substantial way to the research labor, which is strongly enriched thanks to the close link between national and international libraries. The diversity in themes and information available, make knowledge universal.

Internationalization

The internationalization program is a resource that intends to create a relevant environment in CETYS University, in order to develop a preparation and global mentality among students, which will allow them to perform as Mexican competitive professionals in the society of the XXI century.

Within this frame, the student exchange programs, three dual degree programs in the USA and Holland, field trips, mobility of teachers, courses abroad, and linguistic stays have as main objective to provide the student with the opportunity to obtain knowledge, practical experience, and cultural sensitivity in the international field. Therefore, with over 50 agreements, students have access to more the 90 universities and/or institutions worldwide.

The Academic Mobility University System (SUMA) is a National Exchange Program with a total of 17 Mexican private universities which are associated with FIMPES. Such universities are located in cities such as Mexico, Monterrey, Guadalajara, Morelia, Veracruz, Torreon, Leon, Tampico, Hermosillo, Puebla, and Fresnillo. The student has the opportunity to study a semester of his major at any of the universities that take part of SUMA, getting credit for the studied subjects to his return. No additional fees are charged by the host university, thus, the student tuition is paid in the home university.

Applications are received twice a year; the first one, in February for the August-December term; the second, in September, for the January-June term of the following year.

International Exchange Programs

As of international exchange programs, students may take from one semester up to a year whether in the United States, Canada, Chile, France, Italy, Holland, Spain, Argentina, Brazil, Finland, Sweden, Austria, Korea, Taiwan, or Japan.

The requirements to take part of the program are:

- To be a student of the fourth semester or above during the January-June term.
- A minimum GPA of 8.5
- Obtaining a minimum score of 550 points in TOEFL ITP or 530 For Spanish-speaking Universities
- Being a registered student at CETYS University
- Mastery of the language of the host University
- Filled out application form
- Recommendation letter by the Major Coordinator
- Academic record (Transcript)
- A letter stating the reasons (one page)
- Engagement letter
- Copy of valid passport
- One-page résumé, include academic and extracurricular activities
- TOEFL ITP certification
- Applications are received once a year from October to February. During this term, students who will take part of the exchange program in the next academic year (August-December semester in the same year and/or the January-June semester in the year after) are selected.

Dual Degree

CETYS University offers three Dual Degree programs for its Undergraduate students: San Diego State University in California since the early 1990s; City University in Seattle Washington, since 2005; and more recently Hogeschool Zeeland in Holland.

Dual Degree schemes show a growing tendency, especially in the European Community, where they have gone from being an exception to becoming a rule. This points out the necessity for professionals to acquire, not only local and national experience, but a certification abroad, making them more competitive.

Student Life

Excitement in CETYS student life is a result of the combination of all of our students' energy. Their great spirit is unveiled in conferences, academic contests, symposia, and lectures given by leader entrepreneurs, among other events.

Art exhibits, outdoor concerts, and cultural courses and workshops are other options offered to youngsters interested in extending their experiences out of the classroom.

Student life is also evident in the physical activities, thanks to our sports facilities perfectly equipped for the practice of athletics, soccer, football, and basketball, whether in internal tournaments or with our representative teams, that attend regional and international competitions.

Finally, community support is also a fundamental part of the student environment, distinctive of our university, with aims to promote social awareness as well as the CETYS values: liberty, justice, spirituality, beauty, the good, and the truth.

Entrepreneurs

Undertaking is an attitude, a quality which should be lead in the youth so that a corporate culture is brought out of them. Promoting an undertaking spirit is a part of the strategies CETYS University has pursued throughout time; evidence of this is the linkage with bodies and institutions that also support this goal, such as Mexican Corporate Development (DESEM, 1979), EmpreSer de Mexico (2004), and Endeavor (2007).

Current actions are produced through the Corporate Development Center. This center is divided into three pillars: during Pre-Incubation, the undertaking spirit of the youth is promoted, developing corporate skills and attitudes as part of the curriculum under the sponsorship of Impulsa Program (Junior Achievement); Incubation has the goal of developing businesses based on new corporate ideas through the Intermediate Technology Incubator; finally, the third pillar projects the support of existing entrepreneurs with consulting and business acceleration services at Endeavor Center.

Social and Working Linkage

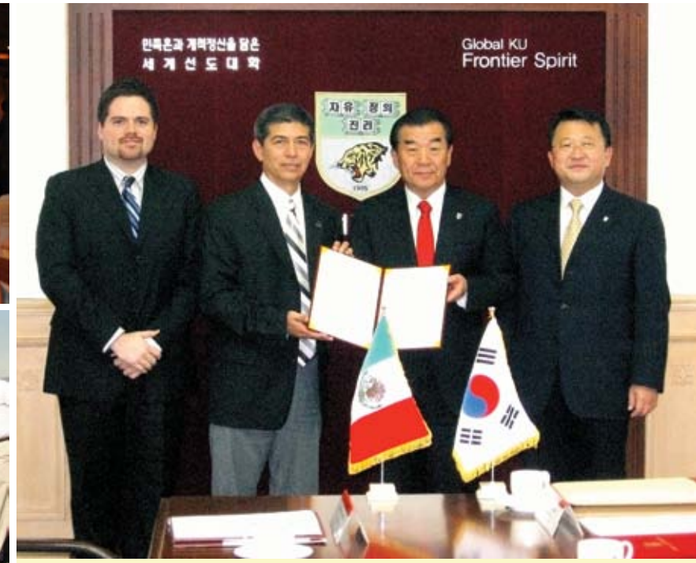
Social and Working Linkage represents the development of an undertaking attitude at service of the exterior. Working linkage, through two or more specific subjects will allow the student to get to know the labor market, understand its dynamics, and strengthen his security and sense of responsibility. Social linkage supports social values, particularly justice, and good. Linked to two subjects from the area of humanities, promotes the learning to coexist and to be.

Sports and Culture

CETYS University is committed to contribute to the training of people with moral and intellectual skills, necessary to relevant part of the economic, social, and cultural improvement of the country. This training needs an environment enriched with activities inside and outside the classroom.

At CETYS University, sports have a great influence in the student comprehensive development. Therefore, CETYS promotes sports and recreational activities in internal tournaments as well as a select number of sports to institutionally compete in local, regional, state, and national extramural tournaments. Traditionally, football and basketball have been of special interest. CETYS representative teams have stood out in local, state, and national tournaments for both man and woman categories, in the case of basketball. In the past few years other sports, such as athletics, baseball, and soccer, among others have been supported.

Regarding culture, the Department of Cultural Diffusion has been in charge of promoting and encouraging the participation of students in artistic and cultural activities. To achieve this, there are different representative groups in which Theater, Dance, Rondalla, and Orchestra stand out. Likewise, free artistic workshops such as Drawing and Painting, Photography, Vocalization, Creativity, Jazz Dance, among others, are offered to our students each semester. Offer varies on each campus and/or semester. On the other hand, all our community can take part of art exhibitions, literary conferences, musicales, concerts, and a broad range of cultural activities promoted by CETYS University.



ADMISSIONS

Admissions Process

1. **INFORMATION ABOUT CETYS**
   Once you have read the information sent to your home or school, call or visit us to request more information on the admission process.

2. **AT HOME VISIT WHERE WE INTRODUCE YOU TO CETYS**
   With the information you provide, a CETYS consultant will visit you and bring all the information you and your parents will need to know about applying to the university.

3. **PRE-REGISTRATION**
   You will be assigned and Identification number, which you will use when paying your pre-registration fee. This includes: Pre-student Identification, admission test fee, study guide, and the right to take a preparation course. This fee will be accounted for in your registration fee; once you are admitted, pre-registration will allow you to reserve your place in CETYS as well as the financial aids granted.

4. **ADMISSION TEST PREPARATION COURSE**
   Once you have pre-registered, you will be enrolled in the admission test preparation course. Admission tests are administered throughout the year in our three campuses, you should refer to our calendar in order to decide when and where to take it.

5. **RESULTS AND ACADEMIC INTERVIEW**
   After passing the admission test, you will have to come to CETYS for an academic interview regarding the major you chose.

Admission Test

In order to comply with the admission test requirement and take the big step of joining CETYS Universidad, here are some important aspects you should take into consideration before taking the test.

- It is the Scholastic Aptitude Test for Higher Education issued by College Board, a North American organization internationally known for the elaboration of educational tests.
- It does not measure your knowledge, but your abilities.
- Consists of two parts, one is for the assessment of your verbal reasoning, and the other is for the assessment of your mathematical reasoning.
- It is a multiple choice test. It is paper based and computer revised.
- It consists of a total of 1600 points. A minimum of 1100 points is required. If you are applying for financial aid, test score will be relevant to the percentage and type of scholarship you will be granted.

The admission test is administered in the CETYS facilities on different dates.

You should arrive in the assigned place 15 minutes before the scheduled time. This is critical, since if you arrive once the test has started, you will not be allowed to go in.

After taking the test, within 7 days, staff from the Personalized Registration Department will contact you by phone to let you know about the results.

Although the test is administered several times a year, the sooner you take it, the more possibilities of getting a higher percentage in your scholarship will be.

Pre-registration

Once the admission test results are received, you will be able to register in the major of your choice. For this, it is necessary to comply with the following requirements:

- Pay the pre-registration fee (in Mexican Pesos), an identification number will be assigned and you will formally be pre-registered.
- Demonstrate a High School GPA of 8. This requirement is important if you have applied for any type of financial aid since it will determine the amount of scholarship or school loan you will receive. If your GPA is lower, you may be admitted, but the chances of getting financial aid will decrease. In order to verify your GPA, official transcripts issued by the High School you attended must be submitted.
- Do the admission test.
- Take the placement test for the English language. Due to the international approach in the education at CETYS University, as of the fifth semester some of the subjects are taught in English. Therefore, it is necessary that, before graduating, every student master an advanced level of proficiency in the language. Once you apply you must take the placement test which will determine your level of proficiency; if this is not the most advanced, you must take the English Course starting at the level your placement test established with a 100% scholarship (at CETYS University). If you demonstrate full mastery of the language, you may choose to learn a different one at your own expense.
- Purchase the medical insurance CETYS University offers or present evidence of the existence of a similar one.
- Purchase the tuition insurance, which will protect your High School or College education in case the person who pays your tuition should die.
- The Institution reserves the right to accept or rescind any registration or pre-registration applications (Art. 4, Student Policies and Regulations).

Equivalence and Revalidation

Students who have studied in other institutions, whether their national or international, and who wish to continue their studies at CETYS University may transfer their credits through equivalence and/or revalidation.

Equivalence

This is for studies taken place in the National Education System.

Requirements (original and 2 copies):

- Birth Certificate
- High School Diploma
- Partial studies certificate from the major been studied

Revalidation

This is for studies taken place in the United States.

- Birth Certificate
- Official Transcript

Notes: Transcripts should be signed and stamped by school, validated by a US Public Notary, certified by the County Court where the school is located, authenticated by the US Secretary of State (certificate of Apostille), and translated by a certified translator in Mexico. Equivalence and revalidation of High School studies are done by the totality of a semester, as long as the applicant has no failed subjects.

Admission Requirements for Graduate Studies

- Fill out application form
- Take the Graduate Students Admission Test
- Interview with the Coordinator of the program of your choice

ACADEMIC CALENDAR

In order to provide a better service to all our students and parents, the academic calendars set the dates and events of major importance in the institution.

Check the calendar and the official schedules for both undergraduate and graduate programs at the following link:

http://www.cetys.mx/?page=167&pp=167

FINANCIAL INFORMATION

Tuition

Bachelor's Degrees in the Business and Administration, Psychology, and Humanities and Social Sciences areas	$ 49,399
Bachelor's Degrees in Engineering	$ 51,806

(1st semester quote does not include Medical Insurance)

Graduate Studies Tuition 2011

Ensenada Campus

Program	Plan	Fee	Modality
Master's in Administration	Trimester	$ 9,650	Subject
Master's in Engineering	Trimester	$ 9,650	Subject
Master's in Psychology	Trimester	$ 9,650	Subject
Master's in Criminology	Trimester	$ 9,650	Subject
Master's in Corporate Law	Trimester	$ 9,650	Subject
Master's in Education	Semester	$ 1,590	Credit

Mexicali Campus

Program	Plan	Fee	Modality
Master's in Administration	Trimester	$ 12,750	Subject
Master's in Engineering	Trimester	$ 12,750	Subject
Master's in Psychology	Trimester	$ 9, 300	Subject
Master's in Criminology	Trimester	$ 9,850	Subject
Master's in Corporate Law	Trimester	$ 9,850	Subject
Master's in Education	Semester	$ 1,590	Credit

Ensenada Campus

Program	Plan	Fee	Modality
Master's in Administration	Trimestral	$ 9,850	Subject
Master's in Engineering	Trimestral	$ 9,850	Subject
Master's in Psychology	Trimestral	$ 9,850	Subject
Master's in Criminology	Trimestral	$ 9,850	Subject
Master's in Corporate Law	Trimestral	$ 9,850	Subject
Master's in Education	Semestral	$ 1,590	Credit

Additional information:

- 1.5% discount for cash payment in trimester plan.
- 3.5% discount for cash annual payment in Master's in Education and 1.5% per subject.
- $550 late registration fee.
- 25% Anual Default Interest.

Tuition Fees and Regulations

- All our fees are in Mexican Pesos
- If medical or tuition insurance is possessed, CETYS University insurance may be canceled by showing the corresponding valid policy by semester.
- Sports: We offer our students the possibility to take classes, participate in tournaments, or join our representative teams in a variety of sports activities, such as football, soccer, indoor soccer, basketball, volleyball, and some particular ones on each campus.
- Access to all sports facilities, libraries, and student events.
- Computer services: Computer center and laboratories, videoconference room, computer equipment loan, wireless connection throughout campus, among others.

Scholarships and Grants

CETYS University offers a variety of choices for you to study. Here you will find a general description of the different types of scholarships you may apply for.

Talent Scholarship

It is designed for those students who enroll in any of the undergraduate programs, distinguished for their intellectual skills and High School academic record; demonstrate a GPA of 9.0 and a minimum score of 1100 points on their admission test. Scholarships go from 50% to 90% depending on the admission test score and a socioeconomic.

Pro-Engineering Scholarship

This 50% scholarship is intended for those students who wish to register in any Engineering program, distinguished for their intellectual skills and High School academic record; demonstrate a GPA of 9.0 and a minimum score of 1200 points on their admission test.

Athletic Scholarship

These financial aids are intended to motivate those students who, apart from being distinguished athletes, are also outstanding students. To determine the amount of scholarship to be granted, it is necessary to get a physical exam performed by the coordinator of the sport the student will practice.

PAFENI Scholarship

This is a Financial Aid Program for New Admission Students, developed to favor those students who have stood out for their academic performance in Junior High School (for those applying to High School) and in High School (for those applying to undergraduate studies). This program is exclusive for Ensenada Campus.

Tuition Grants to CETYS Graduate Sstudents' Children

If one of your parents graduated from any of CETYS University programs/ campuses, you will receive a 10% discount on your tuition.

Tuition Grant to Alumni

Any graduate student from any CETYS academic program who wishes to continue studying in this institution will receive this discount.

Tuition Grant to Siblings

Those families with two or more children registered in the institution are offered this financial aid. It is eligible as long as the amount of combined financial aid granted by CETYS does not exceed 50%. Subject to application and socioeconomic study.

Some aids might be used in combination with another. Hence, you have the possibility of getting more than one aid at a time. If you wish to find out more about this, read the Scholarship Regulations and the Scholarship Holder Regulations.

The process to get financial aid requires you to fill out the application form and submit all the documents required. Once you have been granted financial aid you will have to agree on the terms; by accepting the benefits, you also consent to the responsibilities each support carries

Student Loans

To complete the financial aid, CETYS Universidad offers the Santander Student Loan and the Baja California State Government Loan.

Santander Student Loan

In order for you to study without any financial concerns, you may apply to this student loan with a 9.9% rate, free life insurance, no commission fix rate and a Total Annual Cost of 10.4%.

Ask for a Santander representative to provide you with all the requirements, fill out your application, and submit all your documents. You will get a response in only 5 days.

For further information go to www.santanderuniversidades.com.mx

Baja California State Government Loan

The government of Baja California, through the Credit and Education Support Institute, helps young people with limited financial resources from all over the state and who would like to begin, continue, or finish higher education studies.

For further information go to www.creditoeducativobc.gob.mx

CETYS Student Loan

Only those re-entry students who previously received a CETYS student loan can be offered this financial aid back. It will be consistent to a percentage over tuition and registration fee.

Reimbursement

Every student registered at CETYS University must pay the corresponding tuition fee, in case the student decides to withdraw, he should get discharge authorization from the School Direction, and process the reimbursement at Scholastic Services and the Credit and Collection Department.

A percentage of the total tuition fee will be charged according to the chart available at www.cetys.mx/finanzas/reembolsos.pdf .

ACADEMIC POLICIES

Undergraduate and Graduate Studies Student Regulations

CETYS humanistic mission pursues the education of people with the necessary moral and intellectual skills to participate in a prominent way to the country's economic, social, and cultural advancement. In order to comply with its mission, all students registering to any CETYS undergraduate and graduate program are compelled to follow the institution regulations.

The Undergraduate and Graduate Studies Student Regulations will be given at the moment of registration and are made available at:

Undergraduate Programs Regulations

http://www.cetys.mx/userfiles/ReglamentoProfesional2010.pdf

Graduate Studies Regulations

http://www.cetys.mx/userfiles/ReglamentoPosgrado.pdf

Honor Code

CETYS thinks of the importance of having and Honor Code for students, teachers, employees, and officials, which inspires and reflects the ideal behavior of our decisions and everyday actions, and at the same time, it is built upon a reference and identification frame for those of us who are part of this institution. You are welcome to read it at:

http://www.cetys.mx/userfiles/Codigode_HONOR.pdf

Graduation Requirements

As of 2004, all CETYS University Bachelor's Degree studies are automatically awarded a degree once all the required subjects in the curriculum are accredited; there is no need for preparing a written assignment, nor taking a final examination.

This is a result of the integration of the graduation requirements and procedures within required subjects for each major. Such requirements are:

- Community Service: It consists of completing 500 hours of community service. These hours integrated in Human Being, History, and Society, which is part of the common core.
- Internship: It involves the completion of 400 hours of internship in any activity related to the student's major. These hours are part of a subject linked to the productive sector, government, or society depending on the undergraduate's major.
- General Exam for Completion of the Bachelor's Degree (EGEL) by CENEVAL.
- The National Evaluation Center (CENEVAL) administers the General Exam for Completion of the Bachelor's Degree to those graduating students who request it. Due to the existing agreement between CETYS and CENEVAL, this exam is administered at the end of the last semester of the major each graduating student is completing. For those majors for which CENEVAL has not designed a completion exam (Graphic Design and Digital Graphic Design Engineering), the corresponding College will prepare an equivalent general exam for completion and will be institutionally administered.
- Upon completion of requirements – approval of all subjects in the curriculum, complying with the legal requisites (birth certificate, certificate of previous studies, photographs, etc.) you will be awarded a bachelor's degree.

ALUMNI

Ever since its foundation, CETYS University has educated over 26 thousand alumni: entrepreneurs, social and community leaders, corporate and government directors, area managers, and elective officials. All of them build an undisputed proof of the response the institution offers the community while creating true leaders of change.

Thanks to the Alliance of many of our alumni's wills, great projects have come true to the benefit of our institution and that of the students it hosts. From the support for the flagpole to the launching of great campaigns, such as the ones for the Auditorium and football, alumni are a fundamental support piece to their Alma Mater.

EDUCATIONAL OFFER

With the purpose of benefiting our students, the curricula of the Business and Administration, Engineering, and Psychology Colleges have been updated, thus, the length of a major might be of 8 semesters. If you register to one of them and take inter-semester courses, you may be able to complete your major in a period of 4 years.

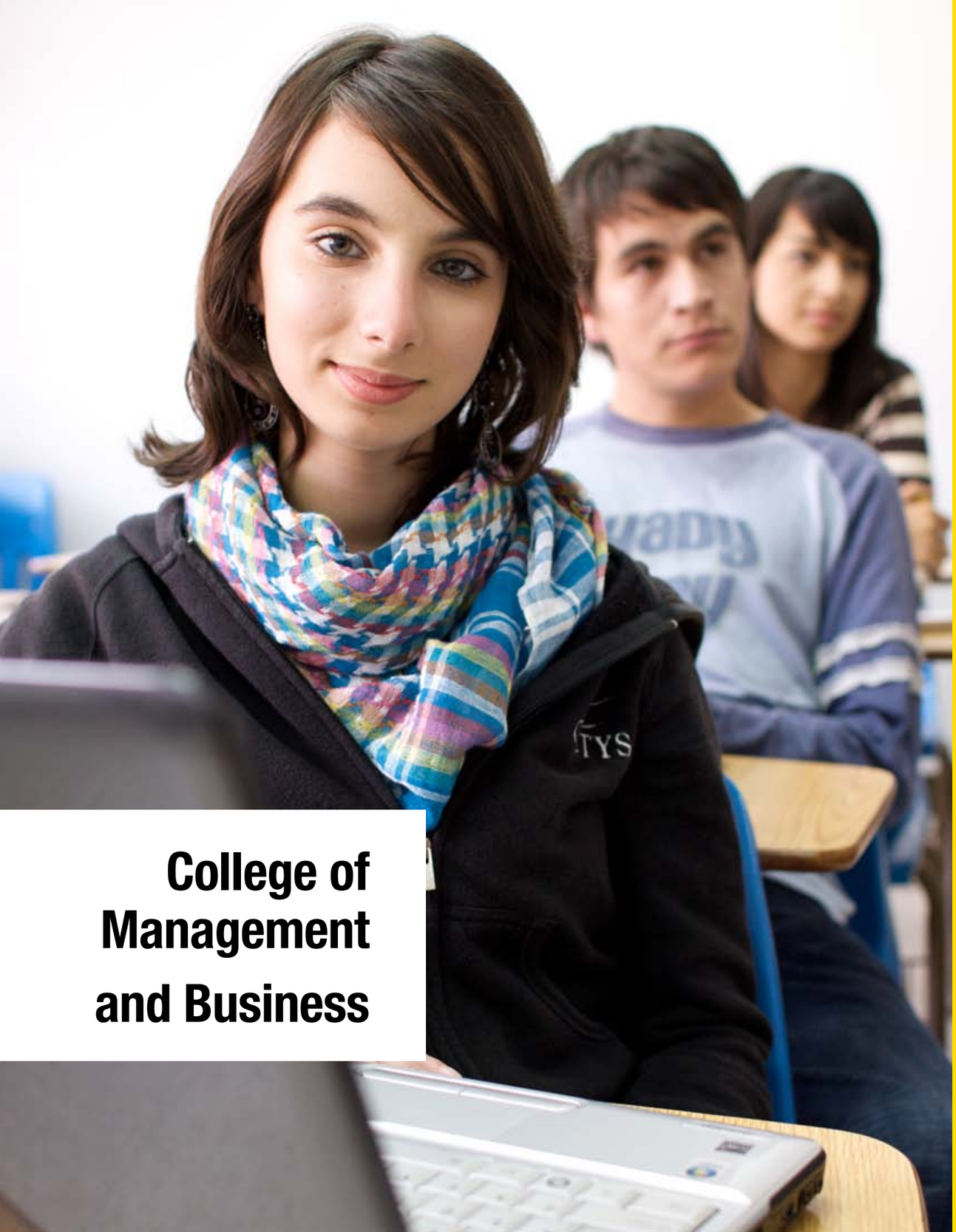
Curriculum in these areas is comprised of three types of subjects:

1 **Common core for all majors**

2 **Common core for majors of each area**

Business and Administration, Engineering, Law, Education, and Psychology.

3 **Particular for each major**



College of Management and Business

Our **educational offer**

Undergraduate Programs	Ensenada	Mexicali	Tijuana
Bachelor's degree in Marketing	●	●	●
Bachelor's degree in Bussines Management	●	●	●
Bachelor's degree in International Bussiness	●	●	●
International Public Accountant		●	●
Bachelor's degree in Graphic Design	●	●	

Graduate Programs	Ensenada	Mexicali	Tijuana
Master's degree in Administration (MBA) with 10 concentrations in:	●	●	●
» Marketing			
» Human Resources			
» Finances			
» Public Administration			
» Strategy			
» International Businesses			
» Supply Chain			
» Quality Management			
» Economic Development			
» Agribusiness			

Directorio de Autoridades

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Enrique Pérez Santana
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Bachelor's degree in **Marketing Administration**

A professional who meets product or service demand of an organization achieving competitiveness and delivering value to customers. The marketing administrator has the ability to manage demand, seeks for marketing opportunities to develop, and modifies and manages strategies in a global economy.

What are the career fields for a Marketing Administrator?

- Public and private sectors such as government, business, industry, services, and in tourist and cultural sectors.
- Consulting agencies and specialized services such as marketing research, advertising, and sales promotion.
- Sales executives, marketing, and commercialization in business, industrial, and service companies.
- Brand Manager, Product Manager, Advertising Account Manager, Product Development Manager, Market Research, and Development Manager.
- Market analyst, & Market Researcher
- Sales Manager, Sales Supervisor, Floor Leader, Purchase Manager, & Customer Service Manager.

What are the characteristics or abilities you will acquire at the end of the program?

At the end of the Bachelor's degree in Marketing Administration you will be able to:

- Develop, implement, and manage an annual marketing plan for a product, a group of products, service, or business.
- Analyze the variables of the social, economic, and competitive market to optimize marketing strategies.
- Predict consumers shopping behavior, forecast product demand, and participate in the strategic planning of a company.
- Design and manage promotion plans, design management-advertising systems, media plans, sales promotion plans, and manage corresponding distribution and logistics distribution channels.
- Develop and manage a public relations program.
- Design and manage the sales process, sales force, and sales promotion programs of a company.
- Design and develop products or services considering market segmentation variables.
- Know about, develop, and manage direct and online marketing.
- Develop and supervise visual, electronic, and internet marketing.

What are the entry level characteristics you need to study Marketing Administration?

If this is what you want to do, then your profile as a Marketing Administration student must meet the following characteristics:

- Interest and vocation towards planning and strategic thinking.
- Interest in obtaining professional training in Marketing Management supported by evidence.
- Motivation towards communication and behavior analysis targeted to meet satisfaction needs.
- Interest in microeconomics and the study of supply and demand, prices, and competition.
- Interest in statistics and market metrics.
- Interest in teamwork to face challenges from a multidisciplinary perspective.
- Interest in improvement by proposing and innovating, as well as on acquiring skills for creativity, innovation, management, and entrepreneurial leadership
- Inquisitive attitude and curiosity as to how purchasing decisions work, communities and the media, market research, sales, and promotion.
- Organizational skills for decision making, interpersonal, oral, and written communication.

Do you want to know which courses you will take in the Bachelor's degree in Marketing Administration?

The curriculum contains 42 required courses, distributed in 8 semesters and divided in 3 training axes.

- Common Axis
- Business Management Axis
- Marketing Management Axis

Curriculum

Materias sugerida por semestre

1	CB400	Contabilidad Financiera I
	DE400	Derecho Privado
	MK402	Introducción a la Carrera de Mercadotecnia
	CS400	Comunicación Avanzada en Español
	EC400	Globalización y Desarrollo Económico
2	CB401	Contabilidad Financiera II
	MA400	Matemáticas
	AD400	Administración
	EC401	Economía
	CS401	Habilidades del Pensamiento
	CS403	Cultural I
3	FZ400	Análisis Financiero
	MA407	Estadística
	MK400	Administración de Mercadotecnia
	CC415	Sistema de Información Gerencial
	HU400	Ser Humano y Medio Ambiente
	CS404	Cultural II
4	CO400	Costos
	RI400	Administración de Recursos Humanos
	DE401	Derecho Laboral y Seguridad Social
	MK403	Comunicación Integral de Mercadotecnia
	MK404	Mercadotecnia Visual
5	CB402	Contabilidad Administrativa
	MK405	Comportamiento del Consumidor
	MK406	Publicidad
	CS402	Metodología de la Investigación
	ID400	Comunicación Avanzada en Inglés
6	FZ401	Administración Financiera
	MK407	Estrategia de Mercadotecnia
	MK408	Investigación de Mercados
	CS409	Mercadotecnia Detallista
	HU401	Ser Humano, Historia y Sociedad
7	AD402	Desarrollo de Emprendedores
	MK410	Desarrollo de Nuevo Productos y Marcas
	MK411	Promoción de Ventas y Relaciones Públicas
	MK412	Administración y Proceso de Ventas
	HU402	Ser Humano y Ética
8	MK413	Seminario de Mercadotecnia
	MK414	Mercadotecnia Industrial y de Servicios
	MK415	Toma de Decisiones en Mercadotecnia
	MK416	Mercadotecnia en Internet
	MK417	Mercadotecnia Internacional

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

CB400
Financial Accounting I
This is the basis to know how to use the financial information of economic entities, beginning with the analysis of the reason and purpose of accounting, its legal basis and everything related to the accounting process and the register systems, supported by computer systems concluding with the formal elaboration of the Financial Statements.

MK402
Introduction to Marketing
This course, as fascinating as this discipline, responds to the following questions: What is Marketing?, Which are the dimensions of this discipline?, What is the field of work for a Marketer?, What kind of activities do they carry out?, among others. Topic on this discipline and their relation to the field of work are approached. The University's academic topics for the better performance of students are discussed. When talking about Marketing, one thinks of market research, product development, brands; in the more glamorous area of marketing: Publicity, the effects of consumer behavior, the importance of shapes (perfumes) and colors (sports cars) in the creation of successful commercial campaigns. To understand Marketing is to understand the Consumer… their desires, their needs in order to develop satisfactors (such as Brands and products) for these people. Marketing tends to people; the work of a marketer involves research, statistics, publicity, strategy design, in brands, in planning, organization and client retention, in sales… it overall includes the birth of a product (service or idea) all the way through a post sale service once the client has approved. Marketing, as Philip Kotler states, develops in the following dimensions: One, identify the Client: two, attract the Client and, three, retain the Client.

DE400
Private Law
This course includes the study of Law, its importance, the different norms that regulate it, its sources, subjects of family law, and the classification of civil contracts. It also includes commercial acts, the elements of a commercial transaction, types of credit and different types of mercantile partnerships.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SECOND SEMESTER

CB401
Financial Accounting II
In this course, students will reinforce the principles of accounting; apply the regulations stipulated in the C-3 bulletin, as well as the registers, valuation and presentation of inventory control, of Plant and Equipment property, of intangible assets, accounts payable, working capital and memorandum accounts.
RECOMMENDATIONS:
CB400 Financial Accounting I

MA400
Mathematics
This course is offered to all the students of Business, Administration or Engineering with the aim of providing basic mathematics to allow them to take the subsequent mathematics courses or the ones pertaining to the axis of their professional formation. This course takes on the concepts of mathematical logic.

AD400
Administration
This course is incorporated into the Administration and Business curricula to introduce students to the study of organizations, their administration and evolution, the social and ethical responsibility of companies and businessmen. Understanding of the different functions of any organization –production, human resources, marketing, accounting and finances- as well as the different stages of the administration process –planning, organization, integration, direction and control, to facilitate the optimization of material, human, physic and financial resources involved in administration.

EC401
Economics
This Economics course intends to provide students with the bases to understand the functioning of the economic system, from a microeconomic and macroeconomic perspective, being able to interpret the economic information published in the media, and thus finding a relation with the economy theory, in order to build their own economic and social reality.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.
RECOMMENDATIONS:
CB401 Financial Accounting II

THIRD SEMESTER

FZ400
Financial Analysis
The course gives students the tools and techniques to analyze and interpret the information in the financial statements, assessing operational performance, the status of assets and debts of the company, and the situation of the capital contributed and earned by the partners, the changes and the causes that have given it its origin.

MA407
Statistics
The course involves both theoretical training as practice, it includes three key themes: the descriptive and inferential statistics related to the theory of probability. Satistics is part of the core of knowledge that every professional must possess and its contents become indispensable support to students.

MK400
Marketing Administration
The Marketing Administration course is a theoretical-practical course where students learn the fascinating world of Marketing. They will learn the definition of Marketing, its reach and its application in companies working in the market. They will learn and develop a Marketing mix to solve problems in the different branches of business.

CC415
Managerial Information Systems
The course examines the importance of the information systems in organizations and its future trend, the technological aspects which are directly related to its operation, it determines the requirements for construction, analyzing issues related to the administration and organization of decision support systems.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.
Musical Appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music.
Visual Arts
This course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.
Literature
This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life.
Performing Arts
This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Cultural I

FOURTH SEMESTER

CO400
Costs
This course is an approach to the practical application of the accounting concepts to the process of industrial production, with the objective of control operations, generating information and knowing the unit cost of the product and, therefore, the cost of inventories and the profits of the company, to achieve an efficient administration of costs in a company.
PRE-REQUISIT:
CB400 Financial Accounting I
CB401 Financial Accounting II

RI400
Human Resources Administration
This course provides an overview of the discipline of Human Resources management, its functions, its importance and reach, as well as the diverse techniques and tools used to contribute to the efficiency and effectiveness of an organization.

DE401
Labor Law and Social Security
During this course students will study, within Labor Law, work relations, work conditions, rights and obligations of employers and workers, work relations of women and minors, as well as the different regimens for Social Security law in relation to calculating how much an employer must pay Social Security, obligations of employers in case that different circumstances may occur.

MK403
Marketing Integral Communication
In this area, topics such as the Functional-Illiterate, the generation of Verbal to Visual and perception is more important than reality will be covered. This discipline deals with the fact that it is necessary to know the target audience, what motivates it, which is the way to best establish a relationship giving rise to the birth of integrated marketing communication: messages in two ways, with feedback and integration of communication tools.

MK404
Visual Marketing
Marketing and Graphic Design work as a team

to achieve the visual communication pieces and campaigns that make it possible to reach the goals outlined in marketing programs. This course intends to understand the Design discipline, understand its importance and work in teams to achieve results, looking for a balance between marketing that looks for optimum results and design who emphasizes esthetics.

FIFTH SEMESTER

CB402
Administrative Accounting
This course is the practical application of Cost Accounting and Decision Making, and includes the study of the following topics: The Cost-Volume-Revenue relation, Marginal Analysis for short-term business decisions and Cost Management, using contemporary register and cost analysis methods and philosophies.
RECOMMENDATIONS:
CB400 Financial Accounting I
CB401 Financial Accounting II
AD400 Administration
CO400 Costs

MK406
Advertising
This course will discuss and learn advertising tools of the promotional mixture, which by its size and dimension will find excellent titles devoted only to advertising; from "Positioning" from Al Ries and Jack Trout, through the bowels of the discipline with David Ogilvy (Confessions and Ogilvy On Advertising), and George Lois in "The Great Idea", as the new titles on the importance of the results with Sergio Zyman (the End of Advertising as we know it) and new trends with Al Ries (the Fall of Advertising and the rise of the RRPP).

MK405
Consumer Behavior
This is a theoretical - practical course which includes reading and research by students, thereby discovering that the behavior of people is a key variable to the Marketing strategies for the launch of new products and promotional campaigns. This is a fascinating course, it is based in anthropology, psychology and sociology to observe consumer... the consumer, who is the key to designing a business seeking to be profitable.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT: **College English Degree or English Language Center Accreditation.**

SIXTH SEMESTER

FZ401
Financial Management
This course lays the foundations of financial management, leading the student to understand the importance of finance in a company and its environment. The course provides alternative analysis tools to implement them in the short term from the company lines, classifying assets and liabilities.

MK407
Marketing Strategies
This course intends to develop in students a solid understanding of the systematic procedure of analyzing, planning, and implementing marketing strategies that match with the functional areas of profitable or non-profitable organization, with the objective of establishing long-term relationships with clients and consumers.

MK408
Market Research
This course is placed in sixth semester of the Marketing major; it is theoretical-practical where different market research designs and data recollection methods are conceptualized and analyzed. It relates to other courses such as marketing, research methodology, and statistical tools to analyze and interpret qualitative and quantitative research results in order to elaborate management strategies and decision making from a scientific focus. Problem diagnosing techniques are applied, and negotiation abilities are developed. Students will apply techniques for the analysis of qualitative and quantitative data in order to find solutions to marketing problems, fomenting creative thinking, diagnosing abilities, analysis, comprehension, assessment and application of qualitative and quantitative information and statistics in the market, as well as the ability to negotiate.

MK409
Detailed Marketing
This course deals with the final consumer, the client, who acquires the product for its consumption; who decides if the store stays in business the following month… Students will talk about the experience of a client as exposed by Tom Peters in various publications, as well as Paco Underhill's science of purchase, Seth Godin's question about whether we have a business that marvels, and even the dimensions of a brick business or one sustained by computer bytes.

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself.

SEVENTH SEMESTER

AD402
Entrepreneurial Development
The objective of this course is to promote and develop an entrepreneurial spirit, fomenting leadership and team work; identify the competencies of an entrepreneur, providing knowledge through the creation of a business plan to put together a young company.

MK410
Development of New Products and Brands
This course deals with the dimension of a product and brand. In its first stage, the product is studied: its elements, characteristics, and levels; the design of product strategies according to its portfolio, a product's life cycle, its development phases, and new ways of innovation and development. During the second stage, the brand, also known as the topic of Branding, is deeply analyzed, from its importance, characteristic , strategy development, and its measurement, understanding the discipline of new product and brand development.

MK412
Administration and Sales Process
This course deals with the theory and practice of personal sales and how this is used by organizations to achieve the company's economic objectives and to develop a long term partnership with costumers; this course emphasizes on the planning, organization and control of the sales force and sales operations.

MK411
Sales Promotion and Public Relations
The objective of the course is to understand two of the tools that make up the integrated marketing communications, sales promotion and public relations, knowledge of key concepts and developing skills to develop comprehensive campaigns in each of the disciplines. The topics included in this area will make it a practical-theoretical course.

HU402
Mankind and Ethics
This course reflects on some anthropological conceptions that have taken place throughout history, to better understand how the image we have of human beings has been developed and how we perceive the world, entering the field of personal and social values, to establish some reflections on the professional ethics.

EIGHTH SEMESTER

MK413
Marketing Seminar
The course presents the student the opportunity to apply their marketing knowledge in specific turns. The student shall understand economic, social, environmental, cultural and political factors that invariably impact organizations and individuals. Additionally the student will identify the role of the marketer as a change agent and promoter of prosperity in any context in which it is situated.

MK414
Industrial and Services Marketing
This course enables the student to apply theoretical concepts of Industrial marketing and service, experiencing what the social and administrative process is by which individuals and groups obtain what they need and want through the creation, provision and exchange of products and values by others.

MK415
Marketing Decision Making
The objective of the course is to develop in students a solid understanding of the importance of quantitative methods in solving problems facing the administration of marketing; as well as develop a solid body of knowledge about the fundamentals of the theory of decision-making in situations in which this theory is applied to the problems in the area of marketing; In addition to knowing the different selection criteria of alternatives used in the theory of decision-making, working under conditions of risk and uncertainty.

MK416
Internet Marketing
This is a hybrid course which is carried out online through the Blackboard platform and on site. It displays an overview of the most important elements to form the broad concept of e-commerce and marketing via the Internet, it examines the process of the plan of marketing through the Internet, from the research, design, evaluation and control of different strategies than the now digital age marketing.

MK417
International Marketing
Generate an appreciation of the concepts and main theories for the marketing of products and services in a global context and export. Develop skills to recognize, select and develop strategies and implement programs to promote products and services in global markets.

Bachelor's degree in **Business Administration**

It's a professional capable of creating and developing an organization by integrating different functions of a company focusing on the global economy; a highly prepared professional that applies planning, organization, direction and control processes, and strategic management. With an entrepreneurial spirit, the Business Administrator optimizes the company's resources to achieve economic and social goals, focusing on continuous improvement.

What are the areas or career fields for a Business Administrator?

- The Business Administrator can work in industrial, business, service, and farming companies, as well as in financial institutions, organizations, chambers and associations, government entities, and educational institutions.
- You can develop in the creation, organization and management of businesses in different economic sectors. To work, as you get experience, in consulting agencies and services.
- You can also start a freelance career by meeting demand in management services or by being a planning director, an organization manager, or a store manager.

What are the characteristics or abilities you will acquire at the end of the program?

At the end of the Bachelor's degree in Business Administration you will be able to:

- Analyze the company's operations and the politics, social, and economic atmosphere to develop decision making within the business, supported by information systems.
- Develop human resources and technology required by the company to create an appropriate atmosphere so that the company works properly and the goals can be achieved.
- Prepare, implement, and run a business plan in the company and plan strategies for the Marketing, Finance, Human Resources, and Production areas.
- Prepare and implement corporate communication mechanisms and keep an adequate work environment.
- Prepare strategies to capitalize business opportunities in national and international areas.
- Manage human resources: select, hire, and train personnel and manage their repayment.
- Develop leadership within the organization and the community.
- Prepare and implement the policies required by the company.

What are the entry level characteristics you need to study Business Administration?

If this is what you want to do, then your profile as a Business Administration student must meet the following characteristics:

- Interest and vocation towards management, finances and operations in organizations.
- Motivation towards company generation, making business and negotiations, decision-making and, leadership.
- Interest in teamwork to face challenges from a multidisciplinary perspective
- Interest in improvement by proposing and innovating
- Inquisitive attitude and curiosity as to how companies work
- Organizational skills for decision making, interpersonal, oral, and written communication.

Do you want to know which courses you will take in the Bachelor's degree in Marketing Administration?

The curriculum contains 42 required courses, distributed in 8 semesters and divided in 3 training axes.

- Common Axis
- Business Management Axis
- Business Administration Axis

Curriculum

Materias sugerida por semestre

1	CB400	Contabilidad Financiera I
	AD400	Administración
	DE400	Derecho privado
	CS400	Comunicación Avanzada en Español
	EC400	Globalización y Desarrollo Económico
2	CB401	Contabilidad Financiera II
	MA400	Matemáticas
	CC415	Sistemas de información gerencial
	EC401	Economía
	CS401	Habilidades del Pensamiento
	CS403	Cultural I *
3	FZ400	Análisis Financiero
	MA407	Estadística
	MK400	Administración de Mercadotecnia
	DE401	Derecho laboral y seguridad social
	HU400	Ser Humano y Medio Ambiente
	CS404	Cultural II *
4	CO400	Costos
	RI400	Administración de Recursos Humanos
	DE401	Comportamiento humano en la organización
	MA408	Modelos cuantitativos
	AD401	Administración de PYMES y franquicias
5	CB402	Contabilidad Administrativa
	IM400	Marco fiscal
	MK401	Interpretación de estudios de mercado
	CS402	Metodología de la Investigación
	ID400	Comunicación Avanzada en Inglés
6	FZ401	Administración Financiera
	II414	Administración de sistemas de producción
	II415	Desarrollo de proveedores
	II416	Metodologías para la mejora de sistemas
	HU401	Ser Humano, Historia y Sociedad
7	AD402	Desarrollo de Emprendedores
	AD403	Administración de proyectos
	AD402	Negociación
	AD405	Auditoría y consultoría administrativa
	HU402	Ser Humano y Ética
8	FZ402	Proyecto de inversión
	AD406	Filosofía de la administración
	AD407	Administración estratégica
	AD408	Lecciones de liderazgo
	AD409	Seminario de alta dirección

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

CB400
Financial Accounting I
This is the basis to know how to use the financial information of economic entities, beginning with the analysis of the reason and purpose of accounting, its legal basis and everything related to the accounting process and the register systems, supported by computer systems concluding with the formal elaboration of the Financial Statements.

AD400
Administration
The course introduces the student to the study of domestic and global organizations, administration and development, social and ethical responsibility of enterprises and entrepreneurs, understanding the different functional areas of any organization, as well as the different stages of the process of administration, to facilitate the optimization of resources.

DE400
Private Law
This course includes the study of Law, its importance, the different norms that regulate it, its sources, subjects of family law, and the classification of civil contracts. It also includes commercial acts, the elements of a commercial transaction, types of credit and different types of mercantile partnerships.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SECOND SEMESTER

CB401
Financial Accounting II
In this course, students will reinforce the principles of accounting; apply the regulations stipulated in the C-3 bulletin, as well as the registers, valuation and presentation of inventory control, of Plant and Equipment property, of intangible assets, accounts payable, working capital and memorandum accounts
PRE-REQUISIT:
CB400 Financial Accounting I

MA400
Mathematics
This course is offered to all the students of Business, Administration or Engineering with the aim of providing basic mathematics to allow them to take the subsequent mathematics courses or the ones pertaining to the axis of their professional formation. This course takes on the concepts of mathematical logic.

CC415
Managerial Information Systems
The course examines the importance of the information systems in organizations and its future trend, the technological aspects which are directly related to its operation, it determines the requirements for construction, analyzing issues related to the administration and organization of decision support systems.

EC401
Economics
This Economics course intends to provide students with the bases to understand the functioning of the economic system, from a microeconomic and macroeconomic perspective, being able to interpret the economic information published in the media, and thus finding a relation with the economy theory, in order to build their own economic and social reality.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

FZ400
Financial Analysis
The course gives students the tools and techniques to analyze and interpret the information in the financial statements, assessing operational performance, the status of assets and debts of the company, and the situation of the capital contributed and earned by the partners, the changes and the causes that have given it its origin.

MA407
Statistics
The course involves both theoretical training as practice, it includes three key themes: the descriptive and inferential statistics related to the theory of probability. Satistics is part of the core of knowledge that every professional must possess and its contents become indispensable support to students support.

MK400
Marketing Administration
The Marketing Administration course is a theoretical-practical course where students learn the fascinating world of Marketing. They will learn the definition of Marketing, its reach and its application in companies working in the market. They will learn and develop a Marketing mix to solve problems in the different branches of business.

DE401
Labor Law and Social Security
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.

Musical appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music.

Visual Arts
This course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.

Literature
This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring

Performing Arts
This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT: **CS403 Culture I**

FOURTH SEMESTER

CO400
Costs
This course focuses on the practical application of accounting concepts in the process of industrial production, with the objective of controlling operations, generating information and knowing the unit cost of a product, and hence, the cost of inventory and earnings in a company.
PRE-REQUISIT:
CB400 Financial Accounting I
B401 Financial Accounting II

RI400
Human Resources Administration
This course provides an overview of the discipline of Human Resources management, its functions, its importance and reach, as well as the diverse techniques and tools used to contribute to the efficiency and effectiveness of an organization.

RI401
Human Behavior in the Organization
This course develops an awareness that by adopting new approaches of human resource management there will be enrichment and it will improve the quality of life at work. It makes a socio-economic analysis of the factors involved in the internationalization of human resources.

MA408
Quantitative Models
This course deals with the construction of mathematical models applied to administration. It also deals with methods to find an optimal solution to formulated problems and the consequent making of the most adequate decisions for the analyzed situation. This course works with models that involve certainty and also low risk models, using linear equations for certainty situations and probability as a base for the analysis of low uncertainty. In this course, we emphasize communication results in a simple and understandable manner for people who are not experts on the topic.

AD401
SMALL AND MEDIUM BUSINESS MANAGEMENT AND FRANCHISES
This course studies small business by analyzing the main factors of their environment, the financial and technical support in favor of small businesses, the tools to develop the functions of a small business. In the field of franchises, their development in Mexico, Latin America and the rest of the world will be studied, as well as their legal framework.

FIFTH SEMESTER

CB402
Administrative Accounting
This course is the practical application of Cost Accounting and Decision Making, and includes the study of the following topics: The Cost-Volume-Revenue relation, Marginal Analysis for short-term business decisions and Cost Management, using contemporary register and cost analysis methods and philosophies.
PRE-REQUISIT:
CB400 Financial Accounting I
CB401 Financial Accounting II
AD400 Administration
CO400 Costs

IM400
Financial Framework

It is a course that provides the basis for the understanding of the tax obligations of a company. This course will explore in a very general and basic way the tax regime affecting businesses, whether they are companies or partnerships or individuals.

MK401
Market Study Interpretation
This course is theoretical-practical and the different designs of market research and data recollection methods are analyzed. It is related to marketing, research methodology, and statistical tools to analyze and interpret qualitative and quantitative research results in order to elaborate management strategies for decision making with a scientific focus.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT: **College English Degreeor English Language Center Accreditation**

SIXTH SEMESTER

FZ401
Financial Management
This course lays the foundations of financial management, leading the student to understand the importance of finance in a company and its environment. The course provides alternative analysis tools to implement them in the short term from the company lines, classifying assets and liabilities.

II414
Production System Management
This course will develop in students a solid understanding of the concepts and techniques of operations management, given the importance of strategies that promote productivity, optimization, and effectiveness, covering quantitative techniques, especially in the area of service. Special attention is paid to the dynamics of markets and the sudden changes in the taste of potential customers, and in the actions that must be taken in order to respond to the demands of International competitors.

II415
Supplier Development
This course is intended for students to develop a solid understanding of the necessary analytical tools to solve supply-chain problems, their strategic role, their performance in its key factors and the analytical methodologies for the analysis of the supply chain.

II416
Methodology for System Improvement
In this course students will develop a solid understanding of the culture of quality and improvement of its role in production systems, focusing on specific areas of organizations manufacturing and service, focusing on an administrative system that cares about the planning for the fulfillment of the needs of customers.

HU401
Man, History and Society
This course belongs to those called “CETYS courses”, whose objective is to promote Humanism in all of CETYS’ collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself.

SEVENTH SEMESTER

AD402
Entrepreneurial Development
The objective of this course is to promote and develop and entrepreneurial spirit, fomenting leadership and team work; identify the competencies of an entrepreneur, providing knowledge through the creation of a business plan to put together a young company.

AD403
Project Management
The Project Management Course presents a theoretical orientation of the most innovative concepts in this area, as well as complying with the nuances of the CETYS model, looking to develop collaborative learning and student experience through a complete development of a Project.

AD404
Business
This course, in its seminar modality, is incorporated into the Administration and Business curriculum to introduce students in a theoretical-practical way to the analysis and application of negotiating components in everyday situations inside and outsider a work environment: negotiations with potential customers, work colleagues, suppliers, political organizations, International negotiations, negotiation with diverse work forces, among others; personally as well as in groups.

AD405
Auditing and Business Advising
This course introduces students to the auditing profession, its nature, methods, organizational principles, norms of conduct and training and professional perfection practices.

HU402
Mankind and Ethics
This course reflects on some anthropological conceptions that have taken place throughout history, to better understand how the image we have of human beings has been developed and how we perceive the world, entering the field of personal and social values, to establish some reflections on the professional ethics.

EIGHTH SEMESTER

FZ402
Investment Project
The course allows the students to evaluate and select the most cost-effective alternative of an investment project, considering the various situations involving business, analyzing financial structures, the cost of money and their sources of funding, relying on the interpretation of various studies.

AD408
Management Philosophy
Students will study the different philosophies, theories, cycles, and tendencies that business management has gone through throughout history. They will get to know different management cultures that have existed, the changes different theories have suffered, with the purpose of learning to analyze and study their environment in order to make decisions.

AD407
Strategic Management
The course develops in the student skills of decision making, understanding the roles of the general manager, identifying the different environments that affect the decision-making process, taking into account the mechanisms of corporate governance, discussing contemporary trends in international strategic management.

AD408
Leadership Lessons
This course, in its Seminar modality, is incorporated into the Business and Administration curriculum in order to introduce students in a theoretical-practical way to analysis and application of the nature, styles and abilities of Leadership, using historical and contemporary models on the topic.

AD409
High Administration Seminar
This course, in the form of seminar, seeks to generate in the students the knowledge and skills necessary for decision-making within the leadership, also it will develop in them the capacity for analysis of environment organizations so that decision-making is well based.

Bachelor's degree in **International Business**

This graduate has an entrepreneurial spirit, the ability to become a leader, and is capable of identifying, planning, and executing business projects for companies that expand far beyond international borders. This person has the ability to understand the distinctive characteristics of every culture that interacts in diverse economic blocks, to profit from commercializing goods and services abroad, foreign investment, and foreign products in Mexico.

What are the areas or career fields for an International Business student?

- As a manager or national and international import-export businesses dedicated to commercial activities.
- Multinational and international organizations such as UNESCO.
- Industries.
- As a manager in financial institutions.
- Customs agencies, embassies, and foreign relations bureaus.
- In government branches as officer in foreign trade and tourism agencies.
- Instructor in graduate and undergraduate education institutions of foreign trade.
- Commercial Attaché in foreign countries.
- Internal or external consultant supporting trading companies.

What are the characteristics or abilities you will acquire at the end of the program?

At the end of the Bachelor's degree in International Business you will:

- Develop a strategic vision of the company and its international business environment.
- Obtain knowledge on market management and investments.
- Prepare marketing strategies in national and international areas.
- Be aware of economic tendencies and mixed economies in the market.
- Know about International Business laws and regulations.
- Master personnel administration legal issues.
- Apply and describe international monetary systems.
- Develop the capacity to investigate, diagnose, and problem solving.
- Become an agent of change and innovation for organizations.
- Generate international relations.
- Negotiate in multicultural contexts.
- Speak English fluently.
- Perform import and export transactions.

What are the entry level characteristics you need to study International Business?

If this is what you want to do, then your profile as an International Business student must meet the following characteristics:

- Aspire to the perfection of English.
- Interest in cultures different from his/her own.
- Ability to take on and lead projects.
- Public relations and international relations skills
- Ability to work in different environments.
- A high sense of ethics and freedom, as well as an acute sensibility to justice and truth
- Ability to show initiative, audacity, and disposition towards constructive criticism.

Do you want to know which courses you will take in the Bachelor's degree in International Business?

The curriculum contains 42 required courses, distributed in 8 semesters and divided in 3 training axes.

- Common Axis
- Administration and Business Axis
- International Business Axis

Curriculum

Materias sugerida por semestre

1	CB400	Contabilidad Financiera I
	AD410	Introducción a la carrera de LNI
	DE400	Derecho privado
	CS400	Comunicación Avanzada en Español
	EC400	Globalización y Desarrollo Económico
2	CB401	Contabilidad Financiera II
	MA400	Matemáticas
	AD400	Administración
	EC401	Economía
	CS401	Habilidades del Pensamiento
	CS403	Cultural I *
3	FZ400	Análisis Financiero
	MA407	Estadística
	RI400	Administración de recursos humanos
	CS405	Culturas comparadas
	HU400	Ser Humano y Medio Ambiente
	CS404	Cultural II *
4	CO400	Costos
	CC415	Sistemas de información gerencial
	MK400	Administración de mercadotecnia
	DE401	Derecho laboral y seguridad social
	RI402	Comportamiento transcultural
5	CB402	Contabilidad Administrativa
	MK417	Mercadotecnia internacional
	RI402	Comportamiento transcultural
	EC402	Comercio internacional y aduanas
	ID400	Comunicación Avanzada en Inglés
6	FZ401	Administración Financiera
	II414	Administración de sistemas de producción
	II415	Desarrollo de proveedores
	II416	Metodologías para la mejora de sistemas
	HU401	Ser Humano, Historia y Sociedad
7	AD402	Desarrollo de Emprendedores
	AD403	Administración de proyectos
	AD402	Negociación
	AD405	Auditoría y consultoría administrativa
	HU402	Ser Humano y Ética
8	FZ402	Proyecto de inversión
	AD406	Filosofía de la administración
	AD407	Administración estratégica
	AD408	Lecciones de liderazgo
	AD409	Seminario de alta dirección

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

CB400
Financial Accounting I
This is the basis to know how to use the financial information of economic entities, beginning with the analysis of the reason and purpose of accounting, its legal basis and everything related to the accounting process and the register systems, supported by computer systems concluding with the formal elaboration of the Financial Statements.

AD410
Introduction to International Business
Student will develop the ability to understand the foundations and fundamentals of international business through its knowledge and understanding of business, so that they have a view as a professional in this area and reaffirm their vocational choice, and have a deep knowledge of the main basic and specialized courses that form the curricula of the bachelor of arts in international business.

DE400
Private Law
This course includes the study of Law, its importance, the different norms that regulate it, its sources, subjects of family law, and the classification of civil contracts. It also includes commercial acts, the elements of a commercial transaction, types of credit and different types of mercantile partnerships.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SECOND SEMESTER

CB401
Financial Accounting II
In this course, students will reinforce the principles of accounting; apply the regulations stipulated in the C-3 bulletin, as well as the registers, valuation and presentation of inventory control, of Plant and Equipment property, of intangible assets, accounts payable, working capital and memorandum accounts.
PRE-REQUISIT:
CB400 Financial Accounting I

MA400
Mathematics
This course is offered to all the students of Business, Administration or Engineering with the aim of providing basic mathematics to allow them to take the subsequent mathematics courses or the ones pertaining to the axis of their professional formation. This course takes on the concepts of mathematical logic.

AD400
Administration
The course introduces the student to the study of domestic and global organizations, administration and development, social and ethical responsibility of enterprises and entrepreneurs, understanding the different functional areas of any organization, as well as the different stages of the process of administration, to facilitate the optimization of resources.

EC401
Economics
This Economics course intends to provide students with the bases to understand the functioning of the economic system, from a microeconomic and macroeconomic perspective, being able to interpret the economic information published in the media, and thus finding a relation with the economy theory, in order to build their own economic and social reality.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

FZ400
Financial Analysis
The course gives students the tools and techniques to analyze and interpret the information in the financial statements, assessing operational performance, the status of assets and debts of the company, and the situation of the capital contributed and earned by the partners, the changes and the causes that have given it its origin.
RECOMMENDATION:
CB400 Financial Accounting I

MA407
Statistics
The course involves both theoretical training as practice, it includes three key themes: the descriptive and inferential statistics related to the theory of probability. Satistics is part of the core of knowledge that every professional must possess and its contents become indispensable support to students support.

RI400
Human Resources Administration
This course provides an overview of the discipline of Human Resources management, its functions, its importance and reach, as well as the diverse techniques and tools used to contribute to the efficiency and effectiveness of an organization.

CS405
Compared Cultures
This course allows students to get to know the continents that make up the Earth, understanding the nature of their cultures in the most important regions of the world, allowing them this way to manage and evaluate their current condition in order to be able to relate to them in an international environment.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

CS404
Cultural II
Musical Appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music.

Visual Arts
This course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.

Literature
This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life.

Performing Arts
This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Cultural I

FOURTH SEMESTER

CO400
Costs
This course focuses on the practical application of accounting concepts in the process of industrial production, with the objective of controlling operations, generating information and knowing the unit cost of a product, and hence, the cost of inventory and earnings in a company.
PRE-REQUISIT:
CB400 Financial Accounting I
CB401 Financial Accounting II

CC415
Managerial Information Systems
During this course we will first analyze the importance of Organizational Information Systems and their future tendencies, and then later analyze the technological aspects that are directly related to their operation. Finally, the requirements to build modern Organizational Information Systems will be determined, and we will continue with topics related to Support System Management and Organization for Decision-making, and finishing with contemporary Information System management topics.

MK400
Marketing Administration
The Marketing Administration course is a theoretical-practical course where students learn the fascinating world of Marketing. They will learn the definition of Marketing, its reach and its application in companies working in the market. They will learn and develop a Marketing mix to solve problems in the different branches of business.

DE401
Labor Law and Social Security
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

RI402
Transcultural Behavior
This course is intended for students to understand the Continents that make up our planet, nature and its cultures, based on the most important religions in the World. With this, students are expected to manage and assess their current status with the purpose of being able to relate to others in an international context.

FIFTH SEMESTER

CB402
Administrative Accounting
This course is the practical application of Cost Accounting and Decision Making, and includes the study of the following topics: The Cost-Volume-Revenue relation, Marginal Analysis for short-term business decisions and Cost Management, using contemporary register and cost analysis methods and philosophies.
PRE-REQUISIT:
CB400 Financial Accounting I
CB401 Financial Accounting II
AD400 Administration
CO400 Costs

MK417
International Marketing
This course is intended to generate an appreciation of the main concepts and theories of product and service marketing in al global market, as well as to develop abilities to recognize, select, and establish strategies and implement programs to promote products and services in the global market. Students will have the opportunity to develop their International Marketing skills applying these concepts and techniques to problems that are present in the international market.

EC402
International Commerce and Customs
At the end of this course, students will analyze the foundations of international commerce, the theory of tariffs, economic blocks, commercial treaties of Mexico and their impact on economic development, and knowledge of acts and procedures that are necessary to import and export merchandise, as well as practicing defense and punishment sources that are established by law for the area of customs.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT: **College English Degree or English Language Center Accreditation**

SIXTH SEMESTER

FZ401
Financial Management
This course lays the foundations of financial management, leading the student to understand the importance of finance in a company and its environment. The course provides alternative analysis tools to implement them in the short term from the company lines, classifying assets and liabilities.

IM405
Business Financial Framework
The name of this area is comparative law, although the theme has been the study of the Mexican tax regime for foreign residents who obtain income in the national territory, a topic that must be known by those who study the Bachelor of international business.

DE403
Compared Foreign Commerce Legislation
This course will develop in students a solid understanding of the regulations of foreign trade that allows them to understand the diverse economic scenarios available to Mexico, North America, Latin America, Asia, and Europe in light of treaties and agreements subscribed by this country.

DE404
International Law
This course will develop in students an understanding of the aspects of private and public international law, covering the most common agreements in the matter of international commerce, international transactions, and conflict resolutions through arbitrage.

AD417
International Promotion Strategy
It focuses on the principles of international marketing communication. It includes emphasis on global advertising; strategies and executions, opportunities in the international media, research, culture and legal aspects.

HU401
Man, History and Society
This course belongs to those called “CETYS courses”, whose objective is to promote Humanism in all of CETYS’ collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself.

SEVENTH SEMESTER

AD411
International Commerce Entrepreneurs
The objective of this course is to promote and develop and entrepreneurial spirit, fomenting leadership and team work; identify the competencies of an entrepreneur, providing knowledge through the creation of a business plan to put together a young company.

FZ405
International Finance
During this course, students will analyze the decision-making process that derives from international operations, Exchange rates, investments, financing and its repercussions in different types of balance of payments, in the frame of the international monetary system, financial markets, and merchandise markets and future values.

AD412
International Negotiation Strategies
The object of this course is to develop negotiation abilities in International Business, since they will be dealing with customers, suppliers, distributors, partners, etc. from other countries. Students will be given the strategies and techniques necessary to respond to the main questions that negotiations between companies from different countries.

EC403
Analysis of International Markets
Techniques of diagnosis of international problems are exposed and applied; the skills are developed to carry out market studies in other countries. It requires from students the knowledge and application of techniques for the analysis of quantitative and qualitative data in order to be able to solve problems of international marketing, and to develop creative thinking, acquire skills in diagnosis, analysis, understanding, assessment and implementation of information from other markets with different cultures.

HU402
Mankind and Ethics
This course reflects on some anthropological conceptions that have taken place throughout history, to better understand how the image we have of human beings has been developed and how we perceive the world, entering the field of personal and social values, to establish some reflections on the professional ethics.

EIGHTH SEMESTRE

AD413
International Business Seminar
The course incorporates elements that influence the international environment of the company for the strategic planning process, to establish the basis on which the decision making will be held on international market entry strategies and international business strategies to take advantage of the opportunities offered by the global scope.

AD414
Multinational Corporation Planning
This course is composed of the integration of various courses, such as a company’s finance, the analysis of a company’s environment, to establish a proposal of change that will lead the company to be more competitive.
This course presents students with readings of the topics, their comprehension, and it also presents the need to elaborate tasks, solve very specific cases and work on a company’s particular situation, observing its reality and applying the tools given in each of the units, in order to elaborate a concrete application project at the end of the course.

AD415
International Business Project
The objective is for students to know the general context of the international environment, different areas are handled for a business project, seeking always to perform according to the stages they require. In addition, they will know the institutions and arrangements that can serve them as support for the implementation of the project. The student must make a real project of international business.

AD416
Business, Logistics and Transportation
It develops in students the ability of analysis and administration of logistics activities of an organization. It provides the student the knowledge and tools that will allow them to generate logistics strategies, by first understanding the nature and significance of the product, the procedure of orders, transportation and information systems, as well as the international considerations to locate products on various markets in the best way and in the shortest possible time.

Bachelor's degree in **International Public Accounting**

A professional with an entrepreneurial spirit and leadership attitude, trained to identify, plan, and carry out business projects in companies whose activities go beyond national borders. This bachelor covers the distinctive traits of the cultures that interact in different economic blocks; takes advantage of the opportunities for the commercialization of goods and services overseas and foreign investment, as well as foreign products in Mexico.

What are the areas or career fields for an International Public Accountant?

- As manager in industrial companies and those engaged in trading activities.
- As manager or director of service provider or agricultural businesses.
- Independent consulting firms.
- Companies and institutions dedicated to foreign trade and financial institutions.
- Custom bokers, international market companies, and national and international corporate companies.
- International trading consortium, business organizations (chambers and associations), international economical organisms, & embassies in foreign countries.

What are the characteristics or abilities you will acquire at the end of the program?

At the end of this bachelor's degree you will:

- Develop a strategic vision of the company and its international business environment.
- Know the operations of external trade, the management and value of the stock market, the brokers, quotes, and the risk of investment.
- Carry out marketing strategies in the national and international environment.
- Know the market economic systems and mixed economies.
- Know the law and regulations of International Business.
- Master the legal topics for the personnel management at national and international levels.
- Describe and apply the international monetary systems, as well as the national and international financial accounting information systems.
- Develop analysis ability for the research, diagnosis, and solution of decision problems.
- Develop the ability to be an agent of change and innovation in the organization and to take over social responsibilities.
- Ability for international relations and flexibility to work with different teams.
- Ability for the negotiation in multicultural organizational contexts.
- Know, speak, and write in the English language, and be able to speak another language, if desired by the student.
- Ability to carry out merchandise import and export tasks, as well as capital investments and investments in banking services, publicity, tourism, retail, and construction; as well as in transactions that involve copyright, patents, trademarks and technology.

What are the entry level characteristics you need to study International Public Accounting?

If this is what you want to do, then your profile as an International Public Accountant student must meet the following characteristics:

- An interest in learning about Public Accounting and especially how to apply it nationally and internationally.
- Motivation for learning English
- Interest in teamwork to face diverse challenges from a multi-disciplinary perspective
- Willingness to improve a situation by innovating and making proposals.
- An inquisitive attitude and curiosity about how organizations work.
- Ability to research and to use computer technology, networks, and the Internet.
- Ability to organize, to document information, and to use it in the making of decisions.
- A high sense of honesty, sensibility towards classified information, and a high ability to commit to a scheduled program.

Do you want to know which courses you will take in the Bachelor's degree in International Public Accounting?

The curriculum contains 42 required courses, distributed in 8 semesters, and divided in 3 training axes:

- Common Axis
- Administration and Business Axis
- International Public Accounting Axis

Curriculum

Materias sugerida por semestre

1	CB400	Contabilidad Financiera I
	AD400	Administración
	DE400	Derecho privado
	CS400	Comunicación Avanzada en Español
	EC400	Globalización y Desarrollo Económico
2	CB401	Contabilidad Financiera II
	MA400	Matemáticas
	CC415	Sistemas de información gerencial
	EC401	Economía
	CS401	Habilidades del Pensamiento
	CS403	Cultural I *
3	FZ400	Análisis Financiero
	MA407	Estadística
	MK400	Administración de mercadotecnia
	DE401	Derecho laboral y seguridad social
	HU400	Ser humano y medio ambiente
	CS404	Cultural II *
4	CO400	Costos
	CC415	Administración de recursos humanos
	MK400	Contabilidad superior
	DE401	Contabilidad internacional
	RI402	Derecho fiscal
5	CB402	Contabilidad administrativa
	CB405	Auditoria I
	DE402	Derecho internacional y aduanas
	CS402	Metodología de la investigación
	ID400	Comunicación avanzada en inglés
6	FZ401	Administración Financiera
	CB406	Auditoría II
	IM401	Legislación fiscal internacional I
	IM402	ISR personas morales
	HU401	Ser Humano, Historia y Sociedad
7	AD402	Desarrollo de Emprendedores
	FZ403	Planeación y control financiero
	IM403	Legislación fiscal internacional II
	IM404	ISR persona físicas
	HU402	Ser Humano y Ética
8	FZ402	Proyecto de inversión
	FZ404	Mercados financieros
	FZ405	Finanzas internacionales
	AD410	Administración estratégica
	AD411	Administración en organizaciones globales

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

CB400
Financial Accounting I
This is the basis to know how to use the financial information of economic entities, beginning with the analysis of the reason and purpose of accounting, its legal basis and everything related to the accounting process and the register systems, supported by computer systems concluding with the formal elaboration of the Financial Statements.

AD400
Administration
The course introduces the student to the study of domestic and global organizations, administration and development, social and ethical responsibility of enterprises and entrepreneurs, understanding the different functional areas of any organization, as well as the different stages of the process of administration, to facilitate the optimization of resources.

DE400
Private Law
This course includes the study of Law, its importance, the different norms that regulate it, its sources, subjects of family law, and the classification of civil contracts. It also includes commercial acts, the elements of a commercial transaction, types of credit and different types of mercantile partnerships.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to
to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SECOND SEMESTER

CB401
Financial Accounting II
In this course, students will reinforce the principles of accounting; apply the regulations stipulated in the C-3 bulletin, as well as the registers, valuation and presentation of inventory control, of Plant and Equipment property, of intangible assets, accounts payable, working capital and memorandum accounts.
PRE-REQUISIT:
CB400 Financial Accounting I

MA400
Mathematics
This course is offered to all the students of Business, Administration or Engineering with the aim of providing basic mathematics to allow them to take the subsequent mathematics courses or the ones pertaining to the axis of their professional formation. This course takes on the concepts of mathematical logic.

CC415
Managerial Information Systems
The course examines the importance of the information systems in organizations and its future trend, the technological aspects which are directly related to its operation, it determines the requirements for construction, analyzing issues related to the administration and organization of decision support systems.

EC401
Economics
This Economics course intends to provide students with the bases to understand the functioning of the economic system, from a microeconomic and macroeconomic perspective, being able to interpret the economic information published in the media, and thus finding a relation with the economy theory, in order to build their own economic and social reality.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

FZ400
Financial Analysis
The course gives students the tools and techniques to analyze and interpret the information in the financial statements, assessing operational performance, the status of assets and debts of the company, and the situation of the capital contributed and earned by the partners, the changes and the causes that have given it its origin.

MA407
Statistics
The course involves both theoretical training as practice, it includes three key themes: the descriptive and inferential statistics related to the theory of probability. Satistics is part of the core of knowledge that every professional must possess and its contents become indispensable support to students support.

MK400
Marketing Administration
The Marketing Administration course is a theoretical-practical course where students learn the fascinating world of Marketing. They will learn the definition of Marketing, its reach and its application in companies working in the market. They will learn and develop a Marketing mix to solve problems in the different branches of business.

DE401
Labor Law and Social Security
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.

Musical appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music.

Visual Arts
This course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.

Literature
This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring

Performing Arts
This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Culture I

FOURTH SEMESTER

CO400
Costs
This course focuses on the practical application of accounting concepts in the process of industrial production, with the objective of controlling operations, generating information and knowing the unit cost of a product, and hence, the cost of inventory and earnings in a company.
PRE-REQUISIT:
CB400 Financial Accounting I and CB401 Financial Accounting II

RI400
Human Resources Administration
This course provides an overview of the discipline of Human Resources management, its functions, its importance and reach, as well as the diverse techniques and tools used to contribute to the efficiency and effectiveness of an organization.

CB403
Superior Accounting
This course has a practical approach on the following topics: Installment Sales, Financial Lease, and Foreign Currency
Transactions, Re-statement of Financial Statements, Consolidated and Combined Financial Statements, Societies Merging, Spin-Off, Dissolution and Liquidations, Federal Law of Bankruptcy (formerly Bankruptcy and Payment .
Suspension Law), Accounting Study of Taxes, taxes, asset tax and Employees Participation in IncomE and Deferred Taxes.
PRE-REQUISIT:
CB400 Financial Accounting I
CB401 Financial Accounting II

CB404
International Accounting
This course has a practical approach on the knowledge of the existing regulations in the financial information at an international level, mainly in the environments where national economy is developed with the Free Trade Treaty (TLC), the European Union and the Pacific Rim. The record of transaction made in Foreign Currency and the presentation of financial information with these characteristics.
PRE-REQUISIT:
CB400 Financial Accounting I
CB401 Financial Accounting II

DE403
Fiscal Law
The course focuses on the study of the tax law; the financial activity of the state and tax law, revenue of the state, constitutional fundamentals, tax relationship, obligations and rights of taxpayers, extinction of the tax credits, faculty of taxation authorities as well as tools for defense that taxpayers can use in tax trials before the authority.

FIFTH SEMESTER

CB402
Managerial Accounting
This course has a practical approach on

Costs Accounting for Decision Making, and covers the study of the following topics: the Cost-Volume-Profit relationship, Marginal Analysis for short-term business decisions and Costs Management, with the cost analysis and record contemporary philosophies and methods.
PRE-REQUISIT:
CB400 Financial Accounting I
CB401 Financial Accounting II
AD400 Administration
CO400 Costs

CB405
Auditing I
In this course, students will learn, master and apply standards of auditing, in the review of financial statements as well as personal standards, implementation of the work; students will master and apply techniques and procedures for auditing, the completion of the audit process, standards of information and will prepare working papers.

DE402
International Law and Customs
During the course students will examine the foundations in international law of the private and public law at international level; Regulation of foreign investment and the functioning of the system of customs in our country.
PRE-REQUISIT:
DE400 Private Law
EC401 Economy

DE405 Fiscal Law
CB404 International Accounting

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT: **College English Degree or English Language Center Accreditation**

SIXTH SEMESTER

FZ401
Financial Management
This course lays the foundations of financial management, leading the student to understand the importance of finance in a company and its environment. The course provides alternative analysis tools to implement them in the short term from the company lines, classifying assets and liabilities.

CB406
Auditing II
This course will explore the procedures used for performing audits, concluding with the preparation of the audit report with the use of computational systems, being the fundamental idea to turn the classroom into a workshop or laboratory, and in this case, using the most appropriate computer software.
PRE-REQUISIT:**CB405 Auditing I**

IM401
International Tax Issues I
This is a theoretical-practical course on international tax issues. A natural person residing abroad but whose income is acquired in national land is tied to a tax system that allows him to avoid double tax payment here and in his country of origin. This course content focuses on the study of the diverse situations deriving from this kind of operations between two countries or groups of countries.

IM402
Corporate Income Tax
The course develops the ability of the student to analyse, interpret and correctly apply the fiscal provisions, to give the contributor legal certainty, to do so to contribute in the proportional and equitable manner according to the provisions of the income tax Act and its regulations, miscellaneous resolution rules and other provisions that are related to it.

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' college students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society.

SEVENTH SEMESTER

AD402
Entrepreneurial Development
The objective of this course is to promote and develop and entrepreneurial spirit, fomenting leadership and team work; identify the competencies of an entrepreneur, providing knowledge through the creation of a business plan to put together a young company.

FZ403
Planning and Financial Control
This course presents a practical orientation of budgeting in the functional areas of a business. Also, according to the nuances of the CETYS model, collaborative and experiential learning from students is sought, through the complete development of a general and specific area Budget. This course is part of Cost and Managerial Accounting and completes Costs study area.

IM403
International Tax Issues II
It is a practical course and pursues an understanding of the double taxation procedures and guidelines which companies and/or persons undergo, whose business activity leads them to have activity in two or more different tax regimes. Know the conventions of double taxation with the European Union, Central and South America, as well as the fiscal aspect of electronic commerce.
PRE-REQUISIT:
IM401 International Tax Issues I

IM404
People Income Tax
This course makes an exhaustive and practical analysis of the fiscal dispositions applicable to the different types of income, identifying the different types according to the law, for the purposes of the fulfillment of obligations generated considering specific deductions of chapter in particular referred to each type of income.

HU402
Man and Ethics
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' college students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society.

EIGHTH SEMESTER

FZ402
Investment Project
The course allows students to evaluate and select the most cost-effective alternative of an investment project, considering the various situations involving business, analyzing financial structures, the cost of money and sources of funding, relying on the interpretation of different studies.

FZ404
Financial Market
The student has the elements to differentiate the different markets that operate within the framework of the Mexican financial system; the course will develop in students the skills to: decision-making of investment in the primary market, analysis of the investment instruments, studies and operation analyses of the stock market.

FZ405
International Finances
During this course, students will analyze the decision-making process that derives from international operations, Exchange rates, investments, financing and its repercussions in different types of balance of payments, in the frame of the international monetary system, financial markets, and merchandise markets and future values.

AD410
Strategic Management
The course develops in the student skills of decision making, understanding the roles of the general manager, identifying the different environments that affect the decision-making process, taking into account the mechanisms of corporate governance, discussing contemporary trends in international strategic management.

AD411
Global Organizations Management
In this course, students evaluate the development of the following cultures: Mexican, Latin American, Japanese, Chinese, Korean, Middle East and some European countries, to manage efficiently global organizations, embedded in a universe exposed to cultural diversity, which influences the way in which its functions and performance will be developed.

Bachelor's degree in **Graphics Design**

A Graphics Design graduate is the one who investigates, organizes, and interprets information giving a sense of order and creation to elements such as typography, image, color, structure, and visual messages according to the needs of the communications area. This person develops creative projects that allow the receptor to understand them clearly, precisely, and objectively since the goal is to promote, expose, manage, clarify, educate, or entertain.

What are the areas or career fields for a Graphics Designer?

- Creative Director
- Graphics Design Manager
- Independent Designer
- Independent Consultant
- Entrepreneur
- Communications Director
- Graphics Design Chief

What are the characteristics or abilities you will acquire at the end of the program?

At the end of the Bachelor's degree in Graphics Design you will be able to:

- Project creative and innovative ideas.
- Develop integral processes of visual communication.
- Master all different phases of graphics design, from its designing to its development.
- Apply adequate technology in the process of graphics design.
- Design and organize effective presentations for products and services.
- Ability to manage well in a corporate environment, working professionally with teams of various disciplines.
- Visualize design from an administrative prospective by conceiving it from a strategic point of view.
- Capacity and necessary knowledge to work independently and manage their own agency or graphics design firm.

What is the profile you need to have to study the Bachelor's degree in Graphics Design?

If this is what you want to do, then your profile as a Graphics Design student must meet the following characteristics:

- Ability to communicate ideas and information clearly.
- Ability to distinguish shapes and shadows.
- Special ability to recognize colors.
- Manual abilities and a preference for drawing.
- Good eye-hand coordination.
- Ability to edit and correct written works.
- Decision making decisions based on experience.
- Creativity.
- Interest in studying graphics arts.
- Innovation and the ability to take risks in the creation of new concepts.
- Ability to stand out with the best solutions to improve our society's development.
- Never lose the ability to be amazed.
- Use of imagination.
- Capacity to express ideas in two and three dimensions.
- Understand narrative and sequences of images and texts.
- Development of intellectual and manual work.
- Ability to work in teams.
- Desire to improve our visual surroundings.

Do you want to know which courses you will take in the Bachelor's degree in Graphics Design?

The curriculum contains 42 required courses, distributed throughout 8 semesters and divided into 3 training axes:

- Common Axis
- Basic field Axis
- Specific training Axis.

Curriculum

Materias sugerida por semestre

1	DG401	Introducción al diseño
	DG402	Teoría del color
	DG403	Dibujo I
	CS401	Habilidades del pensamiento
	DG404	Redacción publicitaria
2	DG405	Teoría de la comunicación visual
	DG406	Fotografía
	DG407	Tipografía I
	DG408	Dibujo II
	CS400	Comunicación avanzada en español
	DG409	Historias de las artes gráficas *
3	MK400	Administración de mercadotecnia
	DG410	Tipografía II
	DG411	Dibujo de figura humana
	DG412	Diseño gráfico
	ID400	Comunicación avanzada en inglés
	DG413	Historia de las artes gráficas II *
4	MK405	Comportamiento del consumidor
	CS402	Metodología de la investigación
	DG414	Intro. al diseño asistido por computadora
	DG415	Dibujo técnico
	DG406	Señalética
5	DG429	Gestión de empresas de comunicación visual
	DG417	Fotografía y estudio digital
	DG418	Ilustración
	DG419	Identidad corporativa
	EC400	Globalización y desarrollo económico
6	DG420	Imagen de marca
	DG421	Sistemas de impresión
	DG422	Diseño editorial
	DG423	Envase, etiqueta y display
	HU400	Ser humano y medio ambiente
7	PU400	Publicidad
	DG424	Pre-prensa digital
	DG425	Diseño para internet
	DG426	Medios audiovisuales
	HU402	Ser humano, historia y sociedad
8	DG430	Gestión de proyectos visuales
	DG427	Portafolios profesionales
	DG428	Multimedia
	HU402	Ser humano y la ética

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

DG401
Introduction to Design
This course analyzes design as a profession, and its fundamentals are practiced in two and three dimensions. This is a theoretical - practical course and it has a direct relationship with the courses of Visual communication Theory and Theory of Color. This course seeks to introduce students in understanding the many facets of design and initiate them in exercises of composition in two and three dimensions.

DG402
Theory of Color
A theoretical and practical course which enables students to understand the importance of color in graphic design and learn how to apply the theory of color in visual communication projects.

DG403
Drawing I
Theoretical-practical course planned so Graphic Design students learn the basic principles of drawing thus applying the knowledge acquired in projects related to their major.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their education in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

DG404
Publicity Writing
Theoretical-practical course that intends to initiate Graphic Design students in the complexity of publicity writing making them reflect on the function of texts in different means (mainly printed), understanding the connection among visual languages and the creation of concepts and precepts.

SECOND SEMESTER

DG405
Visual Communication Theory
This course is designed for students to acquire basic knowledge on visual communication concepts and systems that allow them to produce graphic designs and visual products whose communicative capability can be adapted to the requirements of the necessities in today's design by providing students with criticism and analysis capacity in the production of visual designs.

DG406
Photography
This course introduces the student to the realization and interpretation of the picture covering technical training in the use of cameras, material aspects and use of laboratory. In addition, the course covers conceptual aspects such as the significance and functionality of the images through its historical evolution as well as reflection and the theoretical analysis of specific photography documentary, conceptual, or constructed languages.

DG407
Typography I
Students will be presented to typography's basic technical, functional and aesthetical knowledge. They will learn the interdependence of letter design with the application techniques either handwritten or printed. A special emphasis will be made on the importance of typography in all the areas and projects of graphic design. Student's criticism skills to analyze and conceptualize form according to content and context will be developed. As previous knowledge students must understand what graphic design is and utilize its materials.

DG408
Drawing II
Students will widen and continue developing their observation and abstraction skills as well as their manual and intellectual abilities to represent ideas through drawing in an adequate form in a diversity of graphic applications.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

DG409
History of Graphic Arts
This course intends to teach students to identify and document the innovations in the semantic and syntactic aspects of visual communications by researching, analyzing and assessing graphic design of each era trying to differentiate the works in their cultural, ideological and formal context. This learning will constitute in students a useful conceptual vision to confront the future challenges in their professional career.

THIRD SEMESTER

MK400
Marketing Administration
The Marketing Administration course is a theoretical-practical course where students learn the fascinating world of Marketing. They will learn the definition of Marketing, its reach and its application in companies working in the market. They will learn and develop a Marketing mix to solve problems in the different branches of business.

DG410
Typography II
Students will understand the basic technical, functional and aesthetical aspects of typography specifically regarding legibility seen as a value. They will develop their ability of visual perception and conceptual analysis. They will work with different formats and substrates that will allow them to enrich their resources as designers in the application of typography to practical projects of design.
PRE-REQUISIT:
DG407 Typography I

DG411
Drawing of the Human Form
Practical course designed for students to easily learn both schematic and dimensional construction of the human figure and the diverse forms to achieve its expression of movement and perspective.

DG412
Graphic Design
In this course students will learn, develop and apply methodology for design as a tool for solving visual communication projects. Projects related to the design of posters, graphic identity and editorial design which will strengthen the necessary skills to develop and collaborate on creative, logical, and expressive design projects.
ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT:
College English Degree or English Language Center Accreditation.

DG413
History of Graphic Arts II
In this course students will learn to identify and analyze the innovations produced in the art movements comprehended from the industrial revolution to the present, emphasizing on the formal, semiotic and cultural aspects. The design stages differing cultural and ideological contexts will be researched, analyzed, and appreciated. At the end of the course students may criticize art from their profession as a useful conceptual vision.

FOURTH SEMESTER

MK405
Consumer Behavior
This is a theoretical - practical course which includes reading and research by students, thereby discovering that the behavior of people is a key variable to the Marketing strategies for the launch of new products and promotional campaigns. This is a fascinating course, it is based in anthropology, psychology and sociology to observe consumer... the consumer, who is the key to designing a business seeking to be profitable.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

DG414
Introduction to Design by Computer
This course's objective is that students fully recognize the planning process of a graphic design project as well as to set the basis for the understanding of computers and their use as a tool in the production of graphic projects.
To take this course it is mandatory that students have prior knowledge of and apply the principles of graphic design.

DG415
Technical Drawing
Practical course designed in order for students to acquire the necessary knowledge to accurately, clearly and precisely make a graphic representation of an object or idea by using a pre-established and fixed idea.
It is also planned in such way that students will learn to visualize and obtain the development of simple objects and to represent them in a two-dimensional space through projection systems by using CAD.

DG416
Signage
This course is designed for students to learn through the follow up of a practical methodology to develop signaling projects as well as to know the main concepts and areas of study of Ergonomics.

FIFTH SEMESTER

DG429
Visual Communication Company Management
Students will know the concepts and tools to establish, maintain and develop companies dedicated to one or several visual communication activities either in printed, digital or multimedia formats.
The course's general methodology is theoretical-practical. With the instructor's aid and through field research and information sources the different top ics of the units are studied.
Besides in order to promote significant learning, visits, interviews, application are carried out and projects related to visual communication companies are developed.
PRE-REQUISIT: **It is desirable that students have passed the first four semesters of their major before taking this course.**

DG417
Photography and Digital Studio
This is a theoretical-practical course based on composition and photographic skills. It introduces students to computer image processing technologies.
This course will be taught with an intellectual background on digital image nature in terms of technical values utilizing examples prepared for this purpose.

DG418
Illustration
In this course students will develop and

experience the necessary methods and techniques to create illustrated images. This course is defined as a subject of digital and manual techniques to achieve appropriate effects for different applications in visual communication and advertising.

DG419
Corporate Identity
This course covers the fundamental concepts that build Corporate Identity. Students will learn to develop the research, creation and development process, as well as the evaluation of a Corporate Identity program. The course will provide the necessary theoretical-practical knowledge to successfully carry out the communication of the essential values of a company. The conception of Corporate Identity will be emphasized as a global process requiring a solid image construction.
PRE-REQUISITE:
CS402 Research Methodology
DG414 Introduction to Design by Computer

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SIXTH SEMESTER

DG420
Brand Imaging
The course presents the fundamental aspects in the understanding of branding. Students will acquire theoretical and practical knowledge on the strategies used in the building of a brand image. Through this course the main concepts that have positioned branding as an indispensable tool in the development of a company will be revised. Emphasis will be made in graphic communication aspects that determine the successful creation of a brand. In this way, students will be able to develop a branding project covering different stages, from advertising strategy to the creative application of graphic materials. This will encourage their leadership as a professional capable of providing branding strategic solutions.
PRE-REQUISITE:
DG419 Corporate Identity

DG421
Printing Systems
Students will know the process that is followed once a design approval is obtained, what happens after the final prototype: pre-press and printing. They will know the different printing systems in the market. Alongside the theoretical part, students will carry out hands-on assignments in the Screen-printing workshop.
In this course students will know the basic techniques and materials utilized in screen-printing, as well as their commercial and artistic application.

DG422
Editorial Design
Students will acquire a theoretical-methodological basis in the field of Editorial Design using the acquired knowledge in pervious courses such a typography and graphic design which helps them to detect the creational needs of editorial materials.

DG423
Container, Labeling and Display
Students will know the importance of container design, the general characteristics of existing materials in the market, and their different applications, they will have a general idea of the applied processes with diverse materials to create containers. They will develop projects that allow them to generate creative solutions, and to know the considerations to bear in mind for the creation of the part of graphic design of containers, labels and displays.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

SEVENTH SEMESTER

PU400
Advertising
To develop in students a solid understanding of advertising functions that enable them to carry out an advertising campaign starting from a marketing situation of a product or service provided by an organization or identified sponsor.

DG424
Digital Pre-Press
This course covers the fundamental aspects for the understanding of digital pre-press. Students will acquire the theoretical-practical knowledge that allows them to identify possible problems and their solutions. During the course concepts such as color and the importance of its fidelity will be described. Ss will learn how to create projects correctly displaying the original idea in the required printing system, helping them to create a workflow functional for the majority of the projects.

DG425
Internet Design
This course presents Internet and the way of how it graphically communicates concepts through website design and construction. During this course students will be introduced to some technologies in a schematic way, the technique for website construction optimizing them for their display in different types of computers and the application of graphic design in this new means.
As previous knowledge students must dominate the generation edition of digital images and the use of computers as graphic designing tools.

DG426
Audiovisual Media
Students will acquire the necessary knowledge to develop communication strategies with complex elements including moving images and sound.
This course will provide concepts that will allow students to apply their previous design knowledge to sequential images based media such as television, movies and interactive kiosks. At the end of the course the student will develop a project with images and sound with all stages of production, from the design of the literary script, until its post. As previous knowledge students should master the theoretical and practical concepts of the field of photography.

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' college students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society.

EIGHTH SEMESTER

DG430
Visual Project Management
This course develops in students the necessary planning and management skills to design and carry out important visual projects such as readings, mental maps, analysis, reports, visits, interviews, application exercises and visual communication projects.

DG427
Professional Portfolios
Theoretical-practical course in which through the analysis of the concept of professional portfolio and the revision of the students personal work throughout their major, allow them to document evidence that as a whole can give proof of the students' work quality and type and achievements and strengths as designer. This will provide the student with a solid portfolio for self-assessment and finally a powerful tool in order to get a job.

DG428
Multimedia
Through this course the students will acquire skills to perform digital graphic proposals aimed at different applications, from audio-visual presentations, Web sites, enriched with animations and sound, to kiosks and interactive programs. This theoretical and practical course will promote in the student experimentation design that leads to the creation of graphical communication products using digital tools and creative processes.

HU402
Man and Ethics
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' college students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society.

Master's Degree in **Business Administration**

With 10 concentrations in:

Marketing, Human Resources, Finances, Public Administration, Senior Management, International Business, Supply Chain, Quality Economic, Development, Agribusiness.

The objective of the Cetys Master's degree in Business Administration is to prepare high-level specialists and professionals capable of leading the change processes in organizations, companies, and businesses by applying their knowledge in a responsible and innovative way. This is a flexible program that provides, through the Common Axis of the Curriculum, an holistic training in the general context of Administration.

Through a theoretical-practical approach, it offers to develop values, tools, and qualities oriented to the specialization in 10 different areas of the professional activity, of research or teaching.

What are the entry level characteristics you need to study this MBA?

- This program is aimed at professionals from different disciplines that want to deepen their knowledge towards a better professional and personal development according to their specialization areas in the public, social, and private sectors.

Do you want to know the courses you will take in the Master's Degree in Business Administration?

- The program consists in 14 courses divided in 4 Axes in which each course has 6 academic credits. The courses will have face-to-face classes and independent activities guided by the instructor.

EJE COMÚN

- Contabilidad Administrativa
- Administración Financiera
- Macroeconomía Financiera
- Administración de Recursos Humanos
- Administración de Mercadotecnia
- Administración Estratégica
- Estadística para la Toma de Decisiones
- Administración de Operaciones

EJES DE CONCENTRACIÓN

FINANZAS

- Teoría y Análisis Financiero
- Ingeniería Financiera
- Finanzas Corporativas
- Finanzas Internacionales
- Contabilidad Internacional
- Microeconomía
- Marco Fiscal Empresarial
- Administracion del Riesgo
- Formulación y Evaluación de Proyectos de Inversión
- Capital de Trabajo
- Mercado de Dinero y Capitales

MERCADOTECNIA

- Investigación de Mercados
- Mercadotecnia Internacional
- Estrategias de Nuevos Productos y Servicios
- Publicidad y Promoción
- Administración de Ventas
- Seminario de Mercadotecnia
- E - Business
- Mercadotecnia de Servicios
- Mercadotecnia Social
- Mercadotecnia Política
- Comportamiento del Consumidor

CALIDAD

- Sistemas y Normas de Calidad
- Estrategias de Manufactura
- Gestión de Calidad Total
- Ingeniería de Calidad
- Sistemas de Producción
- Técnicas Japonesas

RECURSOS HUMANOS

- Integración de Personal
- Capacitación y Desarrollo
- Productividad y Calidad Laboral
- Relaciones Laborales
- Desarrollo Organizacional
- Sueldos y Compensaciones
- Comunicación Empresarial
- Competencias Laborales
- Ergonomía y Salud Ocupacional
- Psicología de las Organizaciones
- Administración Transcultural
- Psicología del Mexicano

DESARROLLO ECONÓMICO

- Integración de Personal
- Capacitación y Desarrollo
- Relaciones Laborales
- Productividad y Calidad Laboral
- Sueldos y Compensaciones
- Comunicación Empresarial
- Desarrollo Organizacional
- Ergonomía y Salud Ocupacional
- Competencias Laborales
- Psicología del Mexicano
- Administración Transcultural
- Psicología de las Organizaciones

ADMINISTRACIÓN PÚBLICA

- Ciencia Política
- Sistema Político Mexicano
- Políticas Públicas
- Ética en la Función Pública
- Administración Estatal y Municipal
- Finanzas Públicas
- Desarrollo Económico Regional
- Modernización Gubernamental
- Políticas Públicas Comparadas
- Derecho Constitucional
- Derecho Administrativo
- Cultura de la Legalidad
- Administración Pública transfronteriza
- Administración Gubernamental
- Administración de Organismos No Gubernamentales

NEGOCIOS INTERNACIONALES

- Negocios Internacionales
- Administración Transcultural
- Contabilidad Internacional
- Legislación Fiscal Internacional
- Finanzas Internacionales
- Administración Estratégica Internacional
- Legislación de Comercio Exterior y Aduanas
- Logística Internacional
- Desarrollo Económico Regional
- Geografía Económica
- México y sus Tratados Comerciales
- PYMES y mercados globales

EJES DE CONCENTRACIÓN

AGRONEGOCIOS

- Tecnologías de Información en los Agronegocios
- Mercadotecnia en Agronegocios
- Desarrollo Emprendedor en los Agronegocios
- Desarrollo de Agronegocios Internacionales
- Post-producción y Nuevos Mercados de Agronegocios
- Financiamiento, Inversión y Gestión de Agronegocios
- Organización Empresarial y de Cooperativas Regionales
- Tecnología y Medio Ambiente en los Agronegocios

ALTA DIRECCIÓN

- Alta Dirección
- Administración de Proyectos
- Consultoría Estratégica
- Derecho Corporativo
- Desarrollo de Planes de Negocios
- Desarrollo Emprendedor
- Ética y Valores Empresariales
- La Empresa Familiar
- Liderazgo y Desarrollo Sustentable
- Modelos para la Toma de Decisiones

DESARROLLO ECONÓMICO

- Desarrollo Económico
- Promoción y Desarrollo Económico
- Desarrollo Económico Regional
- Promoción Económica e Industrial
- Planeación del Desarrollo Económico
- Geografía Económica
- Políticas Públicas
- Administración de la Tecnología
- Promoción Industrial Avanzada
- Laboratorio de Desarrollo de Infraestructura Pública Privada
- Relocalización, Retención y Crecimiento de Empresas
- La Empresa Familiar

EJE OPTATIVO

Cursar 3 asignaturas de cualquier otro programa.

EJE OPTATIVO

Realizar un proyecto de aplicación.

COMMON CORE

RI 505
Human Resources Administration
The course offers general knowledge on the administration of human resources, comprising different areas and elements in planning, design, and post analysis, recruitment and selection, training and development, assessment and working relations.

MK 500
Marketing Administration
Through this course, students will be introduced to the process of marketing; they will analyze the market's behavior and the types of shoppers, they will determine market opportunities and the application of marketing to satisfy those needs, in order to achieve a correct administration in the marketing process.

AD 500
Strategic Management
Students will be exposed to different areas and approaches that cover strategic management. The strategic cycle will be presented and the need to count on specific strategies for the different areas, at a corporate, business, and functional level.

MA 500
Decision Making Statistics
The course discusses the study of statistic procedures, through computing examples, as well as the use of specialized programs in the area. Its emphasis is placed on the understanding of the proper selection of logical and adequate terminology.

II 500
Operations Management
The course offers fundamental concepts and the effects in the product's design and selection of process, management of the supply chain, planning of the demand, and manufacturing systems.

EC 500
Financial Macroeconomics
Creating awareness on how macroeconomical factors affect our economy and businesses, and the consequences in the economical and social development of our country, through the analysis and comprehension of the different policies and economical theories. As a practical result, students are intended to read the newspaper, or watch the financial or economy news, and understand what is trying to be communicated in order to make the best decisions.

FZ 501
Financial Management
This course comprises the description and the use of tools for the analysis and interpretation of financial statements, financial management of the working capital, assessment of projects, and sources of resources and their cost, as well as the discussion and analysis of business and financial, national and international surroundings.

CB 500
Administrative Accounting
The course discusses the use of financial information in the analysis of the company's situation. Administrative accounting in the planning and control processes, terminology, behavior, systems and cost inter-relations, and capital budget. Cost systems will be discussed under a new manufacturing environment.

CONCENTRATION AREA
FINANCES

CB 501
Working Capital
The course discusses the knowledge of financial management in the company in a short term, encouraging the teaching of new tools and the elements of whole financial planning, parting from investment activities and their financing sources, applying practical cases, exercises and readings, to understand financial decisions regarding the acquisition and financing of assets.

FZ502
Marketing Money and Capital
The course deals with the structure and functions of a non-banking financial market, it offers detailed knowledge on the different techniques and theoretical models that are used in the stock market practice for investment and financing decision-making, the analysis of fixed income and variable funds, as well as the portfolio management principles and strategies of financial investment.

FZ503
Financial Theory and Analysis
The course offers a broad knowledge on financial statements, parting from the basic theory of accounting and the tools and instruments of financial analysis.

IM512
Business Financial Framework
The course discusses different areas of the Mexican financial and tax law.

FZ505
Financial Engineering
The course provides a detailed knowledge on the Financial Engineering areas, analyzing the different components of the market's investment portfolio, as well as related topics, such as mergings, acquisitions, bond issues, and swaps.

FZ506
Corporate Finances
A course that provides detailed knowledge on analytical techniques and models used in the financial decision-making process of a modern corporation. Concepts and theories will serve as a base for Corporate Finances; they comprise diverse topics, such as the following: strategic planning, capital cost and structure, financing sources, division of companies, acquisitions, and financial insolvency.

FZ507
International Finances
The course talks about the most relevant topics on international finance markets: international financing, markets of future merchandise, and investment within the international currency system.

CD502
International Accounting
The course discusses the financial accounting aspects, those of international operations for transactions in foreign currency, taxes, assessment of subsidiary companies, and comparison of international accounting norms between Canada, the U.S, Mexico, and those of the International Accounting Regulations Committee.

EC501
Microeconomics
The course provides fundamentals for the analysis of the economical aspects regarding decision-making. Consumer's and producer's theory is studied, as well as an individual's decisions before changes in prices; equilibrium, market structures, factors market, and market failure.

FZ504
Formulation and Assessment of Investment Projects
The course offers a global knowledge of the methods used in the economical preparation and evaluation of investment projects. The components and processes of market, technical, and economical studies are analyzed.

FZ508
Risk Management
The course offers a general overview of financial risk management, describing the methodologies and tools that have been developed, their applications, and presenting the latest parameters and measures that have been designed to determine the exhibition.

HIGH ADMINISTRATION

AD503
High Administration
The study of Management as a discipline that develops skills and knowledge necessary to formulate and pose a working culture oriented to excellence in the management of businesses. Students must manage their proper management model oriented to finding levels of sublimeness and survival in the execution of any human activity. Students must understand the variables of the surroundings that affect direct actions through innovation processes, as well as managing a culture of success, idiosyncrasy, and the values of human capital involved in a leadership process.

AD509 Project Management
A theoretical-practical course on the tools and methodologies of Process Management that offer a detailed vision on the financial assessment of projects, as well as the processes of planning and control, and project management.

AD508 Strategic Advising
The course offers participants a general overview on advising, its challenges and opportunities, identifying the necessary competencies and strengthening the essential ones, providing the necessary

methodological knowledge for advising management projects.

DE501 Corporate Law
The course develops the fundamental elements of Corporate Law, comprising the study of a company's legal framework, civil, and commercial contracts, titles and credit operations, property and intellectual rights, foreign investment, and immigration law; working and ecological law, and legal means for the solution of conflicts.

AD504 Business Plan Development
The course develops key concepts for the design of Business Plans, analyzing each element required in the business field, as well as the context of international competition and global markets.

AD507 Entrepreneurial Development
The course develops concepts for assessing a personal entrepreneurial strategy and a learning methodology, additionally seeking to explore the entrepreneurial mindset, and the creation process, development, management, assessment, and reinvention of businesses.

CS504 Ethics and Business Values
This course offers a general overview on different philosophical currents on ethical behavior, to continue to ethics in the business and in the company, offering practical elements on the development of an entrepreneurial culture based on values in Mexico. On the other hand, some cases of study are discussed according to the new challenges of administration.

AD506 The Family Business
The course addresses the knowledge on the characteristics of family businesses, its main sources of conflict and the tools to prevent them and manage them. Likewise, it presents the necessary elements to achieve the company's professionalization, as a means to reach success, and broadens the information on the technical and legal aspects to guarantee the continuity of the company through an effective succession.

AD505 Leadership and Sustainable Development
Learning experiences are designed through readings, information analysis, and exchange of points of view through debates to sensitize regarding the risks implied in a planet imbalance as a social receptacle, as well as the importance of life diversity and the imperativeness of living according to one's limits. This course invites students to carry on a process analysis and a synthesis of the topics quoted in its bibliography, with individual and group participation of students, discussion and collaboration groups under the instructor's supervision who acts as a motivating/facilitating agent. The course uses a different methodology in each session to thus, train students to manage concepts and ideas, instead of just concrete information. Some methodologies used in this class are: Kolb's four ways to learn, Abstract Knowledge management, and individual research work.

SUPPLY CHAIN

II500
Operations Management
The course offers fundamental concepts and the effects on the design of the product and selection of process, management of the supply chain, planning of demand, and manufacturing systems.

MF509
Lean Manufacturing
In this course, students will develop a whole vision of Lean Manufacturing, and the steps and organizational requisites for its implementation. Through the use of study cases, they will develop a deep understanding of the implications of Lean Manufacturing such as mapping of the value chain, methods for quick changes, total production maintenance, techniques to solve problems, pull systems and visual factory. The course has a strong orientation towards the understanding and the application of implementation processes for lean manufacturing in industrial environments.

II502
Supply Chain Management
In this course, students will develop a whole vision of Supply Chain Management (SCM) under a strategic focus, in the framework of an international operations environment. Students will be able to incorporate the SCM focus to optimize the business global functions. They will know the different functions and activities of SCM. They will understand the relation between the planning processes and management of inventories with SCM. They will be exposed to practical tools and contemporary cases that will allow them the application of their knowledge to select suppliers, logistics, outsourcing, global purchases, contracts, negotiations, process and cost analysis. They will determine which information technologies for the supply process have a greater potential according to the business environment. Finally, students will determine how to apply the SCM focus to their business as a competitive factor.

II506
Logistics and Distribution
This course provides students the theoretical fundamentals of logistics and the practical application models that will allow them, with the assistance of a computer, to intervene in it, from the design and implementation phase to the improvement of logistic systems and distribution with a focus comprising the organization and the supply chain. The course contemplates a practical and application approach that parts from the knowledge of logistic models, including its technical fundamentals, to give students a complete comprehension that allows them to assess and decide on decisions regarding: supply, storage, distribution, and transportation. The course provides students with a complete overview of the modern trends in this discipline, and how information technologies are used to optimize systems. Students are intended to reach situations where they have to design, decide, and determine strategies to improve the system.

ECONOMICAL DEVELOPMENT

Economical Development (Basic course)
Through this course, the elements and main tools of promotion and economical development are analyzed; it represents, at the same time, the first module of the education program of economical development accredited by the International Economic Development Council (IEDC) and the University of Oklahoma / Economic Development Institute (UO/EDI).

EC502
Regional Economical Development
The course comprises different aspects regarding regional economical development, parting from business initiatives and community enterprise, to the development of international businesses with an impact on the local economy, as well as knowing diverse elements that influence its performance and the challenges that the economical units face under this focus.

EC507
Industrial and Economical Promotion
The course addresses marketing and economical and industrial promotion, oriented to the retention and expansion of businesses in the regional economics field that is used to improve conditions of competitiveness in the global market.

EC508
Economical Development Planning
The course discusses the technical and analysis aspects that achieve economical development planning with a regional focus, as well as mechanisms tending to generate a vision of consensus to strengthen the local economy.

EC503
Economical Geography
The course addresses the analysis of basic postulates of economical geography and spatial economy, making a brief introduction to regional studies for different zones in the planet, and introduces linking elements with the study of geopolitics, and social and human development, proposing a discussion of some current affairs.

AP506
Public Politics
The course develops concepts, ideas and methodological tools on the focus and analysis of public politics that better understand their design, implementation, impact, and assessment.

SI502
Technology Management
This course presents the most outstanding topics regarding information technology focused on management, providing practical and technical elements to obtain information systems that are used to support the participants work.

EC509
Advanced Industrial Promotion
Through this course, elements to achieve an industrial promotion solid process are developed, and through the analysis of study cases, the techniques and tools will be revised in a practical way, for an effective promotion.

EC510
Public and Private Infrastructure Development Laboratory
Through this course, the elements to develop capacities and potentialities of public and private infrastructure will be developed, through a regional economical development process.

EC511
Business Relocation, Retention and Growth
This course develops diverse techniques and tools to achieve a successful definition of alternatives and opportunities of location and relocation of economical units, as well as retention programs and business expansion.

AD506
The Family Business
The course addresses the knowledge on the characteristics of family businesses, its main sources of conflict and the tools to prevent them and manage them. Likewise, it presents the necessary elements to achieve the company's professionalization, as a means to reach success, and broadens the information on the technical and legal aspects to guarantee the continuity of the company through an effective succession.

MARKETING

MK501
Market Research
The course is about a broad knowledge on the market research process, contributing with elements, techniques, and tools for the preparation and development of research, report presentation, and the analysis and interpretation of results.

MK502
International Marketing
The course offers a general overview on global commercial policies and opportunities for a correct planning of international planning, which will be accomplished through a deep cultural, legal, world geography, and multimarket analysis. The procedure for the application of international marketing logistics will be studied, in addition to the understanding of international markets management.

MK503
Advertising and Sales Promotion
The course comprises the administration and the bases of marketing communications, using techniques and creative strategies in advertising means and the effects of advertising, in addition to knowing and applying the different sales promotion tools, the application of an advertising campaign, and communication, advertising, and promotion carried on to international markets.

MK504
Sales Management
The course discusses the functions of sales management, like strategic planning, elaboration of programs, management, analysis, control, assessment of sales force, and negotiations.

MK505
Consumers Behavior
The course provides significant knowledge, as well as important models and techniques in consumer's behavior in its different dimensions, in a framework of individual, group, and company purchasing decisions.

MK511
Marketing Seminar
The course strengthens the marketing modern concepts and techniques, parting from information systems, marketing blend, integral marketing communication, and strategic marketing, applying the knowledge to decision-making and integrator marketing cases.

MK507
New Product and Service Strategies
The course comprises the most relevant aspects focused on the development of strategies for new products and services, parting from the methods that allow the determination of the market's requirements, solving inventive problems, and strategic innovation, to generate products of competitive quality in the global market.

SI501
E-business
The course develops the basic aspects of E-business, as well as the adequate elements of technological infrastructure, support, marketing, and security, to plan a successful business through the web.

MK508
Services Marketing
The course addresses the principal concepts and strategies of marketing services, assessing the elements of quality and the client's satisfaction, that allow the integration of successful and articulated service companies.

MK509
Social Marketing
The course introduces the significant concepts of social marketing, as well as the analysis surrounding its target population, the elements for development, and the administration of programs of that nature.

MK510
Marketing Politics
The course addresses the main concepts and strategies of marketing politics, such as identifying the community needs, profile, attitudes of the electorate, vote trends, management of focus groups, and politics image, as well as election campaigns.

INTERNATIONAL BUSINESS

AD501
International Business
The course presents the fundamental elements of international business, parting from a strategic management focus, and it offers patterns regarding the business strategies to different regions in the world.

RI515
Transcultural Management
The course addresses various topics of a transcultural nature, parting from the impact of culture in the organizational development, as well as the effects of the administration in human resources and communication, making a comparison analysis of Asia, Europe, the United States, and Latin America.

CB502
International Accounting
The course is about financial accounting aspects, those of international operations by transactions in foreign currency, taxes, assessment of subsidiary companies, comparison of international and accounting norms between Canada, the U.S, Mexico, and the International Accounting Norms Committee.

IM513
International Fiscal Legislation
The course offers a general knowledge on legal valid procedures regarding national and international taxes, as well as its interpretation and application regarding international business.

FZ507
International Finances
The course discusses the most relevant topics on financial international markets, international financing, the market of future merchandises, and the investment within the international currency system.

AD502
International Strategic Management
The course addresses international strategic management and offers a broad coverage in a global strategy dimension, domestic and global competitive advantage sources, as well as models of strategic management process.

DE500
Customs and Foreign Trade Legislation
The course studies the laws of foreign trade and customs legislations, as well as the legal regimen of international contracts, providing key analysis elements for the development of businesses in a global economy.

II501
International Logistics
The course analyzes the logistics chain in its international operation, and develops elements that allow the design and operation of integral logistics systems.

EC502
Regional Economical Development
The course comprises different aspects regarding regional economical development, parting from business initiatives and community enterprise, to the development of international businesses with an impact on the local economy, as well as knowing diverse elements that influence its performance and the challenges that the economical units face under this focus.

EC503
Economical Geography
The course addresses the analysis of basic postulates of economical geography and spatial economy, making a brief introduction to regional studies for different zones in the planet, and introduces linking elements with the study of geopolitics, and social and human development, proposing a discussion of some current affairs.

EC504
Mexico and its Commercial Treaties
Parting from the study of an international legal context and the analysis of certain legal institutions of international public law, the course offers a detailed overview of the international treaties regarding commerce, until knowing the free trade treaties that Mexico has signed.

EC505
Small and Medium Businesses and Global Markets
The course addresses new challenges and opportunities for small and medium businesses before the globalization of markets and its effects in strategic management, human resources, marketing, productivity, alliances, logistics, and concern for the environment. Likewise, it seeks to trigger a practical discussion on the role of small and medium businesses before a new reality and its human, social, and cultural surroundings

HUMAN RESOURCES

RI506
Personnel Integration
Students will apply and integrate their knowledge on general human resources administration, personnel recruitment and selection, interview techniques, modern tools for human resource administration, personnel induction, analysis, specification, description and assessment of posts.

RI507
Training and Development
The course addresses different topics focused on the correct training and development of human resources, parting from the detection of needs, design, implementation and assessment of programs guided towards effective personnel development, in Mexico's legal training framework.

RI508
Productivity and Labor Quality
Through this course, the concepts of quality and productivity are analyzed, along with their relation with human resources, the importance of management leadership in quality and productivity, and quality-productivity models and a culture of quality will be developed.

RI509
Working Relations
The course comprises the general analysis of individual and collective working relations, based on a current legal framework, as well as the different aspects on working conditions, unions, collective contract, strikes, and the study of social security in Mexico.

RI510
Organizational Development
This course is focused on the analysis of the fundamental concepts of Organizational Development, through a study of how and why organizations change, adapt themselves, or fail, as well as empirical tools and practical cases that diagnose and intervene successfully in processes of change and organizational innovation.

RI511
Wages and Compensations
The course addresses strategic planning and management of wages and compensations, analyzing the systems of post assessment, design of compensation structures, payment of incentives and benefits, as well as a regulatory framework and the Wages Administration System.

RI512
Business Communication
The course develops the elements of an intelligent communication strategy directed to different publics in the organization, making use of diverse techniques and communication tools, as well as the application of advanced information technologies.

RI513
Labor Competencies
The course is about one of the demands of quality models, which is the development of competencies of the people who work for the company. That is why the elements and the tools for determining and assessing the Competency Working Norms are presented.

RI514
Ergonomics and Occupational Health
The study of ergonomics corresponds to the category of applied research, which ensures the integration of science in production, that offer measures towards relieving work and increasing efficiency and quality. This course will stress on achieving higher performance and quality in men´s work, but most importantly, achieving a safer, richer and more creative in content job.

PS534
Organizations Psychology
The course offers an analysis on organization psychology, through the understanding and organizational development, having as framework, the integration of knowledge on human resources general administration.

RI515
Transcultural Management
The course discusses several topics of transcultural nature, parting from the impact on the culture of organizational development, as well as the effects in human resources administration and communication, making a comparison analysis in Asia, Europe, the United States, and Latin America.

PS533
Mexican´s Psychology

The course comprises a discussion on cultural topics that have influenced the Mexican working area and the worker´s own psychology, broadening the analysis to a configuration of the current Mexican society and the acquired values through our idiosyncrasy.

PUBLIC MANAGEMENT

AP504
Political Science
The course introduces the basic elements of the Theory of State and the ideas of political thinking to understand the transformations of the contemporary State.

AP505
Mexico´s Political System
The course presents the development of the contemporary Mexican political system, its genesis parting from the revolutionary movement, the classical consolidation stage, the political and economical liberalization processes, until the proposal of an analysis and discussion of the vision of Mexico´s new socio-political profile.

AP506
Public Politics
The course develops concepts, ideas and methodological tools on the focus and analysis of public politics, which better understand their design, implementation, impact, and assessment.

AP500
Public Administration
The course develops the most significant concepts of science in public administration, as well as the study of the structure of public administration in Mexico, and the knowledge of organizational theories and applied analysis tools applied to its surroundings, in addition to offering a comparative international vision.

CS500
Ethics in Public Charges
The course proposes a contemporary vision on ethics and public charges, parting from the analysis of a phenomenon of corruption, as well as the framework where administrative systems and valid legislations are developed. Different topics are addressed during the course to discuss the alternatives and mechanisms of transparency and fiscalization.

AP501
State and Municipal Administration
The course develops the legal fundamentals that comprise the state and municipal administration, and the mechanisms of coordination in the National Democratic Planning System framework, deepening later in the elements of strategic planning that allow an efficient administration of resources and benefits of quality public services.

FZ500
Public Finances
The course develops the fundamental concepts of public finances, addressing the analysis of the topics and application tools from a regional perspective to study the financial management in public administration.

EC502
Regional Economical Development
The course comprises different aspects regarding regional economical development, parting from business initiatives and community enterprise, to the development of international businesses with an impact on the local economy, as well as knowing diverse elements that influence its performance and the challenges that the economical units face under this focus.

AP502
Government Modernization
The course provides the elements for the analysis of administrative functions and procedures, as well as the discussion of relevant topics in a government modernization framework.

AP507
Compared Public Politics
The course provides the analysis elements to study a comparison of public politics, and the revision of the different ways governmental institutions operate, administrative departments, and their public politics, in our country´s case, in comparison with other international experiences.

DE502
Constitutional Rights
The course discusses the constitutional basis of the structure, organization, and functioning of the Mexican State, individual and social rights of the principles and values that form the Constitution, and the elements and control procedures that form it. Likewise, it offers an approximation to the constitutional right compared in the case of the United States and Mexico.

DE503
Administrative Law
The course offers a general overview of administrative law, the structure and organization of public administration in Mexico, as well as the regimen of obligations and responsibilities that compose it.

AP508
Culture of Law
The course addresses the values inherent in human beings in contemporary society, in a reflective way, and allows the critical analysis of the deterioration of social life, through phenomena like delinquency, organized crime, and corruption, seeking to generate discussions of alternatives in a culture of law framework.

AP503
Public Transborder Administration
The course addresses the fundamental elements of local trans-border development, through the study and discussion of politics and systems in governmental management, compared federalism, local public politics, public finances, environmental politics, as well as justice and crime.

AP511
Administration of non-governmental Agencies
The course develops the elements that strengthen the management of organizations in civil society, parting from the analysis of our social, legal, economical, surroundings, and strategic management necessary for a successful performance.

AP512
Government Administration
The course addresses the fundamental aspects of planning, programming, and budgets within public administration in Mexico, and contributes with additional elements on financial strategic planning, as well as the management of human resources, materials, and information.

QUALITY

AD506
The Family Business
The course addresses the knowledge on the characteristics of family businesses, its main sources of conflict and the tools to prevent them and manage them. Likewise, it presents the necessary elements to achieve the company's professionalization, as a means to reach success, and broadens the information on the technical and legal aspects to guarantee the continuity of the company through an effective succession.

II510	**Total Quality Management**
II511	**Quality Norms Systems**
II512	**Quality Engineering**
II514	**Production Systems**
II517	**Japanese Techniques**
MF501	**Manufacturing Techniques**

College of Engineering and Science

Our **educational offer**

Undergraduate degrees	Ensenada	Mexicali	Tijuana
Computer Sciences Engineer		●	●
Cybernetics Electronics	●	●	●
Industrial Engineering	●	●	●
Digital Graphics Design Engineer		●	●
Mechatronic Engineering	●	●	●
Mechanical Engineering	●	●	●
Software Engineering	●		

Graduate Programs	Ensenada	Mexicali	Tijuana
Master's degree in the Sciences with 11 concentrations in	●	●	●
» Engineering			
» Industrial Administration			
» Logistics and Materials Management			
» Quality and Productivity			
» Design and Manufacturing Processes			
» Networks & Telecommunications			
» Automation & Control			
» Distributed Computer Systems			
» Microelectronics & Semiconductors			
» Environment and Sustainable Development			
» Aerospace Engineering			

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Computer Science
Engineering

Computer Science Engineers are highly qualified in software designing. They participate in the design and implementation of software and computer technology for the solution of important problems related to process integration and information analysis.

What are the career fields for Computer Science Engineers?

- Businesses ranging from software development related to computer networks and Internet.
- In governmental and non-governmental organizations.
- Educational institutions research centers in system departments, software development, computer system support, and others.
- As independent professionals, developing their own businesses ranging from software development related to computer networks and Internet to the development and consulting in information systems and computer technology.
- Technical Support Engineer or Director of a Computer Center.

What are the skills you will acquire at the end of the program?

At the end of your studies in Computer Sciences you will be able to:

- Design, integrate and implement software for: Intelligent Systems, Information Systems, Computer Networks and Internet.
- Demonstrate Strong Knowledge on Software Engineering for software integration, implementation and design related to Computer Graphics and Compilers.

What are the entry level characteristics you need to study Computer Science Engineering?

If this is what you want to do, then your profile as a Computer Science student must meet the following characteristics:

Knowledge related to engineering fundamental areas such as:

- Mathematics (Algebra, Trigonometry, Geometry, and Calculus).
- Physics (Statistics, Dynamics, Chemistry/Electricity, and Magnetism foundations).
- Computer Science (Software use and knowledge about programming language).
- Skills: Organized thinking, studying habits, creative, fond of programming and software).
- Attitude: Pro-active, inquisitive, willingness to work in team and to grow professionally.

Do you want to know the courses you will take in Computer Science Engineering?

This engineering program contains 42 required courses distributed throughout 8 semesters, and divided in 3 training axes:

- Common Axis
- Engineering
- Computer Science Engineering

Curriculum
Materias sugerida por semestre

1	MA400	Matemáticas
	CC400	Métodos de programación I
	CC401	Introducción a las ciencias computacionales
	CS401	Habilidades del pensamiento
	EC400	Globalización y desarrollo económico
2	MC400	Dibujo por computadora
	MA401	Cálculo diferencial
	CC402	Métodos de programación II
	FI400	Física I
	CC403	Sistemas y componentes computacionales
	CS403	Cultural I *
3	MA402	Cálculo integral
	FI401	Física II
	MA403	Métodos numéricos
	CC404	Estructura de datos
	CS400	Comunicación avanzada en español
	CS404	Cultural II *
4	MA404	Probabilidad
	CC405	Análisis y diseño de algoritmos
	FI402	Física III
	SI400	Diseño de bases de datos
	CE400	Control por computadora
5	MA405	Inferencia estadística
	MA406	Cálculo multivariable
	CC406	Sistemas operativos
	CC407	Programación avanzada
	ID400	Comunicación avanzada en inglés
6	CC408	Análisis y diseño de sistemas de información
	CC409	Sistemas de bases de datos
	CC410	Teoría de autómatas
	CS402	Metodología de la investigación
	HU400	Ser humano y medio ambiente
7	SI401	Proceso de desarrollo de software
	CC411	Diseño de compiladores
	CE401	Redes de computadoras
	HU401	Ser Humano, Historia y Sociedad
		Optativa I
8	CC412	Tópicos de sistemas distribuido
	CC413	Inteligencia artificial
	CE402	Aplicaciones de redes de computadoras
	HU402	Ser humano y la ética
		Optativa II

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

MA400
MATHEMATICS
This course is offered to all students that study a Business Administration or Engineering major, in order to provide them basic mathematics that allows them to take the following math courses from their training area. The course addresses the concepts of logical mathematics in a practical way.

CC400
PROGRAMMING METHODS I
This course expects engineering students to understand and apply the basic concepts of structured programming, oriented to objects, to design algorithms and create computer programs, encouraging students to solve numerical problems, and manage characters. The course will emphasize the creation of flux diagrams, algorithms and the use of a programming language to solve practical problems. The course is designed to take students along a smooth path towards learning the Programming Methodology, following strategies for problem solution. In order to achieve this, there is a series of topics that go from simple problems to problems of medium complexity.

CC401
INTRODUCTION TO COMPUTER SCIENCE
This course is designed to introduce first semester students to university life, and discover the surroundings regarding engineering as a career, the knowledge of the major that students have chosen as a professional career, and the acquisition of basic knowledge of some of the areas that comprise such major. Likewise, during the course, students will be provided with the introduction, necessary for the different areas by which CETYS University performs, so students make this new university theirs, and use the facilities properly and the services it offers. The knowledge and skills developed during this course will be very useful for students to better understand the program of the major they chose, the courses it comprises, the relation between them and the professional and personal profile that is expected from them when graduating.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

THRID SEMESTER

MC400
COMPUTER DESIGN
This course´s objective is for students to acquire basic knowledge that is based on engineering design, and through the use of computer aided-design (CAD) software, students can apply such knowledge in the elaboration and interpretation of prints that describe the size and shape of products, and industrial parts. The course belongs to the engineering training area, and is essential to all those majors that have to do with design and manufacturing of parts and products. Its nature is totally practical, additionally, the course is carried on in a shop, where students will learn, at least, one CAD software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving the elaboration and interpretation of manufacturing prints.

MA401
DIFFERENTIAL CALCULUS
This course is a theoretical one; it will allow students the correct formulation, solution, and discussion of problems that involve derivatives of functions of one variable. Students must apply calculus of derivatives in the evaluation of optimum values of algebra and important functions. The course carries mathematics as a prerequisite, which is studied along with Physics I and is the basis for studying integral calculus.
PRE-REQUISITE:
MA400 Mathematics

CC402
PROGRAMMING METHODS II
This course is a continuation of Programming Methods I, and is oriented to completing a basic body of existing elements in Java programming language, that allows the solution of problems with a focus on objects. The course comprises the study of programming fundamentals oriented to objects, so students can solve problems creating their own classes that imply the use of arrangements, files and data structure, all this in an environment of graphic programming. Programming Methods II, is a relevant course within the engineering program, since in addition to computer programming, it is a fundamental knowledge of any engineer, and it promotes analytical and creative skills in students. Furthermore, the course will be used as a base and/or tool for other courses that students will course in their program.
PRE-REQUISITE:
CC400 Programming Methods I

FI400
PHYSICS
It is a theoretical-practical course, based on the statistics of particles and rigid solids. Practices made constitute the initial immersion of engineering students in Metrology, as well as the implementation of simple devices and the correct report of an experiment´s report. Basically, students question nature on the condition of static equilibrium and design devices to obtain such quantitative information on it. Equipment, devices, and techniques will be learned to use and apply. A pre-requisite of this course is Math, and the pre-conceptions of Physics acquired in High School.

CC403
COMPUTER COMPONENTS AND SYSTEMS
Students are expected to know and understand the diverse hardware elements that form a computer, as well as its organization and interaction with different software elements. The general topics of the course are: Introduction to the organization of computers, number systems, and data representation, digital computers, computer and peripheral systems, installation, and service.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

MA402
INTEGRAL CALCULUS
This is a theoretical-practical course preceded by Math and Differential Calculus. Here students will learn and apply the concepts of antiderivative and definite integral, and they will identify the main applications related to the engineering sciences. It includes techniques for the integration of algebra and transcendental functions, as well as their applications to calculating areas and volume. This course is very linked to math, differential calculus, physics I, II, and III, multivariable calculus, differential equations, probability, statistic inference, operation research models II, and systems simulation, among others. Therefore, this is a fundamental course in students' program.
PRE-REQUISITE:
MA400 Math
MA401 Differential Calculus

FI401
PHYSICS II
Throughout the course, the kinematics and dynamic effect is studied, resulting in two- and three-dimension systems of force acting on a particle. The general topics of the course are: kinematics of particles, energy conservation, work and amount in motion. At the end of the course, students will acquire skills, attitudes, abilities, and essential knowledge for the design and manufacturing motion systems that are useful for the practice of engineering.
PRE-REQUISITE: **FI400 PHYSICS I**

MA403
NUMERICAL METHODS
This course is included in Mechanical, Manufacturing, Industrial, Cybernetic Electronics, and Computer Science Engineering. Its objective is the establishment of a platform of theoretical and application knowledge for the solution of problems presented in the engineering area in any of its fields; such problems can be presented in electronic applications, models, and system simulation, finite models, heat transference, chemistry, marketing, and economics, among others. During the course, the following topics will be studied: solution of root equations, roots of polynomials, linear equation systems, curve fitting for linear regression and linear interpolation, and minimum squares, as well as diverse methods for the process of numerical integration. The solution to these problems will be based on non-traditional methods and oriented to the use of computers as a tool of great use.
PRE-REQUISITE:
MA400 Math
CC400 Programming Methods I
CC402 Programming Methods II

CC404
DATA STRUCTURE
This course addresses aspects related to the development of programs from an efficient point of view. Different forms of data organization are analyzed, as well as related algorithms. Each different form of organization carries a cost in computer resources, in a way that the form of studying such costs is assessed. Data organizations are defined as types of abstract data, which are implemented in a programming language oriented to objects. This is a classical fundamental course in Computer Science, and required in all programs within this area. The importance that this has in CETYS University´s programs, is to be a base for students, indispensable to study latter courses, such as, manufacturing, operation systems, data base, advanced programming, networks, and in general, advanced programming topics. The course is placed in the third semester for Computer Science, Software, Computer Technologies Engineering, and in fifth semester for Electronic Cybernetics Engineering.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.
Musical Appreciation
This course helps students to appreciate different musical demonstrations by

obtaining a greater and better approach to music. Visual Arts this course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.

Literature

This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life.

Performing Arts

This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.

PRE-REQUISIT:

CS403 Cultural I

FOURTH SEMESTER

MA404

PROBABILITY

This course reviews the basic axioms and the fundamental models of probability for the analysis of a random behavior of variables in engineering systems. The concept of math expectation and its applications in decision-making is included. This course is placed on the 4th semester of the program and is required for the area of statistical inference in 5th semester. The course is closely related to those specific to specialty courses where random treatment processes are required, industrial engineers, in particular will be required to take the following courses: quality engineering, operations research models II, design of experiments and simulation.

CC405

ALGORITHMS DESIGN AND ANALYSIS

This course can be considered a broad study (theoretical and practical) of algorithms that are applied in the solution of real problems that are often presented in computer applications. For the theoretical treatment of algorithms, the basic techniques and principles of computer complexity are presented: worst case scenario, average cases, space consuming and inferior bounds in the complexity of problems. At the end, a brief introduction to the problem area is given. The practical treatment consists of implementing algorithms using programming language and tools oriented to objects, visual studio .NET using C is suggested. This course is very important within Computer Science, because it strengthens the theoretical fundamentals in professionals, and efficient software design aspects, mathematically proved.

FI402

PHYSICS III

This is a theoretical-practical course; students will receive the knowledge, skills, abilities, and attitudes required as the fundamentals of electromagnetism. During the course, students solve problems, develop lab practices, implement simple devices, and develop projects. This course is associated to Physics I, and II, which are pre-requisites. It is also related to specialized courses that involve presence at the lab to make measurements with a multimeter and an oscilloscope. A solid training is needed in Differential and Integral Calculus, and abstraction skills towards vectorial analysis.

PRE-REQUISITE:

FI401 Physics II

SI400

DATABASE DESIGN

Students from computing programs will be exposed to the concept of data base, from a theoretical-practical perspective, since they will put into practice their knowledge of the course through SQL, and to design a data base project course. Firstly, the fundamental theories of databases in general will be studies, as well as the entity-relation model. Then, the relational model will be studied in detail as a fundamental theory for most current data base systems. Afterwards, the logical design of a data base will be studies, using the normalization process, and finally, the standard language SQL will be studies for the use of a relational data base BDR. This course is fundamental for all students studying a computing program, since data bases are an indispensable element in all information systems. In order to study this course, students re required to have basic Data Structure knowledge, Information Systems, and they must also know how to program in any language from applications development.

CE400

COMPUTER CONTROLLING

The study of systems is important to every engineer, and even more, control. Even though each engineering interacts in different levels with such physical control systems, each require the basic fundamental and practical concepts about systems and process controls. Additionally, it is important for Computer Science students to have knowledge about the different hardware elements that form a computer and how to manipulate them. This course intends to offer a general overview to computer science students, about the fundamentals of controlling a physical system, and the different hardware and software elements that form a process control system in a computer. The course begins with an introduction to control systems, its terminology, the elements and its application to physical process controls. Then, the elements that form a process control system are studied involving a computer. Then, the study of different types and forms of interphases there may be between a process and a computer. Finally, the study of automation and industrial process controls and the different ways the process control is implemented in an industry according to its nature.

FIFTH SEMESTER

MA405

STATISTICS INFERENCE

In this course, students will be exposed to the fundamental concepts of classical statistics, seen as analysis and synthesis tools of information to facilitate decision-making in planning, design, operation and systems control of their interest. During the course, students will develop skills to identify opportunities to apply these concepts, by making and solving the corresponding inference problems. In order to show mastery of the course, they will develop a capstone project that consists of making and solving statistic inference problems of their interest. This course recovers from Probability, the basic axioms of probability and concepts of random variables, distribution of probability, math expectations and variance, while the math courses deal with concepts of fusion and differential and integral calculus of one or two independent variables. From this point in the program, the course will be closely linked to experiment design, operations research models II, system simulation, software development process, artificial intelligence, and the production systems engineering courses.

MA406

MULTIVARIANT CALCULATION

In this course, students will develop knowledge, skills, and abilities required to solve problems that involve more than one independent variable, derivatives, and integrals. Likewise, they will manage and pose problems involving parametric and polar equations in their description. It is related to Differential and Integral Calculus which are pre-requisites, as well as Programming I and II, which allow solving problems with assistance of the computer.

CC406

OPERATING SYSTEMS

This course is included in Computer Science Engineering and Electronic Cybernetics Engineering to strengthen the skills in the analysis and evaluation of operating systems. The focus is to continue through a conceptual analysis of the components of any operating system: processes, memory, synchronization mechanisms, blocking, input and output devices, and files systems. On the practical side, students will develop programs using Java programming language in a UNIX operating system, or a similar one.

CC407

ADVANCED PROGRAMMING

In this course, students will develop knowledge, skills, and abilities required to solve problems using the computer, by developing applications oriented to objects under the .NET environment. Students require mastery of programming and problem solution using algorithms. The course is related to Programming I, and II which are pre-requisites and this course is a pre-requisite for each course in the sixth semester.

ID400

Advanced Communication in English

For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.

PRE-REQUISIT:

College English Degree or English Language Center Accreditation.

SIXTH SEMESTER

CC408

INFORMATION SYSTEMS DESIGN AND ANALYSIS

This course expects students to understand the importance of software in current society and in the future one; likewise, know and apply techniques, methodologies, and tools to carry on the analysis and design of information systems. They will then be introduced to the concepts and principles of software engineering as an area of computer science addressing the analysis and design of systems oriented to objects, in which the model language called UML will be used; students who take this course are required to know programming oriented to objects.

CC409

DATABASE SYSTEMS

This course expects students to know the functions of a Data Base Administrator DBA. The management of transactions will also be studied, regarding recovery and concurrency control. Students will use tools to carry on functions like DBA, from the creation of data bases, information security, back up, and recovery, as well as exporting and importing data, and technical follow up. Students will know the importance of store procedures and triggers in data base areas and will develop examples where they are applied.

CC410

AUTOMATION THEORY

The course allows students to acquire knowledge, skills, and abilities to propose automatic machines and evaluate the complex characteristics of an algorithm; likewise, they will be able to justify why certain problems can be non-computing.

CS402

Research Methodology

This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

HU400

Man and Environment

This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

SEVENTH SEMESTER

SI401

SOFTWARE DEVELOPMENT PROCESS

Students from computing programs are centered in learning a software development process, focused on objects. This is made through a theoretical-practical perspective. The course offers a topic where the software development process is presented in all its phases and techniques, as well as the important concepts of process, how to administer it, and software technology that can be applied according to its implementation requirements. The course also presents each technique to be developed in each phase of the process; in this part, the course will deal with process administration aspects, in detail, and students will make specific practicum. The third topic of the course addresses the aspects of process administration, it won't be as detailed as the previous one, it is more informative and it is suggested that these are seen during the course in the form of shops, not necessarily at the end. For effective learning, it is suggested that students develop a software project, from beginning to end.

PRE-REQUISITE: **CC404 Data Structure; CC408 Information Design Systems and Analysis**

CC411
DESIGN OF COMPILERS
In this course, students from the Computer Science Engineering program are exposed to the concept of compilers from a theoretical-practical perspective, since they will design and develop a compiler. During the development of this course, students will establish an operating environment from their compiler´s operation, they will design an assembly language, develop an assembler and a dissassembler, they will analyze, design, and implant a virtual machine, they will define a high level programming language, and finally develop a compiler. This course is fundamental for all students in computer science, since the concepts are an indispensable element in developing any software base.
PRE-REQUISITE:
CC404 Data Structure
CC408 Information Design Systems and Analysis
CC410 Automation Theory

CE401
COMPUTER NETWORKS
In this course, students will be exposed to the knowledge and main fundamentals, in a theoretical-practical way, in the field of computer networking. This course will begin from the study of the 7 layers of the OSI model and the TCP/IP model, focusing mainly in link layers, networks, and transportation. Also, the most important aspects forming local area networks LAN will be studied, as well as communication means and devices that work in these networks. The topic of metropolitan networks MAN will also be studied, and wide area networks WAN, analyzing the main equipment and routing protocols that make it possible for data packages to travel among these networks and reach their destination. Another important aspect in the course will be the study of wireless networks and also new technologies that are currently being used in computer networking, which allow us to use applications in real time for voice, telephones, videoconferencing, and other multimedia applications. During the course, one or more visits to different computing centers in local companies will be made, to analyze and know the different solutions and characteristics that form these information networks, as well as to have a more complete and updated vision of what happens in this area. In order to take this course students are required to have basic knowledge of Data Structure and Operation Systems.
PRE-REQUISITE:
CC404 Data Structure
CC406 Operating Systems

HU401
Man, History and Society
This course belongs to those called “CETYS courses”, whose objective is to promote Humanism in all of CETYS’ collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society. First it approaches these dimensions of what constitutes man kind, and after that it considers its phenomenological expression methodically, the thematic contents of the social dimension will be linked to those historical ones, since both can be summed up as here and now.
PRE-REQUISIT:
ELECTIVE I

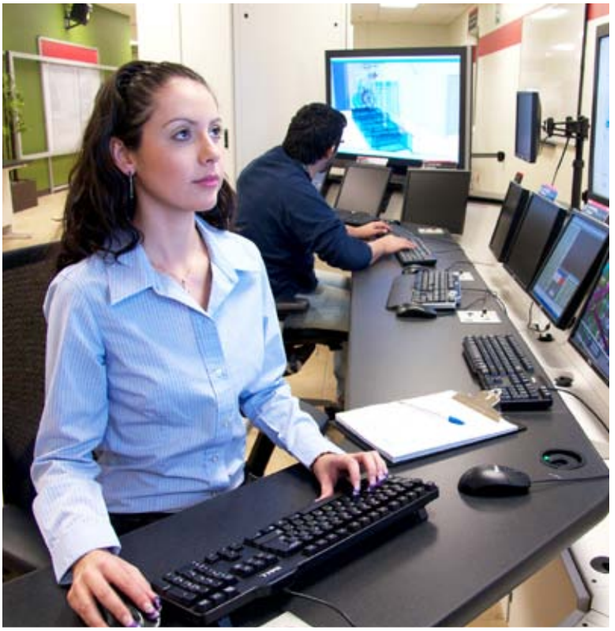
OCTAVO SEMESTRE

CC412
DISTRIBUTED SYSTEM TOPICS
In this course, students from Computer Science Engineering will be exposed to the main concepts of distributed systems, from their characteristics, communication, security, distributed data base design, and existing technologies in the market, for the development of a distributed application. The course will be developed in a theoretical-practical way where the theoretical focus will consist on analyzing concepts, and communication and security techniques with what refers to Distributed System processes, and apply them by developing a communication program between processes using the TCP/IP protocol. On the other hand, methodologies for the design of distributed data bases will be analyzed in a practical way, students must analyze and solve a concrete problem for which they must design and propose a distributed solution. This course is fundamental for all students, since the trend in the development of application systems is about distributed computing.

CC413
ARTIFICIAL INTELLIGENCE
In this course, students will first know and understand that AI is an interdisciplinary science that comprises several areas of knowledge; however, it is linked to computer science. Likewise, they will know and understand its main applications, and current and future research lines. They will then center themselves on learning the fundamental theoretical techniques of IA through 2 focuses: a theoretical and a practical one. The theoretical focus consists of analyzing IA´s techniques from an abstract point of view, without applying it to concrete problems. On the other hand, the practical focus will consist on analyzing a concrete problem, for which they must design and develop programs where the theoretical techniques of IA are applied and prove its applicability. The course will use the Scheme programming language (LISP dialect) for the development of programs and practicum. Learning the Scheme language will be students’ responsibility.

CE402
COMPUTER NETWORK APPLICATIONS
This course is designed so students can put into practice the knowledge acquired in the Computing Network area, which takes into account HARDWARE aspects, as well as SOFTWARE aspects. Throughout the course, students will design and assemble the entire necessary infrastructure for the good functioning of a TCP/IP network, in a practical way, considering several means of communication and the necessary equipment to configure a local area network LAN. One of the main points of this course, is that students will be able to install, in a practical way, and configure two of the main types of servers currently used (Windows server and Linux), with the main network services they offer. One of the units of the course considers aspects, in a basic from, on the safety of computer networks, by working in a computer network environment.

HU402
Mankind and Ethics
Mankind and Ethics is the third of a series of three courses that CETYS has implemented in its three campuses for all college students. These courses are intended to leave a characteristic impression in all of our students through a reflection on Mankind and the way it relates to its surroundings, its past, its society, and itself. In short, this course reflects upon some of the anthropological conceptions that have taken place throughout history, in order to better understand how the image we have of mankind came to be and the way in which we perceive the world. Parting from this base we begin to accept some actions as being good or bad; this takes us to the field of personal and social values, which are assumed within certain margins of liberty, with these values we begin to accept or reject some obligations and rights we have towards others. With this said, we can conclude by recognizing the responsibility we have in the world of work, in order to establish some reflection on professional ethics.
PRE-REQUISIT:
ELECTIVE II



Electronic Cybernetics Engineering

It's a highly qualified professional in the computer and electronic areas capable of designing, implementing, and integrating computer based systems that are applied to facilitate the communication among people, the administration of information, and the automation of processes used in industries, businesses, and services sectors.

What are the career fields for Electronic Cybernetics Engineers?

- Public or private sector companies, educational institutions and research centers such as telecommunication companies, Banks, brokerage houses, research institutions, and universities; providing support in the development and maintenance of computer networks.
- Manufacturing and production industries, such as automobile assembly, aeronautics, companies dedicated to the creation of electronic equipment and components; developing design tasks and operation of automated electronic processes for their different areas such as production and administration.
- Industries that develop technology, providing support in equipment innovation.
- Consulting companies, sales or support of computer technology; offering counseling and maintenance services, networks, and computing equipment as well as sales of components or computer electronic equipment.
- Research and higher education, as instructors and carrying out research activities in the cybernetics area.
- Freelance offering consulting and maintenance services, networks, processes and computer equipment.
- Professor.

What are the abilities you will acquire at the end of the program?

At the end of the Electronic Cybernetics Engineering you will be able to:

- Design and implement digital circuits, microprocessors, microcontrollers and programmable logic controllers that support activities in different areas of human activity (industry, medicine, architecture, music, etc.).
- Design and implement electronic specialized devices and interfaces for computer equipment, automation and control processes, computer networks, and instrumentation applications.
- Design computer electronic systems that function as administration and decision-making tools in businesses.
- Develop and master the sophisticated use of software for applications related to the control of processes and computer networks.
- Know and participate in decision-making regarding to the administration, maintenance, and setting up of computer equipment.
- Research about the development application of technology in the solution of problems in different aspect of life.
- Design and install hardware to facilitate or improve telecommunications.

¿What are the entry level characteristics you need to study Electronic Cybernetics Engineering?

If this is what you want to do, then your profile as a student of Electronic Cybernetics Engineering must meet the following characteristics:

- Willingness and skills in mathematics (algebra, trigonometry, geometry, and calculus).
- Interest in Physics (Statics, Dynamics, Magnetism), Chemistry, and Electricity.
- Skills in Information Systems (software management).
- Basic knowledge on programming and willingness to master this skill.
- Study habits.
- Ability to think in an organized way.
- Proposing attitude to participate in the solution of problems that affect the development of human activities.
- Ability to analyze.
- Enjoy manual activities.
- Willingness to work in teams.

Do you want to know the courses you will take in Electronic Cybernetics Engineering?

This engineering program contains 42 required courses, distributed in 8 semesters and in3 training axes:

- Common Axis
- Engineering Axis
- Electronic Cybernetics Engineering Axis

Curriculum

Materias sugerida por semestre

1	MA400	Matemáticas
	CC400	Métodos de programación I
	CE403	Introducción a la cibernética electrónica
	CS401	Habilidades del pensamiento
	EC400	Globalización y desarrollo económico
2	MC400	Dibujo por computadora
	MA401	Cálculo diferencial
	CC402	Métodos de programación II
	FI400	Física I
	CE404	Electrónica digital I
	CS403	Cultural I *
3	MA402	Cálculo integral
	FI401	Física II
	MA403	Métodos numéricos
	CE405	Electrónica digital II
	CS400	Comunicación avanzada en español
	CS404	Cultural II *
4	MA404	Probabilidad
	MA407	Ecuaciones diferenciales
	FI402	Física III
	CE406	Arquitectura de computadoras
	CE407	Circuitos eléctricos
5	MA405	Inferencia estadística
	CC404	Estructura de datos
	CC406	Sistemas operativos
	CE408	Electrónica analógica I
	ID400	Comunicación avanzada en inglés
6	CE409	Diseño con micro procesadores
	CE410	Electrónica analógica II
	CE411	Sistemas de control
	CS402	Metodología de la investigación
	HU400	Ser humano y medio ambiente
7	SI401	Diseño de interfases
	CE412	Diseño de compiladores
	CE414	Electrónica de potencia
	HU401	Ser Humano, Historia y Sociedad
		Optativa I
8	CC414	Tópicos selectos de programación
	CE402	Aplicaciones de redes de computadoras
	CE415	Mecatrónica
	HU402	Ser humano y la ética
		Optativa II

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

MA400
MATHEMATICS
This course is offered to all students that study a Business Administration or Engineering major, in order to provide them basic mathematics that allows them to take the following math courses from their training area. The course addresses the concepts of logical mathematics in a practical way.

CC400
PROGRAMMING METHODS I
This course expects engineering students to understand and apply the basic concepts of structured programming, oriented to objects, to design algorithms and create computer programs, encouraging students to solve numerical problems, and manage characters. The course will emphasize the creation of flux diagrams, algorithms and the use of a programming language to solve practical problems. The course is designed to take students along a smooth path towards learning the Programming Methodology, following strategies for problem solution. In order to achieve this, there is a series of topics that go from simple problems to problems of medium complexity.

CC403
INTRODUCTION TO CYBERNETIC ELECTRONICS ENGINEERING
This course is designed to introduce first semester students to university life, and discover the surroundings regarding engineering as a career, the knowledge of the major that students have chosen as a professional career, and the acquisition of basic knowledge of some of the areas that comprise such major. Likewise, during the course, students will be provided with the introduction, necessary for the different areas by which CETYS University performs, so students make this new university theirs, and use the facilities properly and the services it offers. The knowledge and skills developed during this course will be very useful for students to better understand the program of the major they chose, the courses it comprises, the relation between them and the professional and personal profile that is expected from them when graduating.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SECOND SEMESTER

MC400
COMPUTER DESIGN
This course´s objective is for students to acquire basic knowledge that is based on engineering design, and through the use of computer aided-design (CAD) software, students can apply such knowledge in the elaboration and interpretation of prints that describe the size and shape of products, and industrial parts. The course belongs to the engineering training area, and is essential to all those majors that have to do with design and manufacturing of parts and products. Its nature is totally practical, additionally, the course is carried on in a shop, where students will learn, at least, one CAD software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving the elaboration and interpretation of manufacturing prints.

MA401
DIFFERENTIAL CALCULUS
This course is a theoretical one; it will allow students the correct formulation, solution, and discussion of problems that involve derivatives of functions of one variable. Students must apply calculus of derivatives in the evaluation of optimum values of algebra and important functions. The course carries mathematics as a prerequisite, which is studied along with Physics I and is the basis for studying integral calculus.
PRE-REQUISITE:
MA400 Mathematics

CC402
PROGRAMMING METHODS II
This course is a continuation of Programming Methods I, and is oriented to completing a basic body of existing elements in Java programming language, that allows the solution of problems with a focus on objects. The course comprises the study of programming fundamentals oriented to objects, so students can solve problems creating their own classes that imply the use of arrangements, files and data structure, all this in an environment of graphic programming. Programming Methods II, is a relevant course within the engineering program, since in addition to computer programming, it is a fundamental knowledge of any engineer, and it promotes analytical and creative skills in students. Furthermore, the course will be used as a base and/or tool for other courses that students will course in their program.
PRE-REQUISITE:
CC400 Programming Methods I

FI400
PHYSICS I
It is a theoretical-practical course, based on the statistics of particles and rigid solids. Practices made constitute the initial immersion of engineering students in Metrology, as well as the implementation of simple devices and the correct report of an experiment´s report. Basically, students question nature on the condition of static equilibrium and design devices to obtain such quantitative information on it. Equipment, devices, and techniques will be learned to use and apply. A pre-requisite of this course is Math, and the pre-conceptions of Physics acquired in High School.

CC404
DIGITAL ELECTRONICS I
Digital Design is fundamental for Cybernetic Electronics Engineering students at CETYS University; that is why there are a series of courses in this program that have the purpose of preparing and training future professionals in this area. Digital Electronics I is the first course in this series of courses that form the Digital Design Line of Work, it provides the fundamentals for the rest of the courses. The course has a lab; a strong emphasis is made in proving the theoretical fundamentals that will be studied throughout the course, by doing practical work at the lab. During the course, analysis techniques, and design of combinational and sequential digital circuits will be studied and applied, as well as applying integrated circuits at a small and medium scale for the design and construction of sequential digital circuits. Design and analysis tools will be used based on computers. Logical Programmable Devices will be studied and designs of combinational and sequential circuits will be made based on them.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course is the first part of two: Culture I and Culture II. Under this premise, this first part must be considered as a general introduction to the tasks that students will be carrying out during Culture II when working on a specific artistic expression.

THIRD SEMESTER

MA402
INTEGRAL CALCULUS
This is a theoretical-practical course preceded by Math and Differential Calculus. Here students will learn and apply the concepts of antiderivative and definite integral, and they will identify the main applications related to the engineering sciences. It includes techniques for the integration of algebra and transcendental functions, as well as their applications to calculating areas and volume. This course is very linked to math, differential calculus, physics I, II, and III, multivariable calculus, differential equations, probability, statistic inference, operation research models II, and systems simulation, among others. Therefore, this is a fundamental course in students' program.
PRE-REQUISITE:
MA400 Math
MA401 Differential Calculus

FI401
PHYSICS II
Throughout the course, the kinematics and dynamic effect is studied, resulting in two- and three-dimension systems of force acting on a particle. The general topics of the course are: kinematics of particles, energy conservation, work and amount in motion. At the end of the course, students will acquire skills, attitudes, abilities, and essential knowledge for the design and manufacturing motion systems that are useful for the practice of engineering.
PRE-REQUISITE:
FI400 PHYSICS I

MA403
NUMERICAL METHODS
This course is included in Mechanical, Manufacturing, Industrial, Cybernetic Electronics, and Computer Science Engineering. Its objective is the establishment of a platform of theoretical and application knowledge for the solution of problems presented in the engineering area in any of its fields; such problems can be presented in electronic applications, models, and system simulation, finite models, heat transference, chemistry, marketing, and economics, among others. During the course, the following topics will be studied: solution of root equations, roots of polynomials, linear equation systems, curve fitting for linear regression and linear interpolation, and minimum squares, as well as diverse methods for the process of numerical integration. The solution to these problems will be based on non-traditional methods and oriented to the use of computers as a tool of great use.
PRE-REQUISITE:
MA400 Math
CC400 Programming Methods I
CC402 Programming Methods II

CE405
DIGITAL ELECTRONICS II
Digital Design is fundamental for Cybernetic Electronics Engineering students at CETYS University; that is why there are a series of courses in this program that have the purpose of preparing and training future professionals in this area. Digital Electronics II uses what was learned during the first course and throughout it, advanced techniques in the design of sequential digital circuits are shown; sequential and iterative circuits , applications on a medium and large scale, memories, counters, and logical programmable devices, design tools and computer based analysis. The course has a lab; a strong emphasis is made in proving the theoretical fundamentals that will be studied throughout the course, by doing practical work at the lab. The general topics of the course are: introduction to sequential digital systems, design with integrated components, and interphases with the analogue world.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be

applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

CS404
Cultural II
Music Appreciation
This course allows students to appreciate different musical manifestations, obtaining a bigger and closer approach to music. This course is the second part of two: Culture I and Culture II. Under this premise, this first part must be considered as a general introduction to the tasks that students will be carrying out during Culture II when working on a specific artistic expression. For this specific case: Music.
Visual Arts
This course is intended for students to appreciate visual arts through the development of sensitivity and creativity. The personal growth of students is enhanced by the study of this branch of the fine arts.
Literature
This course is the continuation of Culture I. It is intended for students to get close to literature through knowledge of the most important literary currents as well as the historic moment in which they were born, focusing on the repercussions that reading the great works of literature can bring to our daily lives. We look to develop students' critical and reflective sense by performing stimulating readings, as well as improving their spelling. This course demands a high level of reading comprehension; it is considered theoretical-practical since it includes research, definition and comprehension of concepts, such as the elaboration of written assignments.
Performing Arts
This course allows students to understand the development of culture through dance and theater, as well as their social impact and their influence on different artistic expressions. This course is the second part of two: Culture I and Culture II. Under this premise this second part should be considered as the continuation of Culture I, in which they will have a bigger understanding of the reasons for being of theater and dance as an artistic-cultural form of expression
PRE-REQUISIT:
CS403 Culture I

FOURTH SEMESTER

MA404
PROBABILITY
This course reviews the basic axioms and the fundamental models of probability for the analysis of a random behavior of variables in engineering systems. The concept of math expectation and its applications in decision-making is included. This course is placed on the 4th semester of the program and is required for the area of statistical inference in 5th semester. The course is closely related to those specific to specialty courses where random treatment processes are required, industrial engineers, in particular will be required to take the following courses: quality engineering, operations research models II, design of experiments and simulation.

MA407
DIFFERENTIAL EQUATIONS
In this course, engineering students are exposed to reasons of change and differential equations, identifying and applying their analytical solution methods to model the dynamic behavior of natural and artificial systems related to the field of engineering. Specifically, the course includes the study of different solution methods for differential equations of first order, solution methods for linear differential equations of higher order with constant coefficient and the use of Laplace for its solution.

FI402
PHYSICS III
This is a theoretical-practical course; students will receive the knowledge, skills, abilities, and attitudes required as the fundamentals of electromagnetism. During the course, students solve problems, develop lab practices, implement simple devices, and develop projects. This course is associated to Physics I, and II, which are pre-requisites. It is also related to specialized courses that involve presence at the lab to make measurements with a multimeter and an oscilloscope. A solid training is needed in Differential and Integral Calculus, and abstraction skills towards vectorial analysis.
PRE-REQUISITE:
FI401 Physics II

CE406
COMPUTER ARCHITECTURE
An important characteristic of Cybernetic Electronics Engineering students at CETYS University, is the design of computer systems, that is why, the program includes a series of courses that have the purpose of preparing and training the future professional in this field. The computer architecture course is one of those basic courses that allow the Cybernetic Electronics Engineer achieve this. The course has lab work, a strong emphasis is made in proving the theoretical fundamentals that will be studied throughout the course, by doing practical work at the lab. During the course the history of computers will be studied, from the first mechanical models, to the current supercomputers. The different functional units of computers will be analyzed, like control units, memory, input, output, and of course, the arithmetic-logical unit. Circuits will be built in the lab, and they will make basic functions. The final part of the course consists of programming a computer at a low level, in an assembly language. The general topics of the course are: history of computers, central processing unit, memory unit, input/output unit, control unit, and assembly programming.

CE407
ELECTRIC CIRCUITS
The purpose of this course is to encourage students regarding the analysis techniques in electric circuits. During the course, only electric networks with passive elements will be analyzed, however, the analysis techniques are used in any electric circuit with active and passive elements. During the course, diverse electric circuits will be studied using different methods. The course begins with purely resistive circuits applying the different analysis methods. Later, the transitory behavior of circuits with non linear elements is analyzed, to finish with behavior in a stable state of alternate current for this type of circuits. A solid information on Differential and Integral Calculus is needed, along with a previous or parallel course of Electricity and Magnetism, and Differential Equations. This course is an indispensable pre-requisite for all those courses regarding electronics and electricity.

FIFTH SEMESTER

MA405
STATISTICS INFERENCE
In this course, students will be exposed to the fundamental concepts of classical statistics, seen as analysis and synthesis tools of information to facilitate decision-making in planning, design, operation and systems control of their interest. During the course, students will develop skills to identify opportunities to apply these concepts, by making and solving the corresponding inference problems. In order to show mastery of the course, they will develop a capstone project that consists of making and solving statistic inference problems of their interest. This course recovers from Probability, the basic axioms of probability and concepts of random variables, distribution of probability, math expectations and variance, while the math courses deal with concepts of fusion and differential and integral calculus of one or two independent variables. From this point in the program, the course will be closely linked to experiment design, operations research models II, system simulation, software development process, artificial intelligence I, and the production systems engineering courses.

CC404
DATA STRUCTURE
This course addresses aspects related to the development of programs from an efficient point of view. Different forms of data organization are analyzed, as well as related algorithms. Each different form of organization carries a cost in computer resources, in a way that the form of studying such costs is assessed. Data organizations are defined as types of abstract data, which are implemented in a programming language oriented to objects. This is a classical fundamental course in Computer Science, and required in all programs within this area. The importance that this has in CETYS University's programs, is to be a base for students, indispensable to study latter courses, such as, manufacturing, operation systems, data base, advanced programming, networks, and in general, advanced programming topics. The course is placed in the third semester for Computer Science, Software, Computer Technologies Engineering, and in fifth semester for Electronic Cybernetics Engineering.

CC406
OPERATING SYSTEMS
This course is included in Computer Science Engineering and Electronic Cybernetics Engineering to strengthen the skills in the analysis and evaluation of operating systems. The focus is to continue through a conceptual analysis of the components of any operating system: processes, memory, synchronization mechanisms, blocking, input and output devices, and files systems. On the practical side, students will develop programs using Java programming language in a UNIX operating system, or a similar one.

CE408
ANALOGUE ELECTRONICS I
An important skill for Cybernetic Electronics Engineers at CETYS is the design of analogue circuits that is why there is a series of courses in this program that intend to prepare and train the future professional in this field. The course Analogue Electronics I, is one of the basic courses that allow the Cybernetic Electronics Engineer to achieve this. The course has lab work, a strong emphasis is made in proving the theoretical fundamentals that will be studied throughout the course, by doing practical work at the lab. During the course semiconductor materials will be studied, and their electrical characteristics. An analysis of the union of materials N and P type will be made, since this gives origin to semiconductor diodes, circuits with different types of diodes are analyzed. Transistors are the base of amplifying circuits, and in this course diverse configurations of amplifiers based on bipolar transistors and field effect transistors will be analyzed and designed. The general topics of the course are: semiconductors, diodes, bipolar transistors, and field effect transistors.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing. This course includes a series of learning activities in which students will need to use the target language in situations pertaining to their field of study, such as social interaction, finding a way to improve their oral and written expression, as well as increasing the conventional vocabulary associated to their field of study and future careers. This course requires a positive attitude towards learning from its students, as well a commitment to work in groups and continuously improve their proficiency in English.
PRE-REQUISIT: **College English Degree or English Language Center Accreditation**

SIXTH SEMESTER

CE409
MICROPROCESSOR DESIGN
The growing sophistication of electronic devices to provide a greater functionality and usability to the user, has made that the incorporation of electronic circuits, especially microprocessors, be almost universal. An important characteristic for the Cybernetic Electronics Engineer at CETYS, is the design of computer systems, and that is why this program has a series of courses that have the purpose of preparing and training the future professional in this field. The Microprocessor Design course is one of the fundamental courses that allow the Cybernetic Electronics Engineer achieve this. During the course, diverse microprocessors of 16 and 32 bits from different manufacturers will be analyzed, along with the support component families necessary for their functioning, the design of systems based on a microprocessor, together with a memory system, and an interphase system. The course has lab work, a strong emphasis is made in proving the theoretical fundamentals that will be studied throughout the course, by doing practical work at the lab. The general topics of the course are: assembly language, microprocessors, memory system, input-output system, and applications.

CE409
ANALOGUE ELECTRONICS II
An important skill for Cybernetic Electronics

Engineers at CETYS is the design of analogue circuits that is why there is a series of courses in this program that intend to prepare and train the future professional in this field. The course Analogue Electronics I, is one of the basic courses that allow the Cybernetic Electronics Engineer to achieve this. The course has lab work, a strong emphasis is made in proving the theoretical fundamentals that will be studied throughout the course, by doing practical work at the lab. During the course analogue circuits will be studied, made with transistors, but in an integrated form, better known as linear integrated circuits, as well as its electrical characteristics. Initially, class A, B, C potential amplifying circuits will be analyzed, then the characteristics and configurations of operational amplifiers like signal processing universal analogue circuits, continuing with the study and analysis of various linear integrated circuits used for filtering, for generating signals and regulating feeding sources.
The general topics of the course are: potential amplifiers, operational amplifiers, filters, signal generators, linear and commutation volt regulators.

CE411
CONTROL SYSTEMS
It is important that Cybernetic Electronics Engineering students have theoretical and practical knowledge related to Control Systems. During the course, students will be exposed to the study and theory of linear control, use of controllers in continuous and discrete processes, which include feedback control, sequential or discrete control, instrumentation fundamentals, programmable controllers, and computer process controls. The general purpose of the course is that students have the opportunity, through theoretical and practical presentations to know the different types of control commonly used, and to acquire the capacity to identify, analyze, design, and keep different process control systems. The general topics of the course are: feedback control systems, discrete process control, instrument fundamentals, and programmable controls.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

SEVENTH SEMESTER

CE412
INTERPHASE DESIGN
It is important that Cybernetic Electronics Engineering students have theoretical knowledge and the skills to design interphases on any computing system. In this course, students will be exposed to established interphase standards, but also the necessary knowledge so students can develop their own interphase. Aspects of sensors and interphases in computers´ ports will be analyzed. The diverse standards of interphases will be analyzed in a theoretical and practical way, commonly used in computers. Emphasis will be made on the design of proprietary interfaces, as well as the development of necessary software so they can be used. The course has lab work, a strong emphasis is made in proving the theoretical fundamentals that will be studied throughout the course, by doing practical work at the lab. The general topics of the course are: interface standards, programmed and demanded input-output, and instrument fundamentals.

CE401
COMPUTER NETWORKS
In this course, students will be exposed to the knowledge and main fundamentals, in a theoretical-practical way, in the field of computer networking. This course will begin from the study of the 7 layers of the OSI model and the TCP/IP model, focusing mainly in link layers, networks, and transportation. Also, the most important aspects forming local area networks LAN will be studied, as well as communication means and devices that work in these networks. The topic of metropolitan networks MAN will also be studied, and wide area networks WAN, analyzing the main equipment and routing protocols that make it possible for data packages to travel among these networks and reach their destination. Another important aspect in the course will be the study of wireless networks and also new technologies that are currently being used in computer networking, which allow us to use applications in real time for voice, telephones, videoconferencing, and other multimedia applications. During the course, one or more visits to different computing centers in local companies will be made, to analyze and know the different solutions and characteristics that form these information networks, as well as to have a more complete and updated vision of what happens in this area. In order to take this course students are required to have basic knowledge of Data Structure and Operation Systems.
PRE-REQUISITE: **CC404 Data Structure; CC406 Operating Systems**

CE414
POWER ELECTRONICS
This course provides the theoretical and practical fundamentals related to power semiconductor devices with a focus on its functioning and application of converting circuits such as: rectifiers, investors, regulators, and chippers and engine control circuits of direct and alternate current. The general purpose of this course is that students have the opportunity, through theoretical and practical presentation, to know the different types of power semiconductor devices, focused on its functioning and application. The general topics of the course are: power semiconductors, alternate current converters and cycloconverters, regulators, investors, sources, AC and DC engine controllers.

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society. First it approaches these dimensions of what constitutes man kind, and after that it considers its phenomenological expression methodically, the thematic contents of the social dimension will be linked to those historical ones, since both can be summed up as here and now.
PRE-REQUISIT:
ELECTIVE I

EIGHTH SEMESTER

CC412
DISTRIBUTED PROGRAMMING TOPICS
As part of students' professional training, this course is designed to integrate what was learned throughout this program, proving that the potential of programming grows when it is part of a system that additionally involves hardware of special or dedicated functions. The course is directed towards the integration and control of industrial processes, using the adequate hardware and software tools as well as techniques and tools for processing digital signals. The general purpose of the course is to show the use of programming for control applications in industrial processes, knowing the components of these systems with recent technologies. Throughout the course, students must acquire skills to identify and analyze the programming used in systems containing parts of the content itself. The topics to discuss are: connectivity between industrial applications, direct computer control, supervisor control systems, data acquisition (SCADA), and vision machines. The course has a practical focus towards the development of projects, concluding in a final capstone project.

CE402
COMPUTER NETWORK APPLICATIONS
This course is designed so students can put into practice the knowledge acquired in the Computing Network area, which takes into account HARDWARE aspects, as well as SOFTWARE aspects. Throughout the course, students will design and assemble all the necessary infrastructure for the good functioning of a TCP/IP network, in a practical way, considering several means of communication and the necessary equipment to configure a local area network LAN. One of the main points of this course, is that students will be able to install, in a practical way, and configure two of the main types of servers currently used (Windows server and Linux), with the main network services they offer. One of the unit of the course considers aspects, in a basic from, on the safety of computer networks, by working in a computer network environment.

CE415
MECHATRONICS
It is important that Cybernetic Electronics Engineering students have theoretical and practical knowledge regarding mechatronic systems. This course provides the theoretical and practical fundamentals related to devices and mechatronic systems with a focus on its functioning and application, providing fundamentals regarding mechanisms, and integrating the theoretical and practical knowledge acquired throughout the program in electronics and computing. The general purpose of this course is that students have the opportunity, through theoretical and practical presentations, of knowing the different types of mechatronic systems, as well as industrial robotics with a focus on their functioning and application. The general topics of the course are: introduction to industrial automation, mechanisms, kinematics and dynamics of manipulators, and capstone project.

HU402
Mankind and Ethics
Mankind and Ethics is the third of a series of three courses that CETYS has implemented in its three campuses for all college students. These courses are intended to leave a characteristic impression in all of our students through a reflection on Mankind and the way it relates to its surroundings, its past, its society, and itself. In short, this course reflects upon some of the anthropological conceptions that have taken place throughout history, in order to better understand how the image we have of mankind came to be and the way in which we perceive the world. Parting from this base we begin to accept some actions as being good or bad; this takes us to the field of personal and social values, which are assumed within certain margins of liberty, with these values we begin to accept or reject some obligations and rights we have towards others. With this said, we can conclude by recognizing the responsibility we have in the world of work, in order to establish some reflection on professional ethics.
PRE-REQUISIT:
ELECTIVE II

Industrial
Engineering

An Industrial Engineer is the professional whose main function consists on creating, operating, supervising, or improving the systems for the creation of products or services in a company. They specialize in the search and efficient managing of raw material for the manufacturing of goods, as well as in the supervision of their quality and production.

What are the career fields for an Industrial Engineer?

- Process or quality engineers in manufacture and production industries (national or transnational), such as automotive assembly, aeronautics, metal mechanics, assembly and manufacture of electronic components, and medical products.
- Directors of service companies (national or transnational).
- Consultant offices; performing counseling tasks in the creation of new businesses, the design of productive systems as well as management and logistics strategies.
- Public Organizations; performing Project administration activities, design and supervision of productive systems.
- Financial Institutions (banks, customs broker); supporting in company counseling for the efficient use of economic resources on its production systems; as well as for the economic intervention in some of its processes.
- Quality control or production manager.

¿What are the abilities you will acquire at the end of the program?

At the end of this engineering program you will be able to:

- Plan, design, integrate, operate, control, and improve productive systems.
- Develop an integral vision of the supply chain, from detection of client needs to product or service delivery.
- Determine the most adequate equipment distribution and the facilities in the design of a production system.
- Develop studies of time and movements for the efficient functioning of manufacturing processes.
- Carry out economic studies to evaluate the feasibility of manufacturing businesses.
- Develop total control quality procedures and policies, as well as to improve the quality of manufacturing processes.
- Possess an integral vision of the company that considers not only the manufacturing production and administration, but also the personnel needs and the environmental impact that could be generated.
- Design and administer production systems that respond to the company's competitiveness strategies.

What is the profile you need to study Industrial Engineering?

If this is what you want to do, then your profile as a student of Industrial Engineering must meet the following characteristics:

- Disposition and skills in Math (Algebra, Trigonometry, Geometry, and Calculus).
- Creativity, cleverness, & proposing attitude to participate in the solution of concrete problems that affect the productive activities of society.
- Interest in learning how the human activity systems function.
- Motivation towards the study of the development of new products or services and their corresponding manufacturing services.
- Ability to lead others and to work in teams.
- Willingness to improve the status quo.
- Inquisitive attitude in relation to the function of human attitude systems.

Do you want to know the courses you will take in Industrial Engineering?

This engineering program contains 42 required courses distributed throughout 8 semesters, and divided in 3 training axes:

- Common Axis
- Engineering Axis
- Industrial Engineering

Curriculum
Materias sugerida por semestre

1	MA400	Matemáticas
	CC400	Métodos de programación I
	II400	Introducción a la ingeniería industrial
	CS401	Habilidades del pensamiento
	EC400	Globalización y desarrollo económico
2	MC400	Dibujo por computadora
	MA401	Cálculo diferencial
	CC402	Métodos de programación II
	FI400	Física I
	MF400	Propiedades de los materiales
	CS403	Cultural I *
3	MA402	Cálculo integral
	FI401	Física II
	MA403	Métodos numéricos
	MF401	Manufactura de materiales
	CS400	Comunicación avanzada en español
	CS404	Cultural II *
4	MA404	Probabilidad
	MA407	Ecuaciones diferenciales
	FI402	Física III
	II401	Química industrial
	II402	Administración industrial
5	MA405	Inferencia estadística
	MA406	Cálculo multivariable
	II404	Ingeniería de métodos
	CE408	Electrónica analógica I
	ID400	Comunicación avanzada en inglés
6	II405	Ingeniería de sistemas de producción I
	II406	Ingeniería de calidad I
	II407	Modelos de investigación de operaciones I
	CS402	Metodología de la investigación
	HU400	Ser humano y medio ambiente
7	II410	Ingeniería de sistemas de producción II
	II409	Diseño de experimentos
	II410	Modelos de investigación de operaciones II
	HU401	Ser humano, historia y sociedad
		Optativa I
8	II411	Ingeniería de sistemas de producción III
	II412	Ingeniería económica
	II413	Simulación de sistemas
	HU402	Ser humano y la ética
		Optativa II

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

PRIMER SEMESTRE

MA400
MATHEMATICS
This course is offered to all students that study a Business Administration or Engineering major, in order to provide them basic mathematics that allows them to take the following math courses from their training area. The course addresses the concepts of logical mathematics in a practical way.

CC400
PROGRAMMING METHODS I
This course expects engineering students to understand and apply the basic concepts of structured programming, oriented to objects, to design algorithms and create computer programs, encouraging students to solve numerical problems, and manage characters. The course will emphasize the creation of flux diagrams, algorithms and the use of a programming language to solve practical problems. The course is designed to take students along a smooth path towards learning the Programming Methodology, following strategies for problem solution. In order to achieve this, there is a series of topics that go from simple problems to problems of medium complexity.

II400
INTRODUCTION INDUSTRIAL ENGINEERING
This course is designed to introduce first semester students to university life, and discover the surroundings regarding engineering as a career, the knowledge of the major that students have chosen as a professional career, and the acquisition of basic knowledge of some of the areas that comprise such major. Likewise, during the course, students will be provided with the introduction, necessary for the different areas by which CETYS University performs, so students make this new university theirs, and use the facilities properly and the services it offers. The knowledge and skills developed during this course will be very useful for students to better understand the program of the major they chose, the courses it comprises, the relation between them and the professional and personal profile that is expected from them when graduating.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SECOND SEMESTER

MC400
COMPUTER DESIGN
This course´s objective is for students to acquire basic knowledge that is based on engineering design, and through the use of computer aided-design (CAD) software, students can apply such knowledge in the elaboration and interpretation of prints that describe the size and shape of products, and industrial parts. The course belongs to the engineering training area, and is essential to all those majors that have to do with design and manufacturing of parts and products. Its nature is totally practical; additionally the course is carried on in a shop, where students will learn, at least, one CAD software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving the elaboration and interpretation of manufacturing prints.

MA401
DIFFERENTIAL CALCULUS
This course is a theoretical one; it will allow students the correct formulation, solution, and discussion of problems that involve derivatives of functions of one variable. Students must apply calculus of derivatives in the evaluation of optimum values of algebra and important functions. The course carries mathematics as a prerequisite, which is studied along with Physics I and is the basis for studying integral calculus.
PRE-REQUISITE:
MA400 Mathematics

CC402
PROGRAMMING METHODS II
This course is a continuation of Programming Methods I, and is oriented to completing a basic body of existing elements in Java programming language, that allows the solution of problems with a focus on objects. The course comprises the study of programming fundamentals oriented to objects, so students can solve problems creating their own classes that imply the use of arrangements, files and data structure, all this in an environment of graphic programming. Programming Methods II, is a relevant course within the engineering program, since in addition to computer programming, it is a fundamental knowledge of any engineer, it promotes analytical and creative skills in students. Furthermore, the course will be used as a base and/or tool for other courses that students will course in their program.
PRE-REQUISITE:
CC400 Programming Methods I

FI400
PHYSICS I
It is a theoretical-practical course, based on the statistics of particles and rigid solids. Practices made constitute the initial immersion of engineering students in Metrology, as well as the implementation of simple devices and the correct report of an experiment´s report. Basically, students question nature on the condition of static equilibrium and design devices to obtain such quantitative information on it. Equipment, devices, and techniques will be learned to use and apply. A pre-requisite of this course is Math, and the pre-conceptions of Physics acquired in High School.

MF400
PROPERTIES OF MATERIALS
In a basic way, this course intends to address two great areas in which the study of materials is divided: Science and Materials Engineering. Its objective is that students know and understand the scientific theories on which properties are based to apply this knowledge into the adequate selection of material given a specific application. Evidently, through this course, a materials specialist cannot be formed, however, the scientific bases on which observable properties are based on, therefore, understand the behavior of most materials and visualize their potential applications. The course belongs to the professional training area and it is a basic one within the group of courses that comprise the materials area. It is essential for those programs that have to do with problems involving the selection of materials. Its nature is theoretical and practical, since it comprises from scientific theories that relate the different levels of internal structure of materials, with observable properties in them; they encourage students to visualize the potential applications of materials basing on their properties. The knowledge and skills developed during this course will be very useful for students, to better understand and successfully perform in related courses, such as: materials manufacturing, materials mechanics, introduction to design, physical metallurgic, and in general any course within their program that involves materials in any way.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

MA402
INTEGRAL CALCULUS
This is a theoretical-practical course preceded by Math and Differential Calculus. Here students will learn and apply the concepts of antiderivative and definite integral, and they will identify the main applications related to the engineering sciences. It includes techniques for the integration of algebra and transcendental functions, as well as their applications to calculating areas and volume. This course is very linked to math, differential calculus, physics I, II, and III, multivariable calculus, differential equations, probability, statistic inference, operation research models II, and systems simulation, among others. Therefore, this is a fundamental course in students' program.
PRE-REQUISITE:
MA400 Math
MA401 Differential Calculus

FI401
PHYSICS II
Throughout the course, the kinematics and dynamic effect is studied, resulting in two- and three-dimension systems of force acting on a particle. The general topics of the course are: kinematics of particles, energy conservation, work and amount in motion. At the end of the course, students will acquire skills, attitudes, abilities, and essential knowledge for the design and manufacturing motion systems that are useful for the practice of engineering.
PRE-REQUISITE:
FI400 PHYSICS I

MA403
NUMERICAL METHODS
This course is included in Mechanical, Manufacturing, Industrial, Cybernetic Electronics, and Computer Science Engineering. Its objective is the establishment of a platform of theoretical and application knowledge for the solution of problems presented in the engineering area in any of its fields; such problems can be presented in electronic applications, models, and system simulation, finite models, heat transference, chemistry, marketing, and economics, among others. During the course, the following topics will be studied: solution of root equations, roots of polynomials, linear equation systems, curve fitting for linear regression and linear interpolation, and minimum squares, as well as diverse methods for the process of numerical integration. The solution to these problems will be based on non-traditional methods and oriented to the use of computers as a tool of great use.
PRE-REQUISITE:
MA400 Math
CC400 Programming Methods I
CC402 Programming Methods II

MF401
MATERIALS MANUFACTURING
This course´s basic objective is the study and comprehension of one of the fundamental stages in a life cycle of a product: the transformation processes of raw matters in useful products. The most common industrial materials are studied, their obtaining, processes and properties until becoming finished products. With the acquired knowledge, students will understand a great variety of processes through which the greater parts of products with which we interact in our daily lives are obtained. In order to study this course, it is very important to have previous knowledge of science and materials engineering, additionally, it is of great help any knowledge and experience regarding the transformation processes. The knowledge and skills developed in this course will be very useful for students to better understand and successfully perform in courses related to the design of manufacturing products, such as computer manufacturing, manufacturability, product design, and in general, any course within their program involving in any way materials and their transformation to useful products.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

CS404 Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.
Musical Appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music. Visual Arts this course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.
Literature
This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life.
Performing Arts
This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Cultural I

FOURTH SEMESTER

MA404
PROBABILITY
This course reviews the basic axioms and the fundamental models of probability for the analysis of a random behavior of variables in engineering systems. The concept of math expectation and its applications in decision-making is included. This course is placed on the 4th semester of the program and is required for the area of statistical inference in 5th semester. The course is closely related to those specific to specialty courses where random treatment processes are required, industrial engineers, in particular will be required to take the following courses: quality engineering, operations research models II, design of experiments and simulation.

MA407
DIFFERENTIAL EQUATIONS
In this course, engineering students are exposed to reasons of change and differential equations, identifying and applying their analytical solution methods to model the dynamic behavior of natural and artificial systems related to the field of engineering. Specifically, the course includes the study of different solution methods for differential equations of first order, solution methods for linear differential equations of higher order with constant coefficient and the use of Laplace for its solution.

FI402
PHYSICS III
This is a theoretical-practical course; students will receive the knowledge, skills, abilities, and attitudes required as the fundamentals of electromagnetism. During the course, students solve problems, develop lab practices, implement simple devices, and develop projects. This course is associated to Physics I, and II, which are pre-requisites. It is also related to specialized courses that involve presence at the lab to make measurements with a multimeter and an oscilloscope.
PRE-REQUISITE:
FI401 Physics II

II401
INDUSTRIAL CHEMISTRY
It is about placing students in the field of chemistry, and realizing there are basis to understand the chemical phenomena, the natural ones, as well as those induced by men for their benefit, as it can be seen in metamechanical industries, electronic assembly, automotive, medical products, among other industries. The course is placed within the training area in Industrial Engineering, however, many of the fundamentals must be rescued from courses studied in high school, and particularly, the use of material properties, delivered at a college level, that will facilitate the understanding of the behavior of materials, such as metals and plastics. The course will address basic math applied to chemistry that will allow chemical processes from a quantitative point of view. Substances, in their different states of physical aggregation and their chemical behaviors before different physical-chemical conditions will be studied. The equilibrium and kinetics aspects in chemical reactions are contemplated. Finally, students will get to know the performance on chemistry in industries that are currently present in the region, like the management of dangerous substances, plastics, electrochemical processes, and last, but not least, pollution problems in our environment are also considered. In order to get students to develop skills and get acquainted with chemistry management techniques, lab practicum will be carried on, based on theoretical topics discussed in class; in addition, as part of students' training, research work will be scheduled on properties, applications, and processes of the most representative chemical products.

II402
INDUSTRIAL ADMINISTRATION
In this course, students will learn the different concepts and models of strategic management used to achieve competitiveness in industrial organizations. The course addresses the fundamental concepts, external and internal analysis of the environment to later analyze the corresponding strategies. The course also covers different aspects related to the implementation of strategies, especially those related to the implications of organizational structures and internal control. Students will learn the fundamental concepts in the strategic management field, through groups of readings, revision and exposition of concepts by students, as well as through the solution of study cases in group work, using an effective process of case analysis.

FIFTH SEMESTER

MA405
STATISTICS INFERENCE
In this course, students will be exposed to the fundamental concepts of classical statistics, seen as analysis and synthesis tools of information to facilitate decision-making in planning, design, operation and systems control of their interest. During the course, students will develop skills to identify opportunities to apply these concepts, by making and solving the corresponding inference problems. In order to show mastery of the course, they will develop a capstone project that consists of making and solving statistic inference problems of their interest. This course recovers from Probability, the basic axioms of probability and concepts of random variables, distribution of probability, math expectations and variance, while the math courses deal with concepts of fusion and differential and integral calculus of one or two independent variables. From this point in the program, the course will be closely linked to experiment design, operations research models II, system simulation, software development process, artificial intelligence I, and the production systems engineering courses.

MA406
MULTIVARIANT CALCULATION
In this course, students will develop knowledge, skills, and abilities required to solve problems that involve more than one independent variable, derivatives, and integrals. Likewise, they will manage and pose problems involving parametric and polar equations in their description.
PRE-REQUISITE:
Differential Calculus
MA402 Integral Calculus
CC400 and CC402 Programming Methods I and II.

II403
INDUSTRIAL ELECTRONICS
This course expects Industrial Engineering students to know and understand the functioning of different electronic devices, analogue and digital, in order to make a theoretical-practical study of its application in industry. The general topics of the course are: electric circuits, semiconductor devices, operational amplifiers, digital systems, and programmable controller fundamentals.

II404
METHODS ENGINEERING
In this course, students will be exposed to the fundamental concepts and techniques of Methods Engineering used to increase productivity in organizations. The course addresses different register and analysis techniques to improve or design working processes in manufacturing and service companies. The course also comprises different tools to determine the size of time that processes and working methods take. During the course, students will develop skills that allow them to analyze and document manufacturing and service processes, through the most adequate register and analysis techniques that take them to identify opportunity areas and make improvement proposals of these processes. In order to prove mastery of the course, they will make a capstone project that consists of identifying, analyzing, and improving a methods engineering process.
PRE-REQUISITE:
MA404 Probability
MA405 Statistics Inference

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT: **College English Degree or English Language Center Accreditation**

SIXTH SEMESTER

II405
PRODUCTION SYSTEMS ENGINEERING I
In this course, students will know the activities made in the production systems area, in organizations that face global markets, where the clients and providers are companies located in any part of the world. Special emphasis is made on the dynamism of markets and the sudden changes in the taste of potential clients, and in the actions that must be developed to respond, in time, to the demands of international competition. In this course, methodologies for product design and services will be analyzed, localization and design of facilities, selection of process technology, and design of physical distribution processes that form the operation strategy in this important area of Modern Administration.

II406
Quality Engineering I
In this course, students are exposed to the fundamental principles and concepts of Quality Engineering, mainly, statistic models that are used to improve the quality of products and processes. During the course, students will develop skills to apply statistic models of quality engineering to problems and situations in manufacturing and service organizations, to control and improve the quality of their products and processes. In order to show mastery of the course, students will make a capstone project, consisting in the formulation and solution of a problem to improve the quality of a product or process, using methodology common to quality standards developed in the course: Six Sigma, for example. This course recalls the course of Probability, the concepts of random variable, and probability distributions, while the inference statistics course, considers mainly the concepts of interval estimation and hypothesis. Likewise, the application of different experimental designs from the course experiment design is recalled, in order to combine them with quality engineering methodologies in problem solution.
PRE-REQUISITE:
MA400 Mathematics
MA401 Differential Calculus
MA402 Integral Calculus
MA404 Probability
MA405 Statistics Inference
CC400 Programming Methods I
CC402 Programming Methods II

II407
OPERATION RESEARCH MODELS I
In this course, students from the Industrial Engineering program are exposed to

techniques and deterministic models of Operation Research (IO), also called Scientific Administration, and its work methodology and focus to optimize the functioning of the human activity systems. These systems integrate people, raw matter, machines, facilities, financial resources, and energy to produce goods and/or services in an optimal and competitive way. They seldom take the shape of manufacturing organizations (plant operations) and/or services (finances, entertainment, telecommunications, health, education, government, military/security, commerce, transportation, and consulting). The IO is a basic tool for Industrial Engineers, the course expects students to acquire an activity of search for what is optimal, once they have identified the satisfactory performance of a system of human activity, and they can describe such performance in a quantitative way through one or more yield measures. Under this focus of improving only what is measurable, students will be exposed to the fundamentals, but especially the application of Linear Programming, the Revised Simplex Method and its variables, the Theory of Duality, Essential Problems of Linear Programming (Assignation, Transportation, and Transshipped) and the new deterministic optimization new techniques (genetic algorithms, evolution strategies, Taboo search, etc.). This course emphasizes the fundamentals and applications of Math Programming. Throughout the course, students will exercise their communication skills to present information and alternatives of deterministic problem solution of operations research with a focus on optimization. It is also sought that students develop a skill to work in interdisciplinary groups, and that they learn to use the operations research method with support of software dedicated to this area to solve structured optimization problems. In order to prove the mastery of techniques and IO models, students will make a capstone project on a real system, and they will document the results in a written report, out of which an executive presentation will be made at the end of the course. This project will be made in groups. In order to achieve an adequate performance in this course, students must possess previous knowledge on fundamentals of differential calculus and linear algebra. Students are specifically required to know how to solve maximum and minimal problems of an independent variable, graph inequations and inequation systems, as well as solving linear equation systems using the Gauss-Jordan method.

PRE-REQUISITE:

MA404 Probability

CS402

Research Methodology

This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

HU400

Man and Environment

This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

SEVENTH SEMESTER

II408

PRODUCTION SYSTEMS ENGINEERING II

This course is designed for Industrial Engineering students, so they know the activities carried on in the areas of planning, demand, materials control, and production control, in organizations that face global markets, where the clients and providers are companies located in any part of the world; in order to satisfy them, a balance of inventories is fundamental, therefore, emphasized in this course. Special emphasis is made on the dynamism of markets and the sudden changes in the taste of potential clients, and the actions that must be developed to respond, in time, to the demands of international competition. The course develops, under a methodology strongly oriented to activities carried on in plants, that will demand from students' skills to relate themselves with the production sector efficiently. This course is an indispensable requisite to study any course of the specialized area chosen by students.

PRE-REQUISITE:

II407 Operation Research Models I

II409

EXPERIMENT DESIGN

In this course, the principles of statistic experimental design are revised, its analysis, as tools for decision-making in the design and improvement of processes, through the detection of relations between the variables involved in them. The course is placed in the seventh semester of this program, and is related to the Probability course in 4th semester, Statistics Inference from 5th semester, and Quality Engineering I from sixth semester. Because of its essence regarding experimentation, it is also related to Simulation in the 8th semester. It is a theoretical-practical course that requires an active participation from students in solving exercises and in the application of the techniques studied in class to real problems or situations.

PRE-REQUISITE:

MA404 Probability CC404

II410

OPERATION RESEARCH MODELS II

This is a theoretical-practical course; it requires students to have knowledge in Probability, specially the topics of conditioned probability, exponential distribution, Poisson distribution, and expected values. Another pre-requisite course is Statistics Inference, especially the topics of parameter estimation, hypothesis, and the goodness of fit test. For Markovian Chains the Math course is required, mainly in the topic of operations with matrix. Also the concept of optimization and management of linear programming, like WinQSB software or higher in characteristics of quality and results. This course is of vital importance for the development of a daily practice of Industrial Engineering, for it is wrongly related to the analysis of processes and correct decision-making.

PRE-REQUISITE:

II407 Operation Research Models I

HU401

Man, History and Society

This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society. First it approaches these dimensions of what constitutes man kind, and after that it considers its phenomenological expression methodically, the thematic contents of the social dimension will be linked to those historical ones, since both can be summed up as here and now.

PRE-REQUISIT:

ELECTIVE I

EIGHTH SEMESTER

II411

PRODUCTION SYSTEMS ENGINEERING III

Throughout this course, the processes, concepts and methods for the correct management and control of valid manufacturing operations in industries will be studied, as well as providing goods and services. The focus goes from manufacturing oriented to high technology, to high quality services. The course is oriented to the analysis of cases and real situations taken from the regional production sector.

PRE-REQUISITE:

II407 Operations Research Models I

II412

ENGINEERING ECONOMICS

This course is oriented to a quantitative analysis of investment alternatives presented in organizations, either manufacturing or services, in a way that such analysis guarantees the selection of the most profitable alternatives that maximize the benefit of the investment. During the course, students will develop skills to apply the engineering models for the evaluation of projects and investment alternatives that must me made to solve problems and situations in manufacturing and service organizations, in order to optimize decision-making in these cases. In order to show mastery on the subject, students will make a capstone project that consists of the formulation, and technical and economical feasibility test of an investment project that solves a manifested need.

PRE-REQUISITE:

MA401 Differential Calculus
MA402 Integral Calculus

II413

Systems Simulation

In this course, students will apply the simulation tool, based on its design and methodology analysis, in order to study existing or proposed systems to know and improve their behavior. During its development, models based on discrete simulation will be created, supported by specialized software. The course is developed using theoretical development and case analysis of different topics that allow students to pose, solve, discuss, and revise previous conditions of operations of real situations before setting off the proposed operations.

HU402

Mankind and Ethics

Mankind and Ethics is the third of a series of three courses that CETYS has implemented in its three campuses for all college students. These courses are intended to leave a characteristic impression in all of our students through a reflection on Mankind and the way it relates to its surroundings, its past, its society, and itself. In short, this course reflects upon some of the anthropological conceptions that have taken place throughout history, in order to better understand how the image we have of mankind came to be and the way in which we perceive the world. Parting from this base we begin to accept some actions as being good or bad; this takes us to the field of personal and social values, which are assumed within certain margins of liberty, with these values we begin to accept or reject some obligations and rights we have towards others. With this said, we can conclude by recognizing the responsibility we have in the world of work, in order to establish some reflection on professional ethics.

PRE-REQUISIT:

ELECTIVE II

Digital Graphics Design Engineering

Graphics Design Engineers are professionals with an international formation in the basic areas of engineering and a specialization in design. They master every 2D or 3D visual environment. Using technology as a basic tool, they are a solid support in the digital era for any organization and its global projection. They are specialized in the development of digitally applied images and sustained in the creative process, providing value and highly qualified results in the aesthetic-functional sense of each objective.

What are the career fields for a Digital Graphics Design Engineer?

- Creative Director in companies dedicated to special effects for TV and the movies.
- Office of virtual scale modeling.
- Visual electronics communication.
- Global image and corporative identity manual
- 3D Architectural or interior design
- Independent graphics design consultant
- Software creator
- Multimedia and video producer in organizations.

What are the abilities you will acquire at the end of the program?

At the end of this engineering you will be able to:

- Develop digital advanced communication models
- Formulate criteria based on analysis and visual perception
- Implement organization culture based on high communication
- Formulate organizational visual communication schemes
- Plan, analyze, and implement didactic systems
- Develop information systems and databases for decision making
- Design and implement networks as well as graphics systems establishing sophisticated communication.

What is the profile you need to study Digital Graphics Design Engineering?

If this is what you want to do, then your profile as a student of Digital Graphics Design Engineering:

- Dedication in the study of Physics and Mathematics areas
- Development of interpersonal abilities
- Ability to learn to work in interdisciplinary teams
- Dedication to study
- Abstraction and Analysis ability
- Drawing skills
- Fond of art
- Fond of desk work

Do you want to know the courses you will take in Digital Graphics Design Engineering?

This engineering contains 42 required courses distributed throughout 8 semesters, and divided into 3 training axes:

- Common Axis
- Engineering Axis
- Digital Graphics Design Engineering Axis.

Curriculum

Materias sugerida por semestre

1	DG400	Introducción a IDGD
	CC400	Métodos de programación I
	MA400	Matemáticas
	MC400	Dibujo por computadora
	CS401	Habilidades del pensamiento
2	CC402	Métodos de programación II
	MA411	Temas selectos de matemáticas I
	DG431	Estilos contemporáneos
	DG432	Dibujo natural
	CS400	Comunicación avanzada en español
	CS403	Cultural I *
3	MA412	Temas selectos de matemáticas II
	CC416	Programación multimedia
	DG433	Composición visual
	DG442	Ilustración y animación en dos dimensiones
	ID400	Comunicación avanzada en inglés
	CS404	Cultural II *
4	DG441	Metodología del diseño
	FI403	Física conceptual
	CC421	Gráficas computacionales
	DG434	Tipografía general
	CC403	Sistemas y componentes computacionales
5	DG435	Manual de imagen global
	DG436	Fotografía digital
	CC404	Estructura de datos
	MA413	Probabilidad y estadística
	EC400	Globalización y desarrollo económico
6	SI403	Bases de datos
	DG437	Diseño para medios electrónicos
	MK400	Administración de mercadotecnia
	CS402	Metodología de la investigación
	HU400	Ser humano y medio ambiente
7	DG418	Producción de videos
	DG438	Modelado digital
	CC406	Sistemas operativos
	DG419	Multimedia
	HU401	Ser humano, historia y sociedad
8	DG420	Animación en tercera dimensión
	CE417	Redes y transmisión de datos
	DG439	Comercio por internet
	DG440	Desarrollo estratégico de negocios
	HU402	Ser humano y la ética

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

DG400
INTRODUCTION TO DIGITAL GRAPHIC DESIGN ENGINEERING
The Computer Design course expects students to acquire basic knowledge that is based on engineering design, and, through the use of CAD software, they apply this knowledge in the elaboration and interpretation of prints describing the size and shape of products and industrial parts. The course belongs to the engineering training area and is essential to all those programs that have to do with the design and manufacturing of products and parts. Its nature is totally practical, and in addition, the course has a shop where students can learn at least one computer design software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving in any way the elaboration and interpretation of manufacturing prints.

CC400
PROGRAMMING METHODS I
This course expects engineering students to understand and apply the basic concepts of structured programming, oriented to objects, to design algorithms and create computer programs, encouraging students to solve numerical problems, and manage characters. The course will emphasize the creation of flux diagrams, algorithms and the use of a programming language to solve practical problems. The course is designed to take students along a smooth path towards learning the Programming Methodology, following strategies for problem solution. In order to achieve this, there is a series of topics that go from simple problems to problems of medium complexity.

MA400
MATHEMATICS
This course is offered to all students that study a Business Administration or Engineering major, in order to provide them basic mathematics that allow them to take the following math courses from their training area. The course addresses the concepts of logical mathematics in a practical way.

MC400
COMPUTER DESIGN
This course´s objective is for students to acquire basic knowledge that is based on engineering design, and through the use of computer aided-design (CAD) software, students can apply such knowledge in the elaboration and interpretation of prints that describe the size and shape of products, and industrial parts. The course belongs to the engineering training area, and is essential to all those majors that have to do with design and manufacturing of parts and products. Its nature is totally practical, additionally, the course is carried on in a shop, where students will learn, at least, one CAD software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving the elaboration and interpretation of manufacturing prints.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

SECOND SEMESTER

CC402
PROGRAMMING METHODS II
This course is a continuation of Programming Methods I, and is oriented to completing a basic body of existing elements in Java programming language, that allows the solution of problems with a focus on objects. The course comprises the study of programming fundamentals oriented to objects, so students can solve problems creating their own classes that imply the use of arrangements, files and data structure, all this in an environment of graphic programming. Programming Methods II, is a relevant course within the engineering program, since in addition to computer programming, it is a fundamental knowledge of any engineer, it promotes analytical and creative skills in students. Furthermore, the course will be used as a base and/or tool for other courses that students will course in their program.
PRE-REQUISITE:
CC400 Programming Methods I

MA411
SELECT MATH TOPICS I
In this course, students acquire skills, abilities, and the necessary knowledge for a Digital Graphic Design Engineer to allow them to formulate correctly algorithms and operations in graphical notation or wooded notation. This course also studies the calculation of area and volume using Integral Calculus, compared to other more simple quantification methods.

DG431
CONTEMPORARY STYLES
This is a theoretical course placed in the second semester, which intends to analyze the different theoretical-artistic postures of modern and contemporary art, as well as the way they contribute to the development of a graphic design discipline.

DG432
NATURAL DESIGN
A course formed by a structure of theoretical-practical knowledge. Students will classify and illustrate the different elements of natural design, achieving the development of skills and abilities through the identification of the most relevant techniques for the expression and interpretation of visual contexts, applying solid arguments in the projection of specific concepts.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

MA412
SELECT MATH TOPICS II
This course introduces Digital Graphic Design Engineering students to the group of knowledge, skills, and abilities required in order to optimize the functions of a variable and calculate area and volume of simple geometry by using basic notions of Integral and Differential Calculus. Likewise, students will structure and present ideas that require posing a wooded formulation, or a graphs type. The course demands from students previous algebra knowledge, groups theory, and counting techniques. Within the Math training area this is a specialized course and it goes by the hand of Conceptual Physics.

CC416
MULTIMEDIA PROGRAMMING
This is a practical course that will train students to develop animation applications where they will apply their knowledge in science, math, physics, and programming. This course is placed in the engineering training area and has pre-requisite courses like Programming Methods I and II. Students will use the language Action Script (Macromedia), a variety of Java, for the elaboration of examples.

DG433
VISUAL COMPOSITION
The course projects students' bases on the definition of a fundamental structure in the social theory of design. It is delivered in the third semester of Digital Graphic Design Engineering and will be a solid platform during their professional training. The course has a theoretical-practical nature and is directly related to all the courses from the design training area. Students develop skills like creativity, perception of forms, in addition to an acute criterion in the basic elements and fundamentals of design.

DG442
2D ILLUSTRATION AND ANIMATION
This is a theoretical-practical course that will allow students to know, identify, and develop styles and techniques for two-dimension illustration and animation, in applicable projects of their specialized area. It has a high impact on the rest of the program, since the demand and experiences acquired throughout the course, as well as the management of 2D, will allow students to broaden their knowledge area, so they can apply this to other aspects of their profession.

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.
Musical Appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music.
Visual Arts
This course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.
Literature
This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life.
Performing Arts
This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Cultural I

FOURTH SEMESTER

DG441
METHODOLOGY DESIGN
A curricular course in the fourth semester of DGDE; it is a theoretical-practical course that has the purpose of developing creative and analytical skills in students, generating an intuitive process of fine design. Students will work on an activity program to develop the design process on the basis of choosing strategies and methods to solve visual communication problems.

FI403
CONCEPTUAL PHYSICS
In this course, students develop a total of three projects of Applied Physics in the areas of mechanical, optics, and acoustics that allow them to implement whole solutions to problems regarding their area. Students can freely select between focusing their project on the following areas: ambience, simulation or virtual prototype manufacturing. Skills in Java programming and management of algebra and arithmetic s are required. The course relates to Math Topics, where students have developed skills to make projects in a clear and acceptable way, as well as in Programming, where they have acquired the sufficient digital skills to solve

problems with the computer, and the correct posing of algorithms. In this course, students are encouraged to research in trustworthy sources the basic principles and concepts managed throughout the course, and a sense of internationalization is strengthened through the analysis of the work developed in other places of the world.

CC421
COMPUTER GRAPHS
Students will learn to manage linear algebra tools to create 2 and 3 dimension graphs in the computer. By understanding the bases of graphs programming, students will understand and master design software that creates and manipulates graphs. At the end of the course, students will be trained to carry on the design and construction of graphic computer systems in window programming with a language oriented to objects, through the development of theoretical-practical activities posed by the instructor.

DG434
GENERAL TYPOGRAPHY
It is a theoretical-practical course that describes two relevant typographic factors and their relation to editorial design. It is delivered in the fourth semester of DGDE and it is a fundamental course that complements the editorial focus through a typographic vision, from Gutenberg, the typographic families, to modern sources. Students are presented with technical basic, functional and esthetical knowledge of typography. It shows the interdependence of letter design with application techniques, written or printed, it develops a critical capability to analyze and conceptualize the forms according to content and context.

CC403
Computer systems and components
This course expects students to know and understand the diverse hardware elements that compose a computer, as well as its organization and interaction with its different software elements. The general topics of the course are: introduction to computer organization, numerical systems, data representation, digital computers, computer systems and peripherals, installation, and service.

FIFTH SEMESTER

DG435
GLOBAL IMAGE MANUAL
This course is delivered in the fifth semester of DGDE; students already have the sufficient theoretical and practical bases of visual composition, in addition to a good typographic level. It is a course that concretizes the principles of graphic design through applied semiotics and an organized system of identity signs, becoming part of a communication and commercial interrelation strategy. Knowing that an image is a relevant part in all global contexts nowadays, students will know the parameters and diversity of its application in all sectors, analyzing the current demand and proposing a visual innovation in its definition.

DG436
DIGITAL PHOTOGRAPHY
This course promotes photography as an essential tool of digital design, within an image's context, digital photography is nowadays the most sought image in the visual sector and the most important element in digital industry and its variables. The manipulation of digital images, as well as their effective projection, is a determining factor for Digital Graphic Design Engineers, and their field of action in multimedia or traditional design, to all its commercial applications.

CC404
DATA STRUCTURE
This course addresses aspects related to the development of programs from an efficient point of view. Different forms of data organization are analyzed, as well as related algorithms. Each different form of organization carries a cost in computer resources, in a way that the form of studying such costs is assessed. Data organizations are defined as types of abstract data, which are implemented in a programming language oriented to objects. This is a classical fundamental course in Computer Science, and required in all programs within this area. The importance that this has in CETYS University´s programs, is to be a base for students, indispensable to study latter courses, such as, manufacturing, operation systems, data base, advanced programming, networks, and in general, advanced programming topics.

MA413
PROBABILITY AND STATISTICS
Statistics provide indispensable tools for gathering, treating, and analyzing relevant and pertinent information, that any decision-making process requires in order to be effective. With the current support offered by computerized systems, statistics has stopped being a field only for specialists or for high budget companies. Nowadays, businesses and individuals can make successful statistic studies, regardless of the branch of knowledge it is about, it is applied to engineering, administration, and businesses, as well as in social science areas. This course implies having a theoretical and practical training, where three fundamental areas are included: descriptive statistics and inferential statistics, both related due to the theory of probability. Statistics is part of a basic knowledge core that all professionals must have, and its content becomes an indispensable support for the rest of the courses that are part of the program, particularly for a student from DGDE; this course allows the understanding of the methodological procedure in market research, from choosing a sample or consultation source, until the processing of gathered information and a conclusion with statistic validity, all directly related to marketing and its application to visual means.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SIXTH SEMESTER

SI403
DATA BASES
Students from computing programs will be exposed to the concept of data bases, from a theoretical-practical perspective, since they will put into practice their knowledge on the course through SQL- Structured Query Language and to design as a capstone project a Data Base. The course is divided in four parts. The fundamentals theory on data bases will be studied, with general data, as well as the semantic model Entity/Relation. The second part studies in detail the relational model as a theoretical base for most current data base systems. The third part studies the logical design of a data base using the normalization process. And last, the fourth part studies the SQL standard language for the exploitation and use of relational data bases. This is a fundamental course for students studying computing programs, since data bases are an indispensable element in all information systems. In order to study this course, students are required to have basic Data Structure knowledge, theory of systems, and information systems; additionally, they are required to know programming in any application development language like C# or Java.

DG437
ELECTRONIC MEANS DESIGN
Students will know and understand the basic elements of current electronic means, as well as programs and systems that allow the publishing in digital means. Students will know how to apply the fundamentals of graphic design in digital publishing in a professional way, thus using programs adequately for the development of digital publishing.

MK400
Marketing Administration
The Marketing Administration course is a theoretical-practical course where students learn the fascinating world of Marketing. They will learn the definition of Marketing, its reach and its application in companies working in the market. They will learn and develop a Marketing mix to solve problems in the different branches of business.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

SEVENTH SEMESTER

DG418
VIDEO PRODUCTION
This is a theoretical-practical course; it has pre-requisite courses like Electronic Means Design, as well as common core courses. Students are expected to acquire skills and abilities to create a production using digital resources. A high initiative is also expected, discipline, and willingness to work in teams, as well as strong commitment to work in a coordinated, orderly, systematic, and punctual way, to obtain high quality products in determined periods.

DG438
DIGITAL MODELING
This is a theoretical-practical course; it has pre-requisite courses like Conceptual Physics, Illustration, 2-Dimension Animation, Visual Composition, and is simultaneous to Video Production. Students are expected to acquire abilities and skills to professionally edit a digital product virtually materializing background, shapes, and objects. Students are expected a high level of creativity, discipline and willingness to work in teams, as well as strong commitment to work in a coordinated, orderly, systematic, and punctual way, to obtain high quality products in determined periods.

CC406
OPERATING SYSTEMS
The focus is to continue through a conceptual analysis of the components of any operating system: processes, memory, synchronization mechanisms, blocking, input and output devices, and files systems. On the practical side, students will develop programs using Java programming language in a UNIX operating system, or a similar one.

DG428
Multimedia
One of the most innovative disciplines in graphic design is multimedia, due to the confluence of different supports into a same visual communication project. Thus, this course unfolds a series of contents that will help develop complex designs that involve the latest range of digital technology.
Through this course students will acquire graphic design proposals skills towards different applications, from audiovisual presentations, websites enriched with animation and sound, to kiosks and collective programs.
This course fosters the experimentation of creative and design processes that lead to the creation of graphic communication products by using digital tools. The course program is designed to satisfy the technological needs of new trends on design, image and sound. Students need previous knowledge on typographic mastery, color psychology, photography, illustration, as well as the manipulation of images in Photoshop, Freehand or Illustrator.

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society. First it approaches these dimensions of what constitutes man kind, and after that it considers its phenomenological expression methodically, the thematic contents of the social dimension will be linked to those historical ones, since both can be summed

up as here and now.

EIGHTH SEMESTER

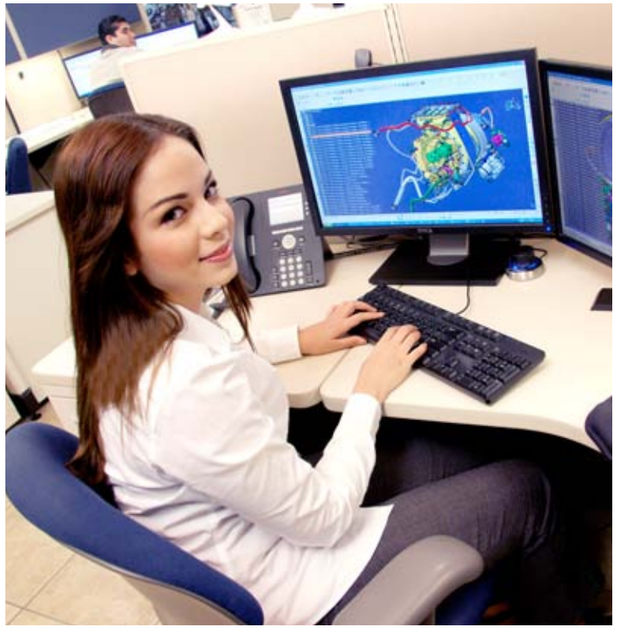
DG420
3-D ANIMATION
A theoretical-practical course, it has pre-requisite courses like Conceptual Physics, Illustration, 2D Animation, Visual Composition, Digital Modelling and Multimedia. Students are expected to acquire skills and abilities to digitally manipulate any 3D object, thus generating prototypes compatible to natural objects, from a virtual focus. Students are expected a high level of creativity, discipline and willingness to work in teams, as well as strong commitment to work in a coordinated, orderly, systematic, and punctual way, to obtain high quality products in determined and reasonable periods by working with local platforms like the internet.

CE417
NETWORKS AND DATA TRANSMITION
In this course, students will be exposed to the knowledge and main fundamentals, in a theoretical-practical way, in the field of computer networking. This course will begin from the study of the 7 layers of the OSI model and the TCP/IP model, focusing mainly in link layers, networks, and transportation. Also, the most important aspects forming local area networks LAN will be studied, as well as communication means and devices that work in these networks. The topic of metropolitan networks MAN will also be studied and wide area networks WAN, analyzing the main equipment and routing protocols that make it possible for data packages to travel among these networks and reach their destination. Another important aspect in the course will be the study of wireless networks and also new technologies that are currently being used in computer networking, which allow us to use applications in real time for voice, telephones, videoconferencing, and other multimedia applications. During the course, one or more visits to different computing centers in local companies will be made, to analyze and know the different solutions and characteristics that form these information networks, as well as to have a more complete and updated vision of what happens in this area.

DG439
E-COMMERCE
This theoretical-practical course has pre-requisite courses like Research Methodology, Multimedia Programming, Multimedia, Operating systems, and Marketing Administration. Students must be capable of making a feasible business proposal regarding the market and commercial aspects to work in cyberspace. Students are expected a high level of creativity, discipline and willingness to work in teams, as well as strong commitment to work in a coordinated, orderly, systematic, and punctual way, to obtain high quality products in determined and reasonable periods by working with local platforms.

DG440
Strategic Business Development
This course is practical and theoretical, and its previous requirements are the courses of research methodology, programming in Multimedia, Multimedia, and marketing management. The student should be able to sustain the viability of a business, defining the aspects that allow survival in an environment of competition. Expectations from the student: a high level of creativity, discipline and willingness to work as a team, as well as a strong commitment to the timely and correct interpretation of universally accepted business indicators.

HU402
Mankind and Ethics
Mankind and Ethics is the third of a series of three courses that CETYS has implemented in its three campuses for all college students. These courses are intended to leave a characteristic impression in all of our students through a reflection on Mankind and the way it relates to its surroundings, its past, its society, and itself. In short, this course reflects upon some of the anthropological conceptions that have taken place throughout history, in order to better understand how the image we have of mankind came to be and the way in which we perceive the world. Parting from this base we begin to accept some actions as being good or bad; this takes us to the field of personal and social values, which are assumed within certain margins of liberty, with these values we begin to accept or reject some obligations and rights we have towards others. With this said, we can conclude by recognizing the responsibility we have in the world of work, in order to establish some reflection on professional ethics.



Mechatronics Engineering

The Mechatronics Engineer is the professional capable of solving problems of manufacturing processes control, managing material, automating processes for the massive manufacturing of products, or for the execution of tasks that require high precision through the application of sensor, mechanical devices, computer aided design, and system analysis.

What are the career fields for a Mechatronics Engineer?

- Raw material transformation industries (public or private) such as automotive assembly, aeronautics, metal-mechanics, electronic components assembly or manufacture, biotechnology, plastic products elaboration, food, textile, and medical equipment performing tasks such as: robotics development; systems design and mechatronics products for agile and lean manufacturing; integration of electronics, hydraulic, pneumatic, and sensor devices and actuators to programmable computer interfaces for manufacturing systems; computer network systems design, and integration in manufacturing and services areas.

- Consulting office (own or of an established firm), developing counseling in design, operation, and investment in the use of technology to increase efficiency, quality, and competitiveness in businesses.

- Higher education or research institutions by carrying out studies on technology development and application.

What are the abilities you will acquire at the end of the program?

At the end of the Mechatronics Engineering program you will be able to:

- Project and execute the manufacturing of electronic machinery and its components or devices.

- Analyze, assess, and execute different automated systems involving electronic equipment in industrial plants.

- Master specialized software for the design and operation of devices, machines, mechanisms, and tools.

- Design, select or modify alternatives to automated manufacturing in a production system.

- Look for and analyze options to increase the efficiency in the equipment and machinery performance, to reduce cost in its operations, or to improve the security of their users.

- Design electronic circuits, and robotized devices to perform mechanical tasks that require high precision or extreme speed.

- Develop intelligent systems, manipulators, sensors, and other technological tools.

- Generate man-machine or machine-man interfaces.

What is the profile you need to study Mechatronic Engineering?

If this is what you want to do, then your profile as a student of Mechatronics Engineering must meet the following characteristics:

- Willingness to learn about the application of exact sciences (Physics and Mathematics) and technology (Electronics and Computing).
- Abilities for logical, analytical, and practical reasoning.
- Audacious attitude to experiment with technology and mechanical devices.
- Ability to work with computer tools.
- Creativity and a proposing attitude to participate in the solution of concrete problems that affect the society's productive activities.
- Willingness to work in multidisciplinary teams.
- Willingness to improve the status quo.
- Interest in the resolution of problems related to the processes and equipment involved in product manufacturing.
- Desire to expand the use of technology for the society welfare.
- High sense of responsibility and commitment towards your community.

Do you want to know the courses you will take in Mechatronic Engineering?

This engineering program contains 42 required courses distributed throughout 8 semesters, and divided into 3 training axes.

- Common Axis
- Basic Engineering Sciences Axis
- Mechatronics Engineering Axis

Curriculum

Materias sugerida por semestre

1	MA400	Matemáticas
	CC400	Métodos de programación I
	CE058	Introducción a la mecatrónica
	CS401	Habilidades del pensamiento
	CS400	Comunicación avanzada en español
2	MC400	Dibujo por computadora
	MA401	Cálculo diferencial
	CC402	Métodos de programación II
	FI400	Física I
	MF400	Propiedades de los materiales
	CS403	Cultural I *
3	MA402	Cálculo integral
	FI401	Física II
	MA403	Métodos numéricos
	MF401	Manufactura de materiales
	MC402	Mecánica de materiales
	MF402	Fabricación por computadora
4	MA404	Probabilidad
	MA407	Ecuaciones diferenciales
	FI402	Física III
	MC402	Mecánica de materiales
	MF402	Fabricación por computadora
5	MC415	Introducción al diseño
	MA406	Cálculo multivariable
	MC410	Dinámica de mecanismos
	CE059	Sistemas electrónicos I
	EC400	Globalización y desarrollo económico
6	MC407	Electroneumática e hidráulica
	CE060	Sistemas electrónicos II
	CE061	Automatización y robótica industrial
	CS402	Metodología de la investigación
	HU400	Ser humano y medio ambiente
7	CE414	Electrónica de potencia
	CE062	Controladores programables
	CE063	Sensores y actuadores
	HU401	Ser Humano, historia y sociedad
	CE401	Redes de computadoras
8	MC414	Transferencia de calor
	CE402	Análisis de redes de computadoras
	CE064	Modelación de prototipos mecánicos
	HU402	Ser humano y la ética
	CE063	Diseño de micro-controladores

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

MA400
MATHEMATICS
This course is offered to all students that study a Business Administration or Engineering major, in order to provide them basic mathematics that allows them to take the following math courses from their training area. The course addresses the concepts of logical mathematics in a practical way.

CC400
PROGRAMMING METHODS I
This course expects engineering students to understand and apply the basic concepts of structured programming, oriented to objects, to design algorithms and create computer programs, encouraging students to solve numerical problems, and manage characters. The course will emphasize the creation of flux diagrams, algorithms and the use of a programming language to solve practical problems. The course is designed to take students along a smooth path towards learning the Programming Methodology, following strategies for problem solution. In order to achieve this, there is a series of topics that go from simple problems to problems of medium complexity.

II400
INTRODUCTION TO MECHATRONICS
Mechatronics is an engineering area that makes a strong impact on production systems, based on the integration of mainly 3 areas: electronics, control engineering, and precision mechanics. This course is designed to introduce first semester students to university life, and discover the surroundings regarding engineering as a career, the knowledge of the major that students have chosen as a professional career, and the acquisition of basic knowledge of some of the areas that comprise such major. Likewise, during the course, students will be provided with the introduction, necessary for the different areas by which CETYS University performs, so students make this new university theirs, and use the facilities properly and the services it offers.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

SECOND SEMESTER

MC400
COMPUTER DESIGN
This course´s objective is for students to acquire basic knowledge that is based on engineering design, and through the use of computer aided-design (CAD) software, students can apply such knowledge in the elaboration and interpretation of prints that describe the size and shape of products, and industrial parts. The course belongs to the engineering training area, and is essential to all those majors that have to do with design and manufacturing of parts and products. Its nature is totally practical, additionally, the course is carried on in a shop, where students will learn, at least, one CAD software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving the elaboration and interpretation of manufacturing prints.

MA401
DIFFERENTIAL CALCULUS
This course is a theoretical one; it will allow students the correct formulation, solution, and discussion of problems that involve derivatives of functions of one variable. Students must apply calculus of derivatives in the evaluation of optimum values of algebra and important functions. The course carries mathematics as a prerequisite, which is studied along with Physics I and is the basis for studying integral calculus.
PRE-REQUISITE:
MA400 Mathematics

CC402
PROGRAMMING METHODS II
This course is a continuation of Programming Methods I, and is oriented to completing a basic body of existing elements in Java programming language, that allows the solution of problems with a focus on objects. The course comprises the study of programming fundamentals oriented to objects, so students can solve problems creating their own classes that imply the use of arrangements, files and data structure, all this in an environment of graphic programming. Programming Methods II, is a relevant course within the engineering program, since in addition to computer programming, it is a fundamental knowledge of any engineer, it promotes analytical and creative skills in students. Furthermore, the course will be used as a base and/or tool for other courses that students will course in their program.

PRE-REQUISITE:

CC400 Programming Methods I

FI400
PHYSICS I
It is a theoretical-practical course, based on the statistics of particles and rigid solids. Practices made constitute the initial immersion of engineering students in Metrology, as well as the implementation of simple devices and the correct report of an experiment´s report. Basically, students question nature on the condition of static equilibrium and design devices to obtain such quantitative information on it. Equipment, devices, and techniques will be learned to use and apply. A pre-requisite of this course is Math, and the pre-conceptions of Physics acquired in High School.

MF400
PROPERTIES OF MATERIALS
In a basic way, this course intends to address two great areas in which the study of materials is divided: Science and Materials Engineering. Its objective is that students know and understand the scientific theories on which properties are based to apply this knowledge into the adequate selection of material given a specific application. Evidently, through this course, a materials specialist cannot be formed, however, the scientific bases on which observable properties are based on, therefore, understand the behavior of most materials and visualize their potential applications. The course belongs to the professional training area and it is a basic one within the group of courses that comprise the materials area. It is essential for those programs that have to do with problems involving the selection of materials. Its nature is theoretical and practical, since it comprises from scientific theories that relate the different levels of internal structure of materials, with observable properties in them; they encourage students to visualize the potential applications of materials basing on their properties. The knowledge and skills developed during this course will be very useful for students, to better understand and successfully perform in related courses, such as: materials manufacturing, materials mechanics, introduction to design, physical metallurgic, and in general any course within their program that involves materials in any way.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course is the first part of two: Culture I and Culture II. Under this premise, this first part must be considered as a general introduction to the tasks that students will be carrying out during Culture II when working on a specific artistic expression.

THIRD SEMESTER

MA402
INTEGRAL CALCULUS
This is a theoretical-practical course preceded by Math and Differential Calculus. Here students will learn and apply the concepts of antiderivative and definite integral, and they will identify the main applications related to the engineering sciences. It includes techniques for the integration of algebra and transcendental functions, as well as their applications to calculating areas and volume. This course is very linked to math, differential calculus, physics I, II, and III, multivariable calculus, differential equations, probability, statistic inference, operation research models II, and systems simulation, among others. Therefore, this is a fundamental course in students' program.
PRE-REQUISITE:
MA400 Math
MA401 Differential Calculus

FI401
PHYSICS II
Throughout the course, the kinematics and dynamic effect is studied, resulting in two- and three-dimension systems of force acting on a particle. The general topics of the course are: kinematics of particles, energy conservation, work and amount in motion. At the end of the course, students will acquire skills, attitudes, abilities, and essential knowledge for the design and manufacturing motion systems that are useful for the practice of engineering.
PRE-REQUISITE:
FI400 PHYSICS I

MA403
NUMERICAL METHODS
This course is included in Mechanical, Manufacturing, Industrial, Cybernetic Electronics, and Computer Science Engineering. Its objective is the establishment of a platform of theoretical and application knowledge for the solution of problems presented in the engineering area in any of its fields; such problems can be presented in electronic applications, models, and system simulation, finite models, heat transference, chemistry, marketing, and economics, among others. During the course, the following topics will be studied: solution of root equations, roots of polynomials, linear equation systems, curve fitting for linear regression and linear interpolation, and minimum squares, as well as diverse methods for the process of numerical integration. The solution to these problems will be based on non-traditional methods and oriented to the use of computers as a tool of great use.
PRE-REQUISITE:
MA400 Math
CC400 Programming Methods I
CC402 Programming Methods II

MF401
MATERIALS MANUFACTURING
This course´s basic objective is the study and comprehension of one of the fundamental stages in a life cycle of a product: the transformation processes of raw matters in useful products. The most common industrial materials are studied, their obtaining, processes and properties until becoming finished products. With the acquired knowledge, students will understand a great variety of processes through which the greater part of products with which we interact in our daily lives are obtained. In order to study this course, it is very important to have previous knowledge of science and materials engineering, additionally, it is of great help any knowledge and experience regarding the transformation processes. The knowledge and skills developed in this course will be very useful for students to better understand and successfully perform in courses related to the design of manufacturing products, such as computer manufacturing, manufacturability, product design, and in general, any course within their program involving in any way materials and their transformation to useful products.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing. This course includes a series of learning activities in which students will need to use the target language in situations pertaining to their field of study, such as social interaction, finding a way to improve their oral and written expression, as well as increasing the conventional vocabulary associated to their field of study and future careers. This course requires a positive attitude towards learning from its students, as well a commitment to work in groups and continuously improve their proficiency in English.
PRE-REQUISIT: **College English Degree or English Language Center Accreditation**

CS404
Cultural II
Music Appreciation
This course allows students to appreciate different musical manifestations, obtaining a bigger and closer approach to music. This course is the second part of two: Culture I and Culture II. Under this premise, this first part must be considered as a general introduction to the tasks that students will be carrying out during Culture II when working on a specific artistic expression. For this specific case: Music.
Visual Arts
This course is intended for students to appreciate visual arts through the development of sensitivity and creativity. The personal growth of students is enhanced by the study of this branch of the fine arts.
Literature
This course is the continuation of Culture I. It is intended for students to get close to literature through knowledge of the most important literary currents as well as the historic moment in which they were born, focusing on the repercussions that reading the great works of literature can bring to our daily lives. We look to develop students' critical and reflective sense by performing stimulating readings, as well as improving their spelling. This course demands a high level of reading comprehension; it is considered theoretical-practical since it includes research, definition and comprehension of concepts, such as the elaboration of written assignments.
Performing Arts
This course allows students to understand the development of culture through dance and theater, as well as their social impact and their influence on different artistic expressions. This course is the second part of two: Culture I and Culture II. Under this premise this second part should be considered as the continuation of Culture I, in which they will have a bigger understanding of the reasons for being of theater and dance as an artistic-cultural form of expression
PRE-REQUISIT:
CS403 Culture I

FOURTH SEMESTER

MA404
PROBABILITY
This course reviews the basic axioms and the fundamental models of probability for the analysis of a random behavior of variables in engineering systems. The concept of math expectation and its applications in decision-making is included. This course is placed on the 4th semester of the program and is required for the area of statistical inference in 5th semester. The course is closely related to those specific to specialty courses where random treatment processes are required, industrial engineers, in particular will be required to take the following courses: quality engineering, operations research models II, design of experiments and simulation.

MA407
DIFFERENTIAL EQUATIONS
In this course, engineering students are exposed to reasons of change and differential equations, identifying and applying their analytical solution methods to model the dynamic behavior of natural and artificial systems related to the field of engineering. Specifically, the course includes the study of different solution methods for differential equations of first order, solution methods for linear differential equations of higher order with constant coefficient and the use of Laplace for its solution.

FI402
PHYSICS III
This is a theoretical-practical course; students will receive the knowledge, skills, abilities, and attitudes required as the fundamentals of electromagnetism. During the course, students solve problems, develop lab practices, implement simple devices, and develop projects. This course is associated to Physics I, and II, which are pre-requisites. It is also related to specialized courses that involve presence at the lab to make measurements with a multimeter and an oscilloscope. A solid training is needed in Differential and Integral Calculus, and abstraction skills towards vectorial analysis.
PRE-REQUISITE:
FI401 Physics II

MC402
MATERIALS MECHANICS
In this course elements of static systems are designed, either isolated, or complete. Properties of the materials used in design are considered, therefore the activities made at the lab constitute a real contact with these properties. So students relate objectively the theoretical part of the course with the practical part involved in design. Likewise, the specifications or norms indicated internationally are also considered for the design of these elements.

MF402
COMPUTER MANUFACTURING
The objective of this course is that students increase their knowledge, skills and abilities of design, previously acquired in the manufacturing course, through the use of modelation software focused to the design and manufacturing of products, dimensional and geometrical analysis allowed for the interpretation of engineering prints, as well as cost analysis of parts or products focused to manufacturing processes and programming management in numerical control for manufacturing parts or products. The course has a theoretical-practical nature, and is placed in the fourth semester of the mechanical engineering program. The related courses are: computer design, materials properties, materials manufacturing, electro pneumatics and hydraulics, design engineering, and mechanism dynamics.

FIFTH SEMESTER

MC415
INTRODUCTION TO DESIGN
This course has a practical nature and is focused on the study and analysis of applicable loads and generated effort in different machine elements, as well as the study and application of different theories that predict the way these elements can fail during service. In order to take this course successfully, students must have coursed and passed Materials Mechanics (Materials Resistance), and be willing to study and analyze the problems involved in reasoning. This course is an introduction to principles that are based on the design of machine elements and is a base for materials related to this area, like: Finite Modeling, and Design Engineering, among others.

MA406
MULTIVARIANT CALCULATION
In this course, students will develop knowledge, skills, and abilities required to solve problems that involve more than one independent variable, derivatives, and integrals. Likewise, they will manage and pose problems involving parametric and polar equations in their description. It is related to Differential and Integral Calculus which are pre-requisites, as well as Programming I and II, which allow solving problems with assistance of the computer.

MC410
MECHANISM DYNAMICS
The course is focused on the study of inertial loads in mechanisms or components of machine elements, machine vibration and balance.

CE059
ELECTRONIC SYSTEMS I
It is important that Mechatronics Engineering students have theoretical knowledge and the ability to analyze and design analogue circuits that will be useful in the development of systems. During this course, students will be exposed to methods of analysis of electric circuits that are applied to any electric or electronic circuit, as well as semiconductor devices like diodes and transistors, and their applications. The general purpose of the course is that students have the opportunity, through theoretical and practical exposition, to know the different types of analysis of circuits commonly used, and to acquire the capacity of identifying, analyzing, and designing systems based on discrete semiconductor devices and with linear circuits. At the end of the course, students will see applications of linear circuits like operational amplifiers. The general topics of the course are: electric circuits, diodes, transistors, and linear circuits.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SIXTH SEMESTER

MC407
ELECTROPNEUMATICS AND HIDRAULICS
The objective of this course is to achieve that students acquire basic knowledge on the components of pneumatics and hydraulics, and the operations that can be made with them. Likewise, students will know the electric control elements and their functional relation with pneumatic and hydraulic components. With the knowledge and skills developed throughout the course, students will develop the capacity to design and implement electro pneumatic circuit diagrams, and basic electrohidraulic diagrams, that is, they can solve simple problems that involve the design and interpretation of pneumatic and basic hydraulic circuits, according to schemes of electric control locating and correcting faults in them. The knowledge acquired will be very useful for courses related to machine automation and processes like Automation and Industrial Robotics, Programmable Controllers, and Sensors y Actuators, among others.

CE060
ELECTRONIC SYSTEMS II
It is important that Mechatronics Engineering students have theoretical knowledge and the skills to analyze and design digital circuits that will be useful in the development of systems. In this course, students will be exposed to binary algebra, methods analysis, and design of digital circuits, combinational and sequential. Diverse circuits will be used at diverse integration scales, as well as programmable devices. This is a theoretical-practical course; at least one third of the course consists of practical work in the lab, where theoretical material discussed in class will be applied and strengthened. The course is oriented to the solution of problems and the implementation of the circuits that solve it.

CE061
AUTOMATION AND INDUSTRIAL ROBOTICS
The course will provide the theoretical and practical fundamentals related to industrial robots with a focus on their functioning and application, providing the bases regarding automation and industrial control. The general purpose of the course is that students have the opportunity, through theoretical and practical exposition, to know the different types of mechatronic systems, well as automation and industrial robotics focusing on their application and functioning.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

SEVENTH SEMESTER

CE414
POWER ELECTRONICS
This course provides theoretical and practical fundamentals related to power semiconductor devices, focusing on their functioning and application to converter circuits, such as rectifiers, investors, regulators, chippers, and engine control circuits for direct and alternate currents. The general purpose of the course is that students have the opportunity to know the different types of power semiconductor devices, focusing on their application and functioning.

CE062
PROGRAMMABLE CONTROLLERS
In this course students will be exposed to technologies, tools, and methodologies for the design of automation solutions, using programmable controllers from diverse manufacturers. The general purpose of the course is that students have the opportunity to know technologies related to programmable controllers, and design of industrial automation solutions based on them.

CE063
SENSORS AND ACTUATORS

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society. First it approaches these dimensions of what constitutes man kind, and after that it considers its phenomenological expression methodically, the thematic contents of the social dimension will be linked to those historical ones, since both can be summed up as here and now.

CE401
COMPUTER NETWORKS
In this course, students will be exposed to the knowledge and main fundamentals, in a theoretical-practical way, in the field of computer networking. This course will begin from the study of the 7 layers of the OSI model and the TCP/IP model, focusing mainly in link layers, networks, and transportation. Also, the most important aspects forming local area networks LAN will be studied, as well as communication means and devices that work in these networks. The topic of metropolitan networks MAN will also be studied and wide area networks WAN, analyzing the main equipment and routing protocols that make it possible for data packages to travel among these networks and reach their destination. Another important aspect in the course will be the study of wireless networks and also new technologies that are currently being used in computer networking, which allow us to use applications in real time for voice, telephones, videoconferencing, and other multimedia applications. During the course, one or more visits to different computing centers in local companies will be made, to analyze and know the different solutions and characteristics that form these information networks, as well as to have a more complete and updated vision of what happens in this area.

EIGHTH SEMESTER

MC414
HEAT TRANSFERENCE

CE402
COMPUTER NETWORK ANALYSIS
PRE-REQUISITE:

CE064
MODELING MECHANICAL PROTOTYPES

HU402
Mankind and Ethics
Mankind and Ethics is the third of a series of three courses that CETYS has implemented in its three campuses for all college students. These courses are intended to leave a characteristic impression in all of our students through a reflection on Mankind and the way it relates to its surroundings, its past, its society, and itself. In short, this course reflects upon some of the anthropological conceptions that have taken place throughout history, in order to better understand how the image we have of mankind came to be and the way in which we perceive the world. Parting from this base we begin to accept some actions as being good or bad; this takes us to the field of personal and social values, which are assumed within certain margins of liberty, with these values we begin to accept or reject some obligations and rights we have towards others. With this said, we can conclude by recognizing the responsibility we have in the world of work, in order to establish some reflection on professional ethics.

CE063
MICROCONTROLLER DESIGN

Mechanical Engineer

A trained professional capable of analyzing, understanding, and applying scientific and practical knowledge in an engineering problem solution involving design, machinery construction, and integration in order to optimize manufacturing systems and/or services, as well as operating manual and computerized technology to achieve an optimal problem solution.

What are the career fields for a Mechanical Engineer?

- Quality or production supervisor in companies dedicated to transforming raw material, assembling, and electronics.
- Engineer in companies dedicated to the elaboration of plastic products, fishery, cement, metal mechanics, smelting, and assembling and manufacturing of machinery components.
- Project or Maintenance Chief
- Freelance Consultant in Design and Mechanical Equipment Operation
- Research and Economical Development Manager

What are the abilities you will acquire at the end of the program?

At the end of the Mechanical Engineering program you will be able to:

- Design, elaborate and interpret manufacturing blueprints
- Analyze and evaluate stress and strain in different elements and mechanical systems
- Design and integrate machinery and mechanical elements, and tools used in specialized software
- Basic operation of manual and numeric control machinery and tools
- Calculate thermodynamic cycles
- Design and install heat interchangers
- Design, select and/or modify manufacturing alternatives
- Material property modification through thermal appropriate treatments.
- Design and implement industrial maintenance systems.

What is the profile you need to study Mechanical Engineering?

If this is what you want to do, then your profile as a student of Mechanical Engineering must meet the following characteristics:

- Vocation towards the study of Physics and Mathematics.
- Interest in obtaining professional training in engineering.
- Motivation to know machinery and component principles from a mechanical perspective.
- Interest in product, process machinery and equipment design, and optimization in companies producing goods and services.
- Interest in Engineering solving problems in multidisciplinary equipment.
- Fond of the collaboration for integral society development.

Do you want to know the courses you will take in Mechanical Engineering?

This program contains 42 courses, distributed in 8 semesters and in 3 training axes:

- Common Axis
- Engineering Axis
- Mechanical Engineering Axis

Curriculum

Materias sugerida por semestre

1	MA400	Matemáticas
	CC400	Métodos de programación I
	MC401	Introducción a la ingeniería mecánica
	CS401	Habilidades del pensamiento
	EC400	Globalización y desarrollo económico
2	MC400	Dibujo por computadora
	MA401	Cálculo diferencial
	CC402	Métodos de programación II
	FI400	Física I
	MF400	Propiedades de los materiales
	CS403	Cultural I *
3	MA402	Cálculo integral
	FI401	Física II
	MA403	Métodos numéricos
	MF401	Manufactura de materiales
	CS400	Comunicación avanzada en español
	CS404	Cultural II *
4	MA404	Probabilidad
	MA407	Ecuaciones diferenciales
	FI402	Física III
	MC402	Mecánica de materiales
	MF402	Fabricación por computadora
5	MA406	Cálculo multivariable
	MC403	Mecánica de fluidos
	MC404	Introducción al diseño
	MC405	Metalurgia física
	ID400	Comunicación avanzada en inglés
6	MC406	Modelación finita
	MC407	Electroneumática e hidráulica
	MC408	Termodinámica
	CS402	Metodología de la investigación
	HU400	Ser humano y medio ambiente
7	MC409	Ingeniería de diseño
	MC410	Dinámica de mecanismos
	MC411	Automatización y control
	HU401	Ser humano, historia y sociedad
		Optativa I
8	MC412	Análisis experimental mecánico
	MC413	Ingeniería de planta
	MC414	Transferencia de calor
	HU402	Ser humano y la ética
		Optativa II

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

PRIMER SEMESTRE

MA400
MATHEMATICS
This course is offered to all students that study a Business Administration or Engineering major, in order to provide them basic mathematics that allows them to take the following math courses from their training area. The course addresses the concepts of logical mathematics in a practical way.

CC400
PROGRAMMING METHODS I
This course expects engineering students to understand and apply the basic concepts of structured programming, oriented to objects, to design algorithms and create computer programs, encouraging students to solve numerical problems, and manage characters. The course will emphasize the creation of flux diagrams, algorithms and the use of a programming language to solve practical problems. The course is designed to take students along a smooth path towards learning the Programming Methodology, following strategies for problem solution. In order to achieve this, there is a series of topics that go from simple problems to problems of medium complexity.

II400
INTRODUCTION TO MECHANICAL ENGINEERING
This course is designed to introduce first semester students to university life, and discover the surroundings regarding engineering as a career, the knowledge of the major that students have chosen as a professional career, and the acquisition of basic knowledge of some of the areas that comprise such major. Likewise, during the course, students will be provided with the introduction, necessary for the different areas by which CETYS University performs, so students make this new university theirs, and use the facilities properly and the services it offers.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SECOND SEMESTER

MC400
COMPUTER DESIGN
This course´s objective is for students to acquire basic knowledge that is based on engineering design, and through the use of computer aided-design (CAD) software, students can apply such knowledge in the elaboration and interpretation of prints that describe the size and shape of products, and industrial parts. The course belongs to the engineering training area, and is essential to all those majors that have to do with design and manufacturing of parts and products. Its nature is totally practical, additionally, the course is carried on in a shop, where students will learn, at least, one CAD software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving the elaboration and interpretation of manufacturing prints.

MA401
DIFFERENTIAL CALCULUS
This course is a theoretical one; it will allow students the correct formulation, solution, and discussion of problems that involve derivatives of functions of one variable. Students must apply calculus of derivatives in the evaluation of optimum values of algebra and important functions. The course carries mathematics as a prerequisite, which is studied along with Physics I and is the basis for studying integral calculus.
PRE-REQUISITE:
MA400 Mathematics

CC402
PROGRAMMING METHODS II
This course is a continuation of Programming Methods I, and is oriented to completing a basic body of existing elements in Java programming language, that allows the solution of problems with a focus on objects. The course comprises the study of programming fundamentals oriented to objects, so students can solve problems creating their own classes that imply the use of arrangements, files and data structure, all this in an environment of graphic programming. Programming Methods II, is a relevant course within the engineering program, since in addition to computer programming, it is a fundamental knowledge of any engineer, it promotes analytical and creative skills in students. Furthermore, the course will be used as a base and/or tool for other courses that students will course in their program.
PRE-REQUISITE:
CC400 Programming Methods I

FI400
PHYSICS I
It is a theoretical-practical course, based on the statistics of particles and rigid solids. Practices made constitute the initial immersion of engineering students in Metrology, as well as the implementation of simple devices and the correct report of an experiment´s report. Basically, students question nature on the condition of static equilibrium and design devices to obtain such quantitative information on it. Equipment, devices, and techniques will be learned to use and apply. A pre-requisite of this course is Math, and the pre-conceptions of Physics acquired in High School.

MF400
PROPERTIES OF MATERIALS
In a basic way, this course intends to address two great areas in which the study of materials is divided: Science and Materials Engineering. Its objective is that students know and understand the scientific theories on which properties are based to apply this knowledge into the adequate selection of material given a specific application. Evidently, through this course, a materials specialist cannot be formed, however, the scientific bases on which observable properties are based on, therefore, understand the behavior of most materials and visualize their potential applications. The course belongs to the professional training area and it is a basic one within the group of courses that comprise the materials area. It is essential for those programs that have to do with problems involving the selection of materials. Its nature is theoretical and practical, since it comprises from scientific theories that relate the different levels of internal structure of materials, with observable properties in them; they encourage students to visualize the potential applications of materials basing on their properties. The knowledge and skills developed during this course will be very useful for students, to better understand and successfully perform in related courses, such as: materials manufacturing, materials mechanics, introduction to design, physical metallurgic, and in general any course within their program that involves materials in any way.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals. This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

MA402
INTEGRAL CALCULUS
This is a theoretical-practical course preceded by Math and Differential Calculus. Here students will learn and apply the concepts of antiderivative and definite integral, and they will identify the main applications related to the engineering sciences. It includes techniques for the integration of algebra and transcendental functions, as well as their applications to calculating areas and volume. This course is very linked to math, differential calculus, physics I, II, and III, multivariable calculus, differential equations, probability, statistic inference, operation research models II, and systems simulation, among others. Therefore, this is a fundamental course in students' program.
PRE-REQUISITE:
MA400 Math
MA401 Differential Calculus

FI401
PHYSICS II
Throughout the course, the kinematics and dynamic effect is studied, resulting in two- and three-dimension systems of force acting on a particle. The general topics of the course are: kinematics of particles, energy conservation, work and amount in motion. At the end of the course, students will acquire skills, attitudes, abilities, and essential knowledge for the design and manufacturing motion systems that are useful for the practice of engineering.
PRE-REQUISITE:
FI400 PHYSICS I

MA403
NUMERICAL METHODS
This course is included in Mechanical, Manufacturing, Industrial, Cybernetic Electronics, and Computer Science Engineering. Its objective is the establishment of a platform of theoretical and application knowledge for the solution of problems presented in the engineering area in any of its fields; such problems can be presented in electronic applications, models, and system simulation, finite models, heat transference, chemistry, marketing, and economics, among others. During the course, the following topics will be studied: solution of root equations, roots of polynomials, linear equation systems, curve fitting for linear regression and linear interpolation, and minimum squares, as well as diverse methods for the process of numerical integration. The solution to these problems will be based on non-traditional methods and oriented to the use of computers as a tool of great use.
PRE-REQUISITE:
MA400 Math
CC400 Programming Methods I
CC402 Programming Methods II

MF401
MATERIALS MANUFACTURING
This course´s basic objective is the study and comprehension of one of the fundamental stages in a life cycle of a product: the transformation processes of raw matters in useful products. The most common industrial materials are studied, their obtaining, processes and properties until becoming finished products. With the acquired knowledge, students will understand a great variety of processes through which the greater part of products with which we interact in our daily lives are obtained. In order to study this course, it is very important to have previous knowledge of science and materials engineering, additionally, it is of great help any knowledge and experience regarding the transformation processes. The knowledge and skills developed in this course will be very useful for students to better understand and successfully perform in courses related to the design of manufacturing products, such as computer manufacturing, manufacturability, product design, and in general, any course within

their program involving in any way materials and their transformation to useful products.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.

Musical appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music.

Visual Arts
This course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made.

Literature
This course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life.

Performing Arts
This course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Cultural I

FOURTH SEMESTER

MA404
PROBABILITY
This course reviews the basic axioms and the fundamental models of probability for the analysis of a random behavior of variables in engineering systems. The concept of math expectation and its applications in decision-making is included. This course is placed on the 4th semester of the program and is required for the area of statistical inference in 5th semester. The course is closely related to those specific to specialty courses where random treatment processes are required, industrial engineers, in particular will be required to take the following courses: quality engineering, operations research models II, design of experiments and simulation.

MA407
DIFFERENTIAL EQUATIONS
In this course, engineering students are exposed to reasons of change and differential equations, identifying and applying their analytical solution methods to model the dynamic behavior of natural and artificial systems related to the field of engineering. Specifically, the course includes the study of different solution methods for differential equations of first order, solution methods for linear differential equations of higher order with constant coefficient and the use of Laplace for its solution.

FI402
PHYSICS III
This is a theoretical-practical course; students will receive the knowledge, skills, abilities, and attitudes required as the fundamentals of electromagnetism. During the course, students solve problems, develop lab practices, implement simple devices, and develop projects. This course is associated to Physics I, and II, which are pre-requisites. It is also related to specialized courses that involve presence at the lab to make measurements with a multimeter and an oscilloscope.
PRE-REQUISITE:

FI401 Physics II

MC402
MATERIALS MECHANICS
In this course elements of static systems are designed, either isolated, or complete. Properties of the materials used in design are considered; therefore the activities made at the lab constitute a real contact with these properties. So students relate objectively the theoretical part of the course with the practical part involved in design. Likewise, the specifications or norms indicated internationally are also considered for the design of these elements.

MF402
COMPUTER MANUFACTURING
The objective of this course is that students increase their knowledge, skills and abilities of design, previously acquired in the manufacturing course, through the use of modelation software focused to the design and manufacturing of products, dimensional and geometrical analysis allowed for the interpretation of engineering prints, as well as cost analysis of parts or products focused to manufacturing processes and programming management in numerical control for manufacturing parts or products. The course has a theoretical-practical nature, and is placed in the fourth semester of the mechanical engineering program. The related courses are: computer design, materials properties, materials manufacturing, electro pneumatics and hydraulics, design engineering, and mechanism dynamics.

FIFTH SEMESTER

MA406
MULTIVARIANT CALCULATION
In this course, students will develop knowledge, skills, and abilities required to solve problems that involve more than one independent variable, derivatives, and integrals. Likewise, they will manage and pose problems involving parametric and polar equations in their description. It is related to Differential and Integral Calculus which are pre-requisites, as well as Programming I and II, which allow solving problems with assistance of the computer.

MC403
FLUID MECHANICS
The objective is to introduce students to the fundamental principles of incomprehensible fluid mechanics. Fundamental principles such as properties and definitions used to introduce students to basic concepts like fluids at rest. Later, general conservation equations are introduced in a differential and integral way. These basic principles are applied to fundamental problems of fluid mechanics, such as pressure drop in plumbing systems, estimation of drag force, etc.

MC415
INTRODUCTION TO DESIGN
This course has a practical nature and is focused on the study and analysis of applicable loads and generated effort in different machine elements, as well as the study and application of different theories that predict the way these elements can fail during service.

MC405
PHYSICAL METALURGICS
The course is focused on the study of properties of ferroalloys, in relation to industrial applications. Evidently, specialists cannot be formed throughout the course regarding the metal applications; however, it provides bases for a specialization afterwards. This can be possible due to the fundamentals of diverse industrial applications of metals, and their alloys constitute a number of relatively small, essential ideas. These ideas comprise: the concepts of atomic and crystalline structure, the comprehension of alloys' behavior through balance diagrams, the knowledge of the nature of properties and variant mechanisms of such properties.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT: **College English Degree or English Language Center Accreditation**

SIXTH SEMESTER

MC406
FINITE MODELING
Students are expected to develop and apply software in the solution of engineering problems, that involve stress states, deformation and temperature distribution, heat transference, and amplitudes and modes of vibration. Regarding the development of solutions, students will solve them in an electronic sheet, and will prove them in specialized software.

MC407
ELECTRO PNEUMATICS AND HYDRAULICS
The objective of this course is to achieve that students acquire basic knowledge on the components of pneumatics and hydraulics, and the operations that can be made with them. Likewise, students will know the electric control elements and their functional relation with pneumatic and hydraulic components. With the knowledge and skills developed throughout the course, students will develop the capacity to design and implement electro pneumatic circuit diagrams, and basic electro-hydraulic diagrams, that is, they can solve simple problems that involve the design and interpretation of pneumatic and basic hydraulic circuits, according electric control schemes locating and correcting faults in them. The knowledge acquired will be very useful for courses related to machine automation and processes like Automation and Industrial Robotics, Programmable Controllers, and Sensors y Actuators, among others.

MC408
THERMODYNAMICS
The objective of the course is that students learn the bases of thermodynamics, in a way that future engineers can apply these principles to the solution of problems. Students are expected to achieve these objectives through class presentations of topics related to the course, by the instructor and students themselves, like: problem solution, tasks, lab practice, counseling, etc. Thermodynamics is a basic discipline in mechanical engineering, and its understanding is fundamental for the design of countless devices, diverse problem solutions, energy saving, etc., thus, its great importance.

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

SEVENTH SEMESTER

MC409
ENGINEERING DESIGN
The course contemplates aspects

regarding the analysis, calculation, and selection of machinery elements, like gears and chain gangs, cables, brakes, and clutches. During the course, students will have the opportunity to explain their knowledge in the mechanical design area, use computer software for modeling elements, manipulate and make a machinery project which will group several elements.

MC410
MECHANISM DINAMICS
The course is focused on the study of inertial loads in mechanisms or machinery element components, machinery vibration and balance.

MC411
AUTOMATION AND CONTROL
Students will have the opportunity, through theoretical and practical presentation, to know the most commonly used industrial automation techniques, as well as its correct use and design of solutions based on them. The general topics of the course are: industrial automation, instrumentation and control systems, logical programmable controllers, selection and integration of automation technologies.

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society. First it approaches these dimensions of what constitutes man kind, and after that it considers its phenomenological expression methodically, the thematic contents of the social dimension will be linked to those historical ones, since both can be summed up as here and now.
PRE-REQUISIT:
ELECTIVE I

EIGHTH SEMESTER

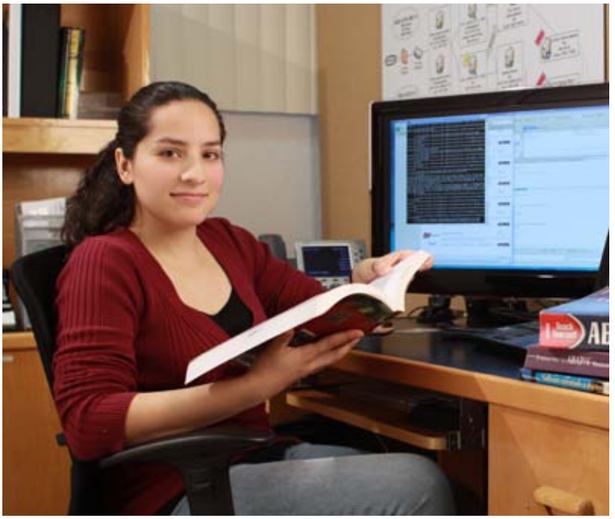
MC412
MECHANICAL EXPERIMENTAL ANALYSIS
The courses addresses the basic load considerations, forces, deformations, and resistances of different bodies, subject to uniaxial, biaxial and triaxial loads, the static relation between force and deformation, theories of failure, radially loaded cylindrical members, the use of energetic methods for the calculation of elastic deflexion using the Castigliano method and impact load, the design of these body's dimensions, as well as design parameters used in experimental methods, like brittle lacquer, photo elasticity, and strain gauges. Some of the learning activities for this course are: analytical modelling of mechanical problems, calculation of conventional forces, unit deformation, specific and total energies, all this in analytical way using specialized software, and experimental methods in very specific cases.

MC413
PLANT ENGINEERING
In this course, students will know and understand the general chemistry concepts and how they are used in companies to make their manufacturing processes. The topics to be discussed in class are: security and hygiene aspects, risk prevention, regulations, etc.

MC414
HEAT TRANSFERENCE
Students will know the fundamentals of heat transference in a way that future engineers can apply these principles to the solution of problems in its engineering practice. Students are expected to learn this objective through the presentation of ideas in class, by the instructor and by the students, of topics related to the course, problem solution, tasks, lab practice, counselling, etc.

HU402
Mankind and Ethics
This course reflects on some anthropological conceptions that have taken place throughout history, to better understand how the image we have of human beings has been developed and how we perceive the world, entering the field of personal and social values, to establish some reflections on the professional ethics.

ELECTIVE II



Software
Engineering

This is the information technology professional that designs, produces, evaluates, integrates, modifies, tests, and maintains quality software applications for the solution of different problems in goods and services organizations. These organizations are looking to expand their competitiveness, require a professional to formulate, plan, implement, integrate, and maintain high-level software technology allowing for better decision-making and better communication among working areas.

What are the career fields for a Software Engineer?

- International and national software development companies of all areas: financial, educational, health, entertainment, telecommunications, education, marketing, and supply chain management services.
- Business organizations of all trades (commerce, finance, education, health, entertainment, marketing, legal consulting, and product and raw material management) and government that require the development of high quality applications in open and private platforms.
- As a consultant and independent developer of software applications for business units of all trades and government entities in open and private platforms.

What are the abilities you will acquire at the end of the program?

At the end of the Software engineering program you will be able to:

- Generate commercial applications in diverse development platforms.
- Analyze requirements at a processing level and at a user level.
- Consult with users to identify software requirements.
- Program application software designs.
- Develop software design specifications.
- Develop quality and technical standards for application software validation.
- Design and manage quality models in software development.
- Document software products.
- Manage software projects.
- Develop, implement, and document test programs and plans for application software.

What is the profile you need to study Software Engineering?

If this is what you want to do, then your profile as a student of Software Engineering must meet the following characteristics:

- This degree is for those candidates that show a preference and taste for computer work and other digital devices for the solution of information processing problems in their different forms (audio, video, and text).
- It is for people who like to use computers in its different modalities (smart phones, audio and video equipment), in their everyday school life, for fun, communication, and even for their personal and family relations.
- For those who have a vocation for Mathematics, Physics, and program development.
- For those are constant users of Internet technologies.
- For those who have a favorable attitude and disposition for teamwork, multidisciplinary, independent, and computer mediated work.

Do you want to know the courses you will take in Software Engineering?

This engineering program contains 42 required courses distributed throughout 8 semesters and divided into 3 training axes:

- Common Axis
- Engineering Axis
- Software Engineering Axis

Curriculum
Materias sugerida por semestre

1	MA400	Matemáticas
	CC400	Métodos de programación I
	MC401	Introducción a la ingeniería mecánica
	CS401	Habilidades del pensamiento
	EC400	Globalización y desarrollo económico
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	CS400	Comunicación avanzada en español
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	ID400	Comunicación avanzada en inglés
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	MC414	Transferencia de calor
	HU402	Ser humano y la ética
		Optativa II

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

MA400 MATHEMATICS

This course is offered to all students that study a Business Administration or Engineering major, in order to provide them basic mathematics that allows them to take the following math courses from their training area. The course addresses the concepts of logical mathematics in a practical way.

CC400

PROGRAMMING METHODS I

This course expects engineering students to understand and apply the basic concepts of structured programming, oriented to objects, to design algorithms and create computer programs, encouraging students to solve numerical problems, and manage characters. The course will emphasize the creation of flux diagrams, algorithms and the use of a programming language to solve practical problems. The course is designed to take students along a smooth path towards learning the Programming Methodology, following strategies for problem solution. In order to achieve this, there is a series of topics that go from simple problems to problems of medium complexity.

CC401

INTRODUCTION TO SOFTWARE ENGINEERING

This course is designed to introduce first semester students to university life, and discover the surroundings regarding engineering as a career, the knowledge of the major that students have chosen as a professional career, and the acquisition of basic knowledge of some of the areas that comprise such major. Likewise, during the course, students will be provided with the introduction, necessary for the different areas by which CETYS University performs, so students make this new university theirs, and use the facilities properly and the services it offers. The knowledge and skills developed during this course will be very useful for students to better understand the program of the major they chose, the courses it comprises, the relation between them and the professional and personal profile that is expected from them when graduating.

CS401

Thinking Skills

This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS400

Advanced Communication in Spanish

This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

SECOND SEMESTER

MC400

COMPUTER DESIGN

This course´s objective is for students to acquire basic knowledge that is based on engineering design, and through the use of computer aided-design (CAD) software, students can apply such knowledge in the elaboration and interpretation of prints that describe the size and shape of products, and industrial parts. The course belongs to the engineering training area, and is essential to all those majors that have to do with design and manufacturing of parts and products. Its nature is totally practical, additionally, the course is carried on in a shop, where students will learn, at least, one CAD software. The knowledge and skills developed during this course will be very useful for students to better understand and successfully perform in courses related to the design of parts and manufacturing products, and in general, any course within their program involving the elaboration and interpretation of manufacturing prints.

MA401

DIFFERENTIAL CALCULUS

This course is a theoretical one; it will allow students the correct formulation, solution, and discussion of problems that involve derivatives of functions of one variable. Students must apply calculus of derivatives in the evaluation of optimum values of algebra and important functions. The course carries mathematics as a prerequisite, which is studied along with Physics I and is the basis for studying integral calculus.

PRE-REQUISITE:

MA400 Mathematics

CC402

PROGRAMMING METHODS II

This course is a continuation of Programming Methods I, and is oriented to completing a basic body of existing elements in Java programming language, that allows the solution of problems with a focus on objects. The course comprises the study of programming fundamentals oriented to objects, so students can solve problems creating their own classes that imply the use of arrangements, files and data structure, all this in an environment of graphic programming. Programming Methods II, is a relevant course within the engineering program, since in addition to computer programming, it is a fundamental knowledge of any engineer, it promotes analytical and creative skills in students.

PRE-REQUISITE:

CC400 Programming Methods I

FI400

PHYSICS I

It is a theoretical-practical course, based on the statistics of particles and rigid solids. Practices made constitute the initial immersion of engineering students in Metrology, as well as the implementation of simple devices and the correct report of an experiment´s report. Basically, students question nature on the condition of static equilibrium and design devices to obtain such quantitative information on it. Equipment, devices, and techniques will be learned to use and apply.

CC403

COMPUTER COMPONENTS AND SYSTEMS

Students are expected to know and understand the diverse hardware elements that form a computer, as well as its organization and interaction with different software elements. The general topics of the course are: Introduction to the organization of computers, number systems, and data representation, digital computers, computer and peripheral systems, installation, and service.

CS403

Cultural I

This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals. This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

MA402

INTEGRAL CALCULUS

This is a theoretical-practical course preceded by Math and Differential Calculus. Here students will learn and apply the concepts of antiderivative and definite integral, and they will identify the main applications related to the engineering sciences. It includes techniques for the integration of algebra and transcendental functions, as well as their applications to calculating areas and volume. This course is very linked to math, differential calculus, physics I, II, and III, multivariable calculus, differential equations, probability, statistic inference, operation research models II, and systems simulation, among others. Therefore, this is a fundamental course in students' program.

PRE-REQUISITE:

MA400 Math
MA401 Differential Calculus

FI401

PHYSICS II

Throughout the course, the kinematics and dynamic effect is studied, resulting in two- and three-dimension systems of force acting on a particle. The general topics of the course are: kinematics of particles, energy conservation, work and amount in motion. At the end of the course, students will acquire skills, attitudes, abilities, and essential knowledge for the design and manufacturing motion systems that are useful for the practice of engineering.

PRE-REQUISITE:

FI400 PHYSICS I

MA403

NUMERICAL METHODS

This course is included in Mechanical, Manufacturing, Industrial, Cybernetic Electronics, and Computer Science Engineering. Its objective is the establishment of a platform of theoretical and application knowledge for the solution of problems presented in the engineering area in any of its fields; such problems can be presented in electronic applications, models, and system simulation, finite models, heat transference, chemistry, marketing, and economics, among others. During the course, the following topics will be studied: solution of root equations, roots of polynomials, linear equation systems, curve fitting for linear regression and linear interpolation, and minimum squares, as well as diverse methods for the process of numerical integration. The solution to these problems will be based on non-traditional methods and oriented to the use of computers as a tool of great use. The course is located within the basic engineering training area and keeps a close relationship with the courses of mathematics, programming methods and areas of application numbers.

PRE-REQUISITE:

MA400 Math
CC400 Programming Methods I
CC402 Programming Methods II

CC404

DATA STRUCTURE

This course addresses aspects related to the development of programs from an efficient point of view. Different forms of data organization are analyzed, as well as related algorithms. Each different form of organization carries a cost in computer resources, in a way that the form of studying such costs is assessed. Data organizations are defined as types of abstract data, which are implemented in a programming language oriented to objects. This is a classical fundamental course in Computer Science, and required in all programs within this area. The importance that this has in CETYS University´s programs, is to be a base for students, indispensable to study latter courses, such as, manufacturing, operation systems, data base, advanced programming, networks, and in general, advanced programming topics. The course is placed in the third semester for Computer Science, Software, Computer Technologies Engineering, and in fifth semester for Electronic Cybernetics Engineering.

ID400

Advanced Communication in English

For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.

PRE-REQUISIT: **College English Degree or English Language Center Accreditation**

CS404

Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.
Musical appreciation this course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music. Visual Arts this course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made. Literature this course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life. Performing arts this course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Cultural I

FOURTH SEMESTER

MA404
PROBABILITY
This course reviews the basic axioms and the fundamental models of probability for the analysis of a random behavior of variables in engineering systems. The concept of math expectation and its applications in decision-making is included. This course is placed on the 4th semester of the program and is required for the area of statistical inference in 5th semester. The course is closely related to those specific to specialty courses where random treatment processes are required, industrial engineers, in particular will be required to take the following courses: quality engineering, operations research models II, design of experiments and simulation.

MA407
DIFFERENTIAL EQUATIONS
In this course, engineering students are exposed to reasons of change and differential equations, identifying and applying their analytical solution methods to model the dynamic behavior of natural and artificial systems related to the field of engineering. Specifically, the course includes the study of different solution methods for differential equations of first order, solution methods for linear differential equations of higher order with constant coefficient and the use of Laplace for its solution.

FI402
PHYSICS III
This is a theoretical-practical course; students will receive the knowledge, skills, abilities, and attitudes required as the fundamentals of electromagnetism. During the course, students solve problems, develop lab practices, implement simple devices, and develop projects. This course is associated to Physics I, and II, which are pre-requisites. It is also related to specialized courses that involve presence at the lab to make measurements with a multimeter and an oscilloscope. A solid training is needed in Differential and Integral Calculus, and abstraction skills towards vectorial analysis.
PRE-REQUISITE:
FI401 Physics II

CC082
SOFTWARE ENGINEERING I
In this course, students from computing areas will be exposed to the concept of Data Bases, from a theoretical-practical perspective; students will put into practice their knowledge of the course through SQL and the design of a data base course project. The theoretical fundamentals of data bases will be discussed in general, with the Entity/Relation model. Then, the relational model, as a theoretical base for most current data base systems, will be studied in detail. Next, the logical design of a data base will be studied using the normalization process, and last, SQL standard language will be studied for the use of a Relational Data Base. This is a fundamental course for all students enrolled in a computing program, since data bases are an indispensable element in all information systems. Students are required to have basic knowledge on data structure, information systems, in addition to programming in any application development language.

SI400
DATABASE DESIGN
Students will be exposed to the concept of data base, from a theoretical-practical perspective, since they will put into practice their knowledge of the course through SQL, and to design a data base project course. Firstly, the fundamental theories of databases in general will be studies, as well as the entity-relation model. Then, the relational model will be studied in detail as a fundamental theory for most current data base systems. Afterwards, the logical design of a data base will be studies, using the normalization process, and finally, the standard language SQL will be studies for the use of a relational data base BDR. This course is fundamental for all students studying a computing program, since data bases are an indispensable element in all information systems. In order to study this course, students re required to have basic Data Structure knowledge, Information Systems, and they must also know how to program in any language from applications development.

FIFTH SEMESTER

MA405
STATISTICS INFERENCE
In this course, students will be exposed to the fundamental concepts of classical statistics, seen as analysis and synthesis tools of information to facilitate decision-making in planning, design, operation and systems control of their interest. During the course, students will develop skills to identify opportunities to apply these concepts, by making and solving the corresponding inference problems. In order to show mastery of the course, they will develop a capstone project that consists of making and solving statistic inference problems of their interest. This course recovers from Probability, the basic axioms of probability and concepts of random variables, distribution of probability, math expectations and variance, while the math courses deal with concepts of fusion and differential and integral calculus of one or two independent variables.

CC084
SOFTWARE ENGINEERING II
PRE-REQUISITE:

CC406
OPERATING SYSTEMS
This course is included in Computer Science Engineering and Electronic Cybernetics Engineering to strengthen the skills in the analysis and evaluation of operating systems. The focus is to continue through a conceptual analysis of the components of any operating system: processes, memory, synchronization mechanisms, blocking, input and output devices, and files systems. On the practical side, students will develop programs using Java programming language in a UNIX operating system, or a similar one.

CC083
MOBILE PROGRAMMING
PRE-REQUISITE:

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

SIXTH SEMESTER

CC090
SOFTWARE PROJECT MANAGEMENT
PRE-REQUISITE:

CC409
DATABASE SYSTEMS
This course expects students to know the functions of a Data Base Administrator DBA. The management of transactions will also be studied, regarding recovery and concurrency control. Students will use tools to carry on functions like DBA, from the creation of data bases, information security, back up, and recovery, as well as exporting and importing data, and technical follow up. Students will know the importance of store procedures and triggers in data base areas and will develop examples where they are applied.

CC085
SOFTWARE ENGINEERING III
PRE-REQUISITE:

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself.

SEVENTH SEMESTER

CC087
INTELLIGENT BUSINESS SYSTEMS
PRE-REQUISITE:
CC091
AGILE DEVELOPMENT OF SYSTEMS
PRE-REQUISITE:

CE401
COMPUTER NETWORKS
In this course, students will be exposed to the knowledge and main fundamentals, in a theoretical-practical way, in the field of computer networking. This course will begin from the study of the 7 layers of the OSI model and the TCP/IP model, focusing mainly in link layers, networks, and transportation. Also, the most important aspects forming local area networks LAN will be studied, as well as communication means and devices that work in these networks. The topic of metropolitan networks MAN will also be studied, and wide area networks WAN, analyzing the main equipment and routing protocols that make it possible for data packages to travel among these networks and reach their destination. Another important aspect in the course will be the study of wireless networks and also new technologies that are currently being used in computer networking, which allow us to use applications in real time for voice, telephones, videoconferencing, and other multimedia applications. During the course, one or more visits to different computing centers in local companies will be made, to analyze and know the different solutions and characteristics that form these information networks, as well as to have a more complete and updated vision of what happens in this area.
PRE-REQUISITE:
CC404 Data Structure
CC406 Operating Systems

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.
PRE-REQUISIT:
ELECTIVE I

EIGHTH SEMESTER

CC092
INFORMATION TECHNOLOGY MANAGEMENT
PRE-REQUISITE:

CE066

SECURITY AND NETWORK MANAGEMENT
PRE-REQUISITE:

CC088
DISTRIBUTED COMPUTER TECHNOLOGY
PRE-REQUISITE:

HU402
Mankind and Ethics
This course reflects on some anthropological conceptions that have taken place throughout history, to better understand how the image we have of human beings has been developed and how we perceive the world, entering the field of personal and social values, to establish some reflections on the professional ethics.

ELECTIVE II

Master's degree in **Science**

The Master's degree in Science has the following specializations:

COMMON AXIS	
• Statistics for decision making	• Decision supporting systems
• Research methodology	• Strategy and competitiveness
• Statistical models	• Administration of projects

CONCENTRATION AXIS (study seven courses)	
AUTOMATION AND CONTROL	• Systems control fundamentals • Programmable controllers' lab • Instrumentation and process control • Digital controllers' lab • Automation and manufacturing control • Programming and control by objects • Intelligent control systems
INDUSTRIAL ADMINISTRATION	• Manufacturing strategies • Manufacturing systems design • Factory operations' administration • International operations and logistics • Economic evaluation of industrial projects • Human resources seminar • Marketing seminar
MATERIAL MANAGEMENT & LOGISTICS	• Supply chain management • Lean manufacturing • Forecasting models and planning • Inventory management • Production floor control • Logistics and distribution • Systems simulation
QUALITY & PRODUCTIVITY	• Total quality management • Systems and quality norms • Quality engineering • Statistical models for quality improvement • Production systems • Application of optimization models I • Application of optimization models II
NETWORKS AND TELECOMMUNICATIONS	• Telecommunication fundamentals • Connection and network design • High performance networks • Wireless networks • Safety on network environment • Information theory and coding • Integration of network services

CONCENTRATION AXIS (study seven courses)	
DISTRIBUTED COMPUTER SYSTEMS	• Architecture and software design • Networks and distributed systems • Advanced programming by objects • Object and data systems • Design of distributed systems • Integration of heterogeneous systems • Mobil computer
DESIGN AND MANUFACTURING PROCESSES	• Mathematical models of mechanical systems • Experimental analysis of mechanical parts • Creation of product prototypes • Energetic design of tools by CAD-CAE • Material engineering • Thermo-fluid fundamentals • Design and application of thermal systems

COMMON CONCENTRATION AXIS OF THE MASTER'S DEGREE IN ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

- Society and the environment
- Environmental pollution
- Environmental education
- Sustainable development
- Statistics for decision making
- Research methodology

SPECIALIZATION AXES

ADMINISTRATION AND ENVIRONMENT MANAGEMENT

- Environmental management
- Environmental policy
- Environmental administration systems
- Environmental security systems

ENVIRONMENT ENGINEERING

- Engineering management
- Environmental quality models
- Environmental impact
- Integral waste handling

SUSTAINABLE DEVELOPMENT

- Sustainability indicators
- Environmental economy
- Environmental project evaluation
- Globalization and the environment

TERMINAL AXIS: CARRY OUT AN APPLICATION PROJECT

We also have the Master's degree in Engineering where the student studies the common axis courses and chooses seven courses of any of the other nine programs, and closes out with an application project.

COMMON AXIS

MA 500
Decision Making Statistics
This course covers the study of statistical procedures through computer examples, as well as the use of specialized software.

CS 502
Research Methodology
This course provides the necessary tools to develop the general process of applied research specifically oriented towards the creation of the protocol of the application project.

MA 502
Statistical Models
This course deals with the presentation of probabilistic and statistical models applied to the different engineering branches. It covers the study of the theory of probability, the random variables, sample distributions, parameters estimation and hypothesis testing procedures. This course is closely related to various topics of the Master's degree in Engineering, among others, Statistical Methods for Quality, Optimization Probabilistic Models, Advanced Statistical Models, and Systems Simulation.

SI 507
Decision Support Systems
The first part of this course deals with the role and importance of information systems in the decision-making processes. The second part covers the models, concepts and technology used in the design of decision support systems. Finally, the third part of the course deals with everything regarding to decision support systems but in corporate environments (businesses and work groups).

AD 510
Strategy and Competitiveness
Students will understand and integrate the elements or components that intervene in the design, formulation, and implementation of a business strategy. They will particularly understand the current concepts of strategic management that impact an organization; these elements are among others: worldwide competition, markets, technology, processes development, and the integration of the organization. Once the possibilities of business strategies and the current concepts are understood, students must define the best strategy according to the established plans through the process of strategic administration.
Students will apply the process of strategic administration to real life situations with the purpose of achieving competitiveness and sustainable development.

AD 509
Project Management
In this course students will develop an integral vision of Project Management, the areas of knowledge that constitute it, and also their relation with other disciplines. During the course, students will develop that abilities that will allow them to plan and organize a project, manage the time and necessary resources to carry it out, determine the necessary organizational structure, and the human aspects that it implies. They will apply cost estimate techniques, budget control, and financial and risk assessments; in general, they will be able to apply performance measures to evaluate the efficiency of a project.
During this course, students will develop a project in which they will put into practice essential professional skills to carry out projects such as negotiation skills, skills to work with virtual and high performance teams, to solve conflicts, communication, and executive presentations. Students will be able to use MS Project software as a project administration and follow-up tool.
This course will provide students with skills and knowledge that have application in all fields of human and professional activities and that could be put into practice in other courses of the Master's degree curriculum.

Concentration Area
Networks and Telecommunication

The objective of this program is to generate specialists of the highest level in the design and development of applied research projects for the improvement and innovation of organizations in modern contexts. The program focuses on the study and application of networks technology and telecommunications for the design of integrated digital services.

What is the required profile to study the Master's Degree in Science with specialization in Networks and Telecommunications?

- To have studies of a bachelor's degree in the area of computer science and electronics and to work in professional activities related to telecommunications and computer networks; however, professionals that studied other majors could start this master's degree as long as they demonstrate solid knowledge in the basic areas of electronics and computer science.
- To be able to use English to process information.

CURRICULUM

The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)

- Statistic Models
- Systems of Decision Support
- Strategy and Competitiveness
- Project Administration

SPECIALIZATION AXIS (7 courses)

- Telecommunications Fundamentals
- Network Design and Connectivity
- High Performance Networks
- Wireless Networks
- Security in Network Environments
- Information and Coding Theory
- Network Service Integration

OPTIONAL AXIS

Students must select 2 additional courses of any CETYS' graduate programs.

- Optional I
- Optional II

TERMINAL AXIS

Application Project (compulsory)

NETWORKS AND TELECOMMUNICATIONS

CE 500
Telecommunications Fundamentals
This course covers the basic topics of electronic communications that are the basis of the communication networks. This course starts by analyzing the different kinds of electric signals and the way of calculating their frequency content that limits the communication channel and the bits rate for the transmission to be carried out. The analog modulation systems are analyzed to serve as basis to the analysis of digital transmission systems. Besides digital signals there are other ways to carry out the transmission. For example through base band, like in most of the local area networks, or in disperse spectrum for wireless communications. Afterwards, the different alternatives to communication networks and the different physical means that are used will be analyzed.

CE 501
Network Design and Connectivity
This course is oriented to the analysis and design of computer networks as wells as their basic and application aspects. The different levels of the OSI reference model will be studied with a focus on the first three: physical layer, data link layer, and network layer. All the basic theoretical aspects will be covered and the application aspects such as structured wiring in the physical layer, the protocols of the different network implementations in the data link layer, and the addressing and routing algorithms in the network layer as well as the devices that function in each one of these levels will be analyzed. In the last part of the course the different criteria to perform a computer network characterization and its design aspects will be analyzed. At the end of the course a computer network will be characterized and/or designed and an improvement proposal must take place.

CE 502
High Performance Networks
This course is oriented towards the analysis of velocity and distance transmission of high performance networks. The course will cover the fundamental and configuration aspects of TCP/IP, which is the main network architecture to date. Then other architectures such as ATM, FDDI, SONET and others will be analyzed. For each of the architectures there will be an analysis of the performance factors, utilized technology and applications. The last part of the course covers how computer networks can offer a guaranteed quality

service for the applications that requires it.

CE 503
Wireless Networks
This course is oriented towards the analysis and design of wireless communication networks emphasizing on data communication through the IP protocol. It starts with an overview of the evolution of wireless systems analyzing cell phone systems and the integration of data communication to these networks. The functioning of the TCP/IP architecture in wireless networks where transmission has interference and information loss will be studied. The architecture of wireless networks, antenna coverage areas, traffic modeling, and the change aspects in the coverage area will be analyzed. At the end of the course a computer network will be characterized and/or designed and an improvement proposal must take place.

CE 504
Security in Network Environments
This course deals with the security aspects of computer networks. Security has two parts, one of them is the security of stored information or the one that travels through the network, and the other is the one related to the physical security of its component equipment. To protect data and the access to it, symmetrical and non-symmetrical encryption techniques such as public and private keys, are used. User authentication is another security aspect that is covered in the course. Establishing security zones helps organizations to guarantee the integrity of its private data but at the same time an external user could use the offered services. To complete the security scheme the devices that help us protect networks and their information will be analyzed. At the end of the course a computer network will be characterized and/or designed and an improvement proposal must take place.

CE 505
Information and Coding Theory
This course covers the aspect concerning the information theory, information coding and data compression. Firstly the discreet and non-discreet random variables will be considered by analyzing the uncertainty of the information. Then the communication channels and sources to establish their capacities and transfer data rate in relation to the noise and distortion that the message can suffer on its way. The ability to recover information and the quantity of it that can be transmitted depends on the coding that is used, which can be linear, cyclical, or convolutional. Along with the coding, information compression, which can be with or without loss depending on the desired compression rate and the specific application, can be introduced. The different algorithms will be programmed to prove their capacities.

CE 506
Network Service Integration
This course is about aspects related to the interconnection of networks through telecommunication systems, mainly the telephone, and to the integration of other types of services to the computer networks, for example voice services. The course contemplates the analysis of the current paradigms regarding communication services as well as the future expectations. There will be a brief review of the LAN and AWN standards, analyzing the different alternatives to services provided by the communication companies. The course also covers the evolution of communication network services that continuously increase their capacity and improve their technology. The integration of other services such as quality, voice, and network call centers and how to share a remote link among different types of applications are covered.

Concentration Area

Control and Automation Sciences

The objective of this program is to generate high-level specialists in the design and development of applied research projects for the improvement and innovation of organizations in modern contexts. The program focuses on the design and implementation of systems based on programmable controllers and micro-controllers as well as their integration in industrial environments and processes.

What are the entry level characteristics you need to study the Master's Degree in Sciences with specialization in Control and Automation Sciences?

- To have completed the bachelor's degree in computer sciences and electronics and to work in professional activities related to the control of industrial processes and/or maintenance and calibration of control equipment; however, professionals that studied other bachelor's could study this master's degree as long as they demonstrate solid knowledge in the fundamental areas of electronics and computers.

- To be able to use English to process information.

CURRICULUM

The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)

- Statistics Models Axis
- Systems of Decisions Support Axis
- Strategy and Competitiveness Axis
- Project Management Axis

SPECIALIZATION AREA (7 courses)

- Control Systems Fundamentals
- Programmable Control Lab
- Instruments and Process Control
- Digital Control Lab
- Manufacturing Automation and Control
- Object Programming and Control
- Intelligent Control System

Optional Axis

Students must select two additional optional courses of any of the CETYS graduate programs.

- Optional I
- Optional II

TERMINAL AXIS

- Application Project

CONTROL AND AUTOMATION

CECE 507
Control System Fundamentals
This course provides students with a view of the different topics related to Control Systems, which are fundamental for the Control of Industrial Automated Processes.
The characteristics of Continuous and Discrete Control Systems are analyzed making special emphasis in the applications related to them. The design and analysis assisted by software tools such as Matlab is an important part of this course. The topics covered in this course are: Introduction to Control Systems, Continuous Control Systems, and Discrete Control Systems.

CE 508
Programmable Control Lab
The general purpose of this course is that students are able to use with a certain degree of expertise the technology and programming languages of Programmable Logic Controllers by different manufacturers.
Students will acquire the abilities and dexterity to assess, select, and implement solution alternatives to automation problems using Programmable Logic Controllers.
The topics that will be covered in this course are: Sequential Logic Control Systems; Programmable Logic Controllers Architecture and Work Environment; Software and Programming Techniques of Programmable Logic Controllers; and Solution Alternatives Implementation and Selection.

CE 509
Instruments and Process Control
This subject provides students with a view of the different elements that compose an Instrumentation System. It is focused on the analysis and design of dynamic variables signal conditioning electronic systems for the Control of Industrial Processes.
The course covers the different forms in which the dynamic variables

that exist in our environments can be measured. It includes the design and implementation of electronic circuits to convert such measures in useful data for a control system of automated processes. Students must acquire the abilities and dexterity to identify the different kinds of sensors and transducers there are as well as the basis for the analysis, design, and implementation of the different circuits for the conditioning of the signals given by such elements.
The topics covered in this course are: Fundamentals of Processes Control Instrumentation; Digital and Analog Signals Conditioning Techniques; Diverse Transducers: Temperature, Mechanical, Optical, Design, and Integration of Processes Control Instrumentation Systems.

CE 510
Digital Control Lab
The general objective of this course is that students manage with certain level of expertise the technology and languages related to Microcontrollers and different Digital Controllers of specific use, making specific emphasis on the use of different types of Controllers of different manufacturers.
Students will also acquire the skills and dexterity for the assessment, selection and implementation of solution alternatives to automation problems by using Digital Controllers.
The topics covered in this course are: Digital Control Fundamentals, Architecture and Programming of Microcontroller, Architecture and Programming of Digital Controllers of Specific use, Assessment, Selection, and Implementation of Solution Alternatives.

CE 511
Manufacturing Automation Control
This course provides students with a view of the different topics related to Manufacturing Automation Control.
The course covers the Numerical Control, Robotics, and Mechatronics focused on the analysis and solution to Automation problems. The design and analysis assisted by software tools are an important part of this course. The topics covered in this course are: Manufacturing Processes Control and Automation; Numerical Control Systems, Robotics, and Mechatronics.

CE 507
Object Programming and Control
This course provides students with a view of the topics related to software development oriented to objects applied to processes control.
The topics to be covered in this course are: Concepts of Orientation Objects. The Importance of Software in Process Control; Software Design for Process Control, and Current Technologies in Process Control Software.

CE 508
Intelligent Control System
This course provides students with a view of the different topics related to Intelligent Control of Industrial Automated Processes.
The course covers the Diffuse Control, Neural Networks, and Robust Control focused on the analysis and solution of Process Control problems. The designs and analysis assisted by software tools such as Matlab are an important part of this course.
The topics to be covered in this course are: Diffuse Control, Neural Networks, and Robust Control.

Specialization in
Industrial Management

The objective of this program is to generate high-level specialists in the design and development of applied research projects for the improvement and innovation of organizations in modern contexts. The program focuses on the design and implementation of systems based on operative strategies for the competitiveness in national and international markets, as well as to develop a strategic visions of the operations in organizations.

What are the entry level characteristics you need to study the Master's Degree in Science with specialization in Industrial Management?

- To have studied a bachelor's degree in Engineering and exact sciences; however, professionals that studied other bachelor's degree could start this master's degree as long as they demonstrate solid knowledge in statistics.

- To be able to use English to process information.

CURRICULUM
The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)
- Statistics Models
- Systems of Decisions Support
- Strategy and Competitiveness
- Project Management

SPECIALIZATION AREA (7 courses)
- Manufacturing Strategies
- Manufacturing System Designs
- Plant Operation Management
- International Logistics and Operations
- Economical Assessment of Industrial Projects
- Human Resources Seminar
- Marketing Seminar

OPTIONAL AXIS
Students must select two additional elective courses of any of the CETYS graduate programs.
- Optional I
- Optional II

TERMINAL AXIS
- Application Project

INDUSTRIAL MANAGEMENT
MF 501
Manufacturing Strategies
Students will have a systemic vision of the supply chain and of the resolution of problems related to manufacturing management and the supply chain. This course covers the efficient integration of providers, manufacturers, warehouses, and stores in a way that the merchandise is produced and distributed in the adequate quantities, location and times. All of these with the purpose of minimizing the costs of all the system while satisfying the required service and quality levels. In other words, looking for the global optimization of the supply system that has a central role in the manufacturing system.

MF 502
Manufacturing System Designs
This course is designed so that students of the Master's Degree in Industrial Management know the activities that are performed in the Production System Design Area; in the organizations that confront global markets where the providers and clients are businesses located around the world. There is special attention to the market dynamism and the sudden changes in potential costumers preferences and in the actions that must be developed to respond to the demands of the international competition. The course covers the analysis of the methodologies of Product and Service Design, Location and Facilities Design, Processes Technology Selection, and the Design of the Processes of Physical Distribution that form the operating strategy in these important areas of Modern Management.

II 508
Plant Operation Management
This course is designed so that the students of the Master's Degree in Industrial Management know the activities that are performed in the Plant Operations Management in the organizations that confront global markets. There is special attention to the market dynamism and the sudden changes in potential costumers preferences and in the actions that must be developed to respond to the demands of the international competitions. This course covers the methodologies of Human Behavior and Productivity, Operations Programming and Production Activities Control (PAC), Selection and Management of Processes Technologies, and Project Planning and Control, which are part of the operating strategy in Modern Management of productive plants.

II 509
International Logistics and Operations
This course is designed so that the students of the Master's Degree in Industrial Management know the activities that are performed in the Production Planning and Control Area in the organizations that confront International Operations and Logistics Activities in global markets where providers and costumers are companies located around the world. There is special attention to the market dynamism and the sudden changes in potential costumers preferences and in the actions that must be developed to respond to the demands of the international competitors. This course analyzes the required methodologies to develop a Feasible Production Master Plan in dynamic manufacturing environments that originate the constant need of products and services innovation offered by organizations.

FZ 509
Economical Assessment of Industrial Projects
This course is designed so that the students of the master's degree in Industrial Management understand the basic concepts and the necessary terminology to perform economical analysis and the role of Economical Engineering in the decision making process. This course covers the basic factor derivation in economical calculations and its use in planning horizons other than years by highlighting the importance of calculating the effective interest in economical analysis. Multiple factors are used to assess cash flows that are present in industrial projects in different ways, by instructing about the use of the main private projects assessment method, and including asset depreciation and inflation management in the evaluations of the companies. Lastly, Selected Topics of economical assessment are included, among them: Market, Technical, and Economical.

RI 516
Human Resources Seminar
This course offers a general knowledge on human resources management, covering the different planning areas and elements, work design and analysis, recruitment and selection, training and development, assessment, and work relationships.

MK 511
Marketing Seminar
Students will be introduced to the marketing process. They will analyze marketing behavior and the types of buyers; they will determine the marketing opportunities and marketing application for the satisfaction of these opportunities in order to achieve a correct management in the marketing process.

Specialization in

Materials and Logistics Administration

This program focuses on the strategy instrumentation for inventory, logistics and distribution management that support the organization objectives under a systems approach, as well as the design and implementation of production materials forecast, planning and control systems.

What are the entry level characteristics you need to study the Master's Degree in Science with specialization in Material and Logistics Administration?

- To have finished a bachelor's in engineering and to be working in materials planning processes and control; however, professionals that studied other bachelor's degree could start this master's as long as they demonstrate solid knowledge in statistics.

- To be able to use English to process information.

CURRICULUM

The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)

- Statistics Models Axis
- Systems of Decisions Support Axis
- Strategy and Competitiveness Axis
- Project Management Axis

SPECIALIZATION AXIS (7 courses)

- Supply Chain Administration
- Lean Manufacturing
- Prediction and Planning Models
- Inventory Management
- Production Area Control
- Logistics and Distribution
- Systems Simulator.

OPTIONAL AXIS

Students must select two additional optional courses of any of the CETYS graduate programs.

- Optional I
- Optional II

TERMINAL AXIS

Application Project

MATERIALS AND LOGISTISC ADMINISTRATION

II 502
Supply Chain Management

In this course students will develop an integral vision of Supply Chain Management (SCM) under a strategic approach in the international operations environment. Students will be able to incorporate the SCM approach for the optimization of the business global functions. They will know the different SCM functions and activities. They will understand the relation between the inventory planning and management and SCM. They will be exposed to practical tools and contemporary cases that will allow them to apply their knowledge on provider selection, logistics, outsourcing, global purchases, contracts, price analysis, and costs. They will be able to determine the information technologies for supply processes that have a major potential according to the business environment. Lastly, students will determine the application of the SCM approach to their business as a competition factor.

MF 509
Lean Manufacturing

In this course students will develop an integral vision of Lean Manufacturing and of the organizational steps and requirements for its implementation. Through the use of cases, they will develop deep understanding of Lean Manufacturing implications and the benefits it offers to an organization.
They will know and apply Lean Manufacturing traditional tools such as value chain mapping, fast change methods, total productive maintenance, problem solving techniques, pull systems, and the visual factory.
The course has a strong orientation towards the understanding and application of the lean manufacturing implementation process in industrial environments.

II 504
Prediction and Planning Models

This course is centered on the master planning of resources in the business planning process, covering the demand management, sales, operations, and master programming planning. The course contemplates a general vision of the planning hierarchy in an organization, as well as its interrelation with the supply chain.
The course provides students with the tools for management demand through prediction models applied to different business environments. Students will be able to determine the appropriate models for each situation and will understand the function of such models and they will use the computer to implement them in real situations. The monitoring of prediction validation and precision tools are also considered.
Students will master the sales and operations planning process in a way that the business could be directed in a strategic form to achieve a sustainable competitive advantage through markets integration and the development of new products with the supply chain.
Students will know, understand, and apply the master programming process with different variation and approaches depending on the type of organization.

II 503
Inventory Management

This course provides students with the inventory management theoretical fundamentals that will allow them to intervene from the designing and implantation stage to the improvement of inventory management systems. The course contemplates a practical and application approach that parts from the knowledge of inventory models including their technical and statistical foundations to give students a full understanding that will allow them to assess and decide on the inventory systems used in an organization.
The course highlights the importance of having reliable and timely information that indicates quantities, amounts, exact location and identification of inventories that provide the organization a higher profitability. The use of computers to work on inventory models is contemplated. New technologies, including e-commerce and its impact on inventory models trends, particularly towards dependent demand systems are highlighted.
The course provides knowledge and skills to establish an adequate inventory control through processes that permit the implementation of classification, monitoring, and control systems in search of reliable and timely information.
Lastly students are provided with the necessary knowledge to understand the inventory management interface with the MRP and Just in Time approaches. The course methodology utilizes practical examples and spreadsheets to accelerate their performance, guiding students towards an information analysis and interpretation approach for decision making in a business environment.

II 505
Production Area Control

This course covers the principles, approaches, and techniques that are required to program, control measure and assess the effectiveness of production operations.
It covers topics on production areas control under different environments such as workshops, continuous process and high volume; all of these related to the work environment and the physical organization of the facilities.
Students will be exposed to the different techniques through which a plant ensures feedback on the execution of its operations and provides information to its customers and suppliers about works in process. The course consists of three important stages that constitute the control of the shop floor operations. These stages are: a) prioritization and sequencing of the work to be done; b) plans, execution, implementation of controls, and reports of activities results; c) performance assessment and feedback.

II 506
Logistics and Distribution

This course provides students with the logistics theoretical foundations and the practical application models that will allow them to intervene from the design of an implementation stage to improvement of the logistics and distribution systems with an approach that covers the organization and its supply chain.
This course has a practical and application approach that parts from the knowledge of logistics models, including their technical foundations to provide students with a complete understanding that helps them assess and make supply, storage, distribution, and transportation decisions.
This course provides a complete view of the modern trends in this discipline and how the information technologies for system optimization are used. Students will be exposed to situations where they will have to design, decide, and determine system-improving strategies.

II 507
Systems Simulator

This course focuses on the strengthening of students' design, analysis, and system synthesis skills. The systems that will be studied are the ones called human activity systems, characterized for the inclusion of the human element among its components and for the presentation of a stochastic and dynamic behavior. The need of modeling this type of systems can have different reasons: To understand its behavior and be able to describe it in objective terms, to look for the design that optimizes its performance, or to propose a design for a system that exists only as a project. Something that is in the planning stage or is a proposal about design techniques as well as implementation technology.

Specialization in
Quality and Productivity

The objective of this program is to generate first class specialists in the design and development of applied research projects for the improvement and innovation of organizations in modern contexts. The program focuses on the design and implementation of quality and productivity programs in organizations, contemplating the use of statistical technology for products and processes improvement.

What are the entry level characteristics you need to study the Master's Degree in Science with a specialization in Quality and Productivity?

- To have finished a bachelor's degree in engineering and to work as a professional on processes and planning activities and quality control in businesses; however, professionals that studied other bachelor's degree could start this master's degree as long as they demonstrate solid knowledge in statistics.

- To be able to use English to process information.

CURRICULUM

The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)

- Statistics Models Axis
- Systems of Decisions Support Axis
- Strategy and Competitiveness Axis
- Project Management Axis

SPECIALIZATION AXIS (7 courses)

- Total Quality Management
- Quality Systems And Norms
- Quality Engineering
- Statistic Models To Improve Quality
- Production Systems
- Application Of Optimization Models I
- Application Of Optimization Models II

OPTIONAL AXIS

- Students must select two additional optional courses of any of the CETYS postgraduate programs.
- Optional I
- Optional II

TERMINAL AXIS

Application Project

QUALITY AND PRODUCTIVITY

II 510
Total Quality Management
During this course students will learn the different concepts and principles of quality management, with the purpose of generating a conceptual framework of a total quality management model and proposing their administration in manufacturing and services organizations. The course covers the processes for quality management from the detection of costumers needs to the aftermarket service. It also deals with the use and application of some models used in such processes. Students will learn fundamental concepts and models in the quality management field through the combination of reading assignments, class participation, cases solution, and other individual and group assignments.
Students will work in a teamwork environment. They will practice their oral and written skills to discuss and present information related to the concepts seen in class.

II 511
Quality Systems and Norms
In this course, students will acquire knowledge on quality assurance systems to apply it in the control and improvement of products and services offered by organizations. The course covers the Quality Assurance procedures from detection of costumer needs to the aftermarket service. It also deals with the use and application of some models used in such processes. Students will learn fundamental concepts and models in the quality management field through the combination of reading assignments, class participation, cases solution, and other individual and group assignments.
Students will work in a teamwork environment. They will practice their oral and written skills to discuss and present information related to the concepts seen in class.

II 512
Quality Engineering
During this course students will learn the different concepts and principles about Quality Engineering, particularly with the statistics models applied to processes and product quality improvement. Students will also get involved in the partial or total application of the tools seen in class through the use of study cases, assignments, and projects related to their professional area.
Once completed the learning activities, students will apply quality engineering statistic models, as well as their foundation principles to the control and improvement of the processes and product quality in the human activity systems. Throughout the course students will learn from an active perspective the statistic models of Quality Engineering such as the processes statistic control, Process Capability Analysis, and the quality improvement models. Students will work in a teamwork environment. They will practice their oral, written, and graphic skills to discuss and present information related to the foundation involved in the development of a Quality Engineering project.

II 513
Statistics Models to Improve Quality
During this course students will learn the different concepts and principles of Quality engineering, particularly the statistic models applied to the products and processes design, control and improvement, to generate a conceptual framework, and the methodology to design, conduct, and analyze industrial experiments. Students will be involved in the total or partial application of the tools seen in class by doing work and projects related to their professional area. Students will learn fundamental models and concepts in the experiment design field through the combination of reading assignments, class participation, solution cases, and other individual and group assignments. Students will work in a teamwork environment. They will practice their oral and written skills to discuss and present information related to the concepts seen in class.

II 514
Production Systems
During this course students will learn the different concepts and models of Production systems, particularly the ones related to the efficient transformation of goods, to develop a conceptual framework of the function of production, and to apply the different strategies and models used in the design and operation of productions systems. Students will be involved in the total or partial application of the tools seen in class by doing work and projects related to their professional area.
Students will learn the operations and production management fundamental concepts and models through the combination of reading assignments, class participation, solution cases, and other individual and group assignments. Students will work in a teamwork environment. They will practice their oral, written, and graphic skills to discuss and present information related to the concepts seen in class.

II 515
Application of Optimization Models I
Students will apply the optimization deterministic models (ODM) to plan and design industrial systems and of human activity.
During the course students will use application software in linear programming to formulate, resolve, and interpret the solutions to resource assignation problems among activities in production programming areas, personnel programming, product mixing, merchandise, and product distribution logistics. Students will elaborate a final project consisting of the application of the techniques seen in class in a real problem.

II 516
Application of Optimization Models II
Students will apply optimization techniques to problems of a probabilistic character related to the design, analysis, management, and optimization of human activity systems. More specifically, students will use the decision making process developed by the Probabilistic Models of Operations Research (MPIO) to describe and resolve problems such as: Decision Analysis, Markov Chains, Waiting Lines, and Inventory Models.

Specialization in
Networks and Telecommunication

The objective of this program is to generate first class specialists in the design and development of applied research projects for the improvement and innovation of organizations in modern contexts. The program focuses on the study and application of networks technology and telecommunications for the design of integrated digital services.

What are the entry level characteristics you need to study the Master's Degree in Science with specialization in Networks and Telecommunications?

- To have finished a bachelor's degree in the area of computer science and electronics and to work in professional activities related to telecommunications and computer networks; however, professionals that studied other majors could start this master's degree as long as they demonstrate solid knowledge in the basic areas of electronics and computer science.

- To be able to use English to process information.

CURRICULUM

The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)

- Statistic Models

- Systems of Decision Support
- Strategy and Competitiveness
- Project Administration

SPECIALIZATION AXIS (7 courses)

- Telecommunications Fundamentals
- Network Design and Connectivity
- High Performance Networks
- Wireless Networks
- Security in Network Environments
- Information and Coding Theory
- Network Service Integration
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OPTIONAL AXIS

Students must select 2 additional courses of any CETYS postgraduate program.

- Optional I
- Optional II

TERMINAL AXIS

Application Project (compulsory)

NETWORKS AND TELECOMMUNICATIONS

CE 500
Telecommunications Fundamentals
This course covers the basic topics of electronic communications, which are the basis of communication networks. This course starts by analyzing the different kinds of electric signals and the way of calculating their frequency content that limits the communication channel and the bitrate for the transmission to be carried out. The analog modulation systems are analyzed to serve as basis to the analysis of digital transmission systems. Besides for digital signals there are other ways to perform the transmission; for example through base band like in most of the local area networks; or in disperse spectrum for wireless communications. Afterwards the different alternatives to communication networks and the different physical means that are used will be analyzed.

CE 501
Network Design and Connectivity
This course is oriented to the analysis and design of computer networks as well as their basic and application aspects. The different levels of the OSI reference model will be studied with a focus on the first three: physical layer, data link layer, and network layer. All the basic theoretical aspects will be covered and the application aspects such as structured wiring in the physical layer, the protocols of the different network implementations in the data link layer, and the addressing and routing algorithms in the network layer as well as the devices that function in each one of these levels will be analyzed. In the last part of the course the different criteria to perform a computer network characterization and its design aspects will be analyzed. At the end of the course a computer network will be characterized and/or designed and an improvement proposal must be done.

CE 502
High Performance Networks
This course is oriented towards the analysis of velocity and distance transmission of high performance networks. The course will cover the fundamental and configuration aspects of TCP/IP, which is that main network architecture to date. Then other architecture such as ATM, FDDI, SONET and others, will be analyzed. For each of the architectures there will be an analysis of the performance factors, utilized technology, and applications. The last part of the course covers how computer networks can offer a guaranteed quality service for the applications that required so.

CE 503
Wireless Networks
This course is oriented towards the analysis and design of wireless communication networks emphasizing on data communication through the IP protocol. It starts with an overview of the evolution of wireless systems analyzing cell phone systems, and the integration of data communication to this networks. The functioning of the TCP/IP architecture in wireless networks where transmission has interference and information loss will be studied. The architecture of wireless networks, antenna coverage areas, traffic modeling, and the change aspects in the coverage area will be analyzed. At the end of the course a computer network will be characterized and/or designed and an improvement proposal must be done.

CE 504
Security in Network Environments
This course deals with the security aspects of computer networks. Security has two parts, one of them is the security of stored information or that travels through the network, and the other is the one related to the physical security of its component equipment. To protect data and the access to its symmetrical and non-symmetrical encryption techniques, such as public and private keys, are used. User authentication is another security aspect that is covered in the course. Establishing security zones helps organizations to guarantee the integrity of its private data but at the same time that external user could use the offered services. To complete the security scheme the devices that help us protect networks and their information will be analyzed. At the end of the course a computer network will be characterized and/or designed and an improvement proposal must take place.

CE 505
Information and Coding Theory
This course covers the aspect concerning the information theory, information coding, and data compression. Firstly, the discreet and non-discreet random variables will be considered by analyzing the uncertainty of the information. Then, the communication channels and sources to establish their capacities and transfer data rate in relation to the noise and distortion that the message can suffer on its way. The ability to recover information and the quantity of it that can be transmitted depends on the coding that is used, which can be linear, cyclical, or convolutional. Along with the coding, information

Specialization in
Design and Manufacturing Processes

The objective of this program is to generate high first class specialists in the design and development of applied research projects for the improvement and innovation of organizations in modern contexts. The program focuses on the modeling, analysis and design of mechanical products at the same time on the design of their manufacturing processes, considering the aspects of energy usage.

What are the entry level characteristics you need to study the Master's Degree in Science with specialization in Design and Manufacturing Processes?

- To have finished a bachelor's degree in mechanical engineering and manufacturing and to be a design and manufacturing professional in businesses; however, professionals that studied other bachelor's could start this master's as long as they demonstrate solid knowledge in the fundamental areas of mechanical engineering and manufacturing.

- To be able to use English to process information.

CURRICULUM

The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)

- Statistical Models
- Systems of Decisions Support
- Strategy and Competitiveness
- Project Management

SPECIALIZATION AXIS (7 courses)

- Mathematical Models Of Mechanical Systems
- Experimental Analysis Of Mechanical Parts
- Product Prototype Generation
- Energetic Design Of Cad-Cae Tools
- Materials Engineering
- Thermo-Fluid Fundamentals
- Thermal Systems Design And Application

Optional Axis

Students must select two additional optional courses of any of the CETYS postgraduate programs.

- Optional I
- Optional II

Terminal Axis

Application Project

DESIGN AND MANUFACTURING PROCESSES

MA 503
Mathematical Models of Mechanical Systems
The objective of the course is to provide students with analysis, modeling, synthesis, and simulation methodologies used for the application in the design of mechanical, thermal, fluids, electrical, electromagnetic, and electronic systems behavior. The application of energetic methods and state variables are required.
The course starts with the equation formulation, answers in linear systems time, Laplace transform, computing simulations, mechanisms kinematics, and kinetics for dynamic mechanical systems.

MF 503
Experimental Analysis of Mechanical Parts
This course covers the efforts, deformations, and resistance of different mechanical parts subject to uniaxial, biaxial, and triaxial stress; the elastic relation between strain and deformation, failure theories, use of energetic methods for elastic deflection using the Castigliano's method and impact loading, as well as the design of these bodies dimensions. The course also covers the observation through experimental methods, some of the design parameters and their relation with the experimental parameters such as frail laquer, photoelasticity, and strain gauges. This course is important since it encompasses the design knowledge to translate them in methodologies for its complete study and in this way to get close to the design reality. Students must participate in all learning activities such as: analytically modeling mechanical problems, that is, doing the necessary free body diagrams, calculate the conventional strain, unitary deformation, specific and total energies, all of this in an analytical way using MAPLE software and a virtual verification with COSMOSM, and in some specific cases with experimental methods.

MF 505
Product Prototype Generation
This course is oriented towards the different methodologies for product development, as well as the computer-assisted design of parts, assembly design, and the different techniques to generate rapid prototypes.

MF 504
CAD-CAE Tools Energetic Design
This course focuses on general tool designing, therefore it is necessary the presentation by the instructor putting attention on the analytic details that

cover the different energetic methods. Typical problems related to each topic will be solved in class, providing students the opportunity to solve them on the boars. There will be multiple-choice tasks of the factors to be considered such as security, dimensioning, resistance factors, among others. Students will be able to solve the using programming language, spreadsheets in the application of the Computer Assisted Engineering (CAE-CAE), and application of the Finite Elements Methods (FEM).
Assignments will be commented in class and some of them will have to be presented by the students. There will be discussions of the achieved results. There will be some practicum to observe the behavior of the hardness in the elements mechanically worked and how they change under thermal treatment.

MF 506
Materials Engineering
This course focuses on the comprehension and knowledge of engineering materials and their behavior when they are subject to different working conditions. What are the different processes they allow so they can get functional degree products.

MF 507
Thermo Fluids Fundamentals
The objective of this course is to introduce students in their first year of graduate studies to the fundamental aspects of fluid mechanics, heat transfer, and thermodynamics. The course emphasizes in the application of the fundamental principles of these sciences to the practical understanding of the operation of different devices and industrial and processes systems. The focus will be centered on energy saving and efficiency of these processes. During the classes students will learn the basic theory accompanied by practical problems.
During the course student must perform independent reading and assignments. At the end of the course students will work on a project in which they apply all the principles seen in class.

MF 508
Thermal Systems Design and Applications
The objective of this course is to apply the fundamental principles of thermal engineering for the practical understanding of the operation of different devices, industrial and processes systems. Special emphasis will be on the understanding of these processes and systems to achieve an optimal design and operation from the point of view of energetic efficiency.
During the course students must perform independent reading and assignments. At the end of the course students will work on a project in which they will apply all the principles seen in class.

Specialization in **Environment and Sustainable Development**

The general objective of this program is to form professionals capable of carrying out applied research projects. This objective incorporates the management principles and tools to the environmental issues of public and private organizations in order to mitigate and/or prevent environmental problems so that a sustainable development can be achieved. This course will also include a solid training in discipline through an integral knowledge of the relationships between society and environment, pollution, legislation, and environment. It will also analyze and assess the conditions of the regional environment, identifying the most important necessities and/or problems that could be addressed through application projects.
CETYS Master's Degree in Environment and Sustainable Development aims for the preparation of high level specialists and professionals that will develop skills to use information technology to implement the monitoring of operative and strategic processes. They will develop skills in the use of computing tools to apply them in their specialization area models, and they will apply their leadership skills in the solution of problems through applied research projects.

What are the entry level characteristics you need to study the Master's Degree in Science with specialization in Environment and Sustainable Development?

- To have finished different majors.
- To be a professional participating in the public, social, and private sectors willing to carry out an applied research project.

CURRICULUM

The program consists of 14 courses divided in 4 training axes in which each course has 6 academic credits. The courses will have instructor guided sessions and independent tasks and research assigned by the instructor.

COMMON AXIS (4 courses)

- Statistics Models
- Systems of Decisions Support
- Strategy and Competitiveness
- Project Management

SPECIALIZATION AXIS
ADMINISTRATION AND ENVIRONMENTAL MANAGEMENT

- Environmental Policies
- Environmental Management Systems
- Environmental Security Systems

ENVIRONMENTAL ENGINEERING

- Environmental Engineering
- Quality Environmental Models
- Environmental Impact
- Integral Residue Management

SUSTAINABLE DEVELOPMENT

- Sustainability Indicators
- Environmental Economy
- Projects Environmental Assessment
- Globalization And Environment

OPTIONAL AXIS

Students must select two additional optional courses of any of the CETYS postgraduate programs.

- Optional I
- Optional II

TERMINAL AXIS

Proyecto de Aplicación (Obligatoria)

COMMON AXIS

DS 500
Society and Environment
This course covers the interaction society-environment in a context of environmental crisis, social inequality and acute global inequality due to the current production-consumption system, the population growth rates, and the natural resources depletion. The course also analyzes the ways in which the civil society has been organized with the objective of influencing the decision-making that affects our environment.

DS 501
Environmental Pollution
This course covers in a general way the aspects of the global environmental degradation, its sources, typology, and effects, as well as the main efforts of binational collaboration to study the case of the Mexicali-Imperial Valley border region.

DS 503
Environmental Education
This course presents environmental education as the indispensable tool for the education and learning about the protection of the environment from an interdisciplinary perspective.

DS 504
Sustainable Development
This course covers the general aspects of sustainable development, from its conceptualization to the revision of programs oriented to sustainability achievement.

MA 500
Statistics for Decision Making
This course covers the study of the statistical procedures through computing examples, as well as the use of specialized software in the area.

CS 502
Research Methodology
This course provides the necessary tools to develop the general process of applied research oriented in a specific way towards the elaboration of an application project protocol.

SPECIALIZATON AREA IN ENVIRONMENTAL MANAGEMENT

DS 505
Environmental Management
This course presents the general guidelines that characterize the environmental management on the border in detail. It also describes the procedures for the implementation of environmental managing programs in the industry.

DS 506
Environmental Policies
This course covers from different perspectives the environmental policies adopted by the Mexican State in the face of an environmental crisis.

DS 507
Environmental Management Systems
This course covers the basic elements for the implementation of an environmental management system as well as the basic tools to start it.

DS 508
Environmental Security Systems

This course offers in an integrated way the necessary tools for the risk prevention and analysis of the productive processes and methods to achieve a safe working environment, and to be applied in industries and organizations to increase productivity and comply with international norms.

SPECIALIZATON AREA IN ENVIRONMENTAL ENGINEERING

DS 509
Environmental Engineering
This course offers knowledge of adequate methods, techniques, and instruments for the solution of environmental problems in the framework of environmental engineering regarding water, air, and noise; as well as a brief introduction to the managing of solid residue.

DS 510
Quality Environmental Models
This course offers in an integrated way the necessary concepts, tools, and methods for the quality control and management in the productive processes focused on a clean production.

DS 511
Environmental Impact
The purpose of this course is to provide the necessary tools so that students could support in the impact of decision making that could emerge as a consequence of the realization of a project.

DS 512
Integral Residue Management
This course provides knowledge on the adequate methods, techniques, and tools for the integral management of solid residue in the framework of environmental engineering. It also covers successful experiences to implement solutions in a practical way.

SPECIALIZATON AREA IN SUSTAINABLE DEVELOPMENT

DS 513
Sustainability Indicators
This course covers in a general way the international proposals for the generation of environmental performance indicators, and the results for the case of Mexico are analyzed.

DS 514
Environmental Economy
This course offers a vision of how environmental problems in industrialized countries are confronted. Basic ideas on the sustainable management and exploitation of available natural resources are presented parting from the economic theory.

DS 515
Projects Environmental Assessment
This course covers the environmental assessment on projects and development policies, plans, and programs in order to make optimal decisions from an environmental point of view.

DS 516
Globalization and Environment
This course provides a general view of globalization and its implications, highlighting some of its main challenges.

DS 516
Globalización y medio ambiente
El curso proporciona un panorama general acerca de la globalización y sus implicaciones en materia ambiental, destacando algunos de sus principales retos.

Specialization in
Aerospace Engineering

The objective of this program is to generate first class specialists in the design and development of applied research projects for the improvement and innovation of organizations in modern contexts.

As well as to help students to acquire and/or perfect three qualities to maximize their personal and professional development: project strategic and operative vision in its professional content, problem analysis and solution in the field of aerospace engineering, and to develop a research culture according to the scientific method.

What are the entry level characteristics you need to study the Master's Degree in Science with Specialization in Aerospace Engineering?

- To be an engineering graduate with a solid formation in mathematics, physics and statistical probability.
- To be able to use English to process information.

CURRICULUM

The curriculum consists of a total 14 courses divided in 4 Training axes in which each course has 6 academic credits.

Common Axis (4 courses)

- Statistical Models
- Systems of Decisions Support
- Strategy and Competitiveness
- Project Management

Specialization Area (7 courses)

- Advanced Mathematics
- Materials Engineering
- Aerospace Conceptual Design
- Finite Element for Aerospace Applications
- Aerospace Prototypes Generation
- Specialization Elective Course I
- Specialization Elective Course II

OPTIONAL AXIS

Students must select two additional optional courses of any of the CETYS postgraduate programs.

- Optional I
- Optional II

TERMINAL AXIS

- Application Project (Compulsory)

COMMON AREA

Statistical Models
This course deals with the presentation of probabilistic and statistical models applied to the different engineering branches. It covers the study of the theory of probability, the random variables, sample distributions, parameters estimation, and hypothesis testing procedures. This course is closely related to various topics of the Master's in Engineering, among others, Statistical Methods for Quality, Optimization Probabilistic Models, Advanced Statistical Models and Systems Simulation

Decision Support Systems
The first part of this course deals with the role and importance of information systems in the decision-making processes. The second part covers the models, concepts, and technology used in the design of decision support systems. Finally, the third part of the course deals with everything regarding to decision support systems but in corporate environments (businesses and work groups).

Strategy and Competitiveness
Students will understand and integrate the elements or components that intervene in the design, formulation, and implementation of a business strategy. They will particularly understand the current concepts of strategic management that impact an organization; these elements are among others: worldwide competition, markets, technology, processes development, and the integration of the organization.

Project Management
In this course students will develop an holistic vision of Project Administration, the areas of knowledge that constitute it, as well as their relation with other disciplines. During the course, students will develop the abilities that will allow them to plan and organize a project, manage the time and necessary resources to carry it out, determine the necessary organizational structure, as well as the human aspects that it implies.

SPECIALIZATION AREA

Advanced Mathematics
The course objective is to provide students with analysis, modeling, synthesis, and simulation methodologies used for the application in the design of behaviors of mechanical, thermal, hydraulic, pneumatic, electric, electromagnetic, and electronic systems. The application of energetic methods and state variables are also required.

Material Engineering
This course focuses on the comprehension and knowledge of engineering materials and their behavior when they are subject to different working conditions. The different processing that they allow to result in a product with a different degree of functionality.

Aerospace Conceptual Design
This course focuses on the methodology for the preliminary dimensioning of an airplane with a given determined specification. Design characteristics include aerodynamic configuration, weight, drive, velocity, propulsion, structural configuration, stability, and control. Students develop conceptual designs for an airplane with specific characteristics.

Finite Element for Aerospace Applications
The objective of this course is to teach the fundamentals of the finite element method with an emphasis on the modeling theory, conditions, and characteristics so that students could use software that allows them to resolve different applications in aerospace components.

Aerospace Prototype Generation
This course is oriented towards the different methodologies for product development, as well as for the computer assisted design, assembly design, as well as the different techniques to generate quick prototypes so they could be assessed under laboratory conditions and verified with computer data acquisition systems.

TERMINAL AXIS

Application Project
Throughout the course, students will develop and apply research project to demonstrate their analysis skills, teamwork, interpretation, and application of knowledge and tools acquired during the master's degree program.

College of Social Sciences and Humanities

Our **educational offer**

Undergraduate Programs	Ensenada	Mexicali	Tijuana
Bachelor's dregree in Law		●	●
Bachelor's degree in Education Science			●
Psychology		●	●
» Clinical » Educational » Organizational » Child			

Graduate Programs	Ensenada	Mexicali	Tijuana
Master's degree in psychology concentration in: Clinical Psychology, Family Therapy, Special Education, Organizational, Development, Criminology, Family Therapy.		●	●
Master's degree in Education concentration in: Legislation Culture, Organizational Development, Special Education.		●	●
Master's degree in Criminology	●	●	●
Master's degree in Corporate and International Law			

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Bachelor's degree in **Law**

It is the professional highly qualified in the various branches of Law; being able to plan, prevent, negotiate, and solve all kinds of situations in the judicial field by representing his/her individual clients and companies with quality, ethics, and efficiency focused on new tendencies, challenges, and opportunities that arise from a globalized world.

What are the career fields for a Lawyer?

- Legal Department of decentralized organizations or of government participation.
- Legal Department of private national or international corporations.
- Legal Department of Financial Institutions.
- Corporate Law and Private Consulting.
- Attorney at Law.
- Public charges in the judicial branch.
- Research and Legal Education.

What are the characteristics or abilities you will acquire at the end of the program?

At the end of the Bachelor's Degree in Law you will be able to perform:

- Prevention and solution of legal problems.
- Corporation and public organization consulting of legal matters.
- Represent parties in diverse legal processes.
- Legal Auditing in private and public institutions.
- Legal planning in diverse corporate areas.
- Application of diverse problem solving alternatives in legal matters.
- Ability to produce arguments and to express himself/herself.
- Interpretation and analysis of diverse legal tendencies.
- A high sense of ethics and justice.
- Ability to perform legal research.
- Ability to communicate in English, especially in legal terms.

What are the entry level characteristics you need to study the Bachelor's degree in Law?

If this is what you want to do, then your profile as a Law student must meet the following characteristics:

- Dedication to the study of Law and Social Sciences in general.
- Ability to develop interpersonal relations. Lawyers have constant and direct contact with people of different levels: employees, clients, managers, technicians, and professionals from other areas.
- Ability to negotiate and solve conflict between parties.
- Ability to work in teams of various disciplines. In your professional life you will have to interact with professionals of other disciplines; therefore, you will have to understand and analyze problems from the perspective and methodology of other areas.
- Ability to communicate verbally and in written form.
- Ability to be critical-analytical and argumentative.

Do you want to know which courses you will take in the Bachelor's degree in Law?

The curriculum contains 42 required courses, distributed throughout 8 semesters and divided into 3 training axes:

- Common Axis
- Basic field Axis
- Specific training Axis.

Plan de estudios

Materias sugerida por semestre

1	DE406	Teoría del derecho
	DE407	Derecho romano
	DE408	Sistemas jurídicos contemporáneos
	CS401	Habilidades del pensamiento
	CS400	Comunicación avanzada en español
2	DE409	Derecho de familia y sucesiones
	DE410	Derecho penal I
	DE411	Derecho del trabajo I
	DE412	Teoría del estado
	EC400	Globalización y desarrollo económico
	CS403	Cultural I *
3	DE413	Bienes y derechos reales
	DE414	Derecho penal II
	DE415	Derecho constitucional
	DE416	Teoría general del proceso
	ID400	Comunicación avanzada en inglés
	CS404	Cultural II *
4	DE417	Obligaciones
	DE418	Derecho del trabajo II
	DE419	Derecho mercantil I
	DE420	Derecho procesal penal
	DE421	Garantías constitucionales
5	DE422	Contratos
	DE423	Derecho mercantil II
	DE424	Amparo
	DE425	Derecho en administración y seguridad social
	CS402	Metodología de la investigación
6	DE426	Derecho procesal civil y mercantil
	DE427	Amparo II
	DE405	Derecho fiscal
	DE428	Derecho internacional público y privado
	HU401	Ser Humano, Historia y Sociedad
7	DE429	Derecho procesal fiscal y administrativo
	DE430	Legislación aduanera y de comercio
	DE431	Filosofía del derecho
	OP400	Optativa I
	HU400	Ser humano y medio ambiente
8	DE432	Derecho de la propiedad intelectual
	DE433	Medios alternos de solución de controversias
	DE434	Tratados y acuerdos comerciales
	HU402	Ser humano y la ética

Horas de clase por semana: 4 / Unidades por materia: 8
* Horas de clase por semana: 2 / Unidades por materia : 4

Course **Descriptions**

FIRST SEMESTER

DE 406
Theory of Law
This course is delivered on the first semester of the Bachelor of Arts in Law. Its objective is to introduce students through knowledge and a broad and complex understanding of the world of Law, its social, normative and values dimension.

DE 407
Roman Law
This course, delivered on the first semester of the Bachelor of Arts in Law, is indispensable in the academic, cultural, and social training of all students who aspire a Degree in Law, since the knowledge of antique laws as a historical, legal, and politician background are very important, and the ordinances and legal structures of the Positive Mexican Law have its origins in them. Likewise, by acknowledging this, it is easier for Law students to better understand the diverse institutions from a valid legal framework to our times, thus encouraging a search and an initiative of the legal progress for the constant and necessary evolution of Law.

DE408
Contemporary Legal Systems
Introduces students to the knowledge and understanding of the world of law, from a global, international, and comparative perspective.

CS401
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS400
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

SECOND SEMESTER

DE409
Family and Succession Law
This course identifies the general concepts of Family Law and its sources, to know and appreciate the transcendence of legal relations posed in Family Law: relationships, marriage, concubinage, divorce, affiliation, legitimation, custody, adoption, guardianship, patrimony, and succession.

DE410
Criminal Law I
This course is eminently theoretical, since it is centered on the history of Criminal Law, theory of felony, theory of sentence, and safety measures. It goes before the study of special criminal law, or particular offenses. It is placed on the second semester because of its introductory character for the rest of the special areas of criminal law, and procedural criminal law. This course analyzes the main criminal law institutions, such as subjects, norms, effects of conducts, as well as the sources of criminal law. General topics related to felonies and Iter Criminis are also analyzed. This first course is complemented with other two substantive courses.

DE411
Labor Law I
The course is distinguished for providing the fundamentals of legal labor law in the program. It is placed on the second semester. It is a basic course, where students will know and learn the working relations, their importance, their sources, the subjects of labor law, and how the corresponding authorities operate. All these topics will allow students to understand the working environment.

DE412
Theory of State
It is a theoretical course where transcendence topics related to the state are analyzed, such as: definition, composition, historical evolution, and elements. It is a course that will give students tools for a better participation in latter courses that involve the state as a subject; among them: Constitutional Law, Constitutional Rights, and General Theory of Process, as well as those courses from the Public Law area.

EC400
Globalization and Economic Development
This course is one of the first that make up the area of life long education, and as such, it intends to help students achieve a general vision of cultural, technological, political, social and economic aspects that will allow them to have the bases to interpret the global world and its transformation since the 1980's.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

THIRD SEMESTER

DE413
Goods and Real Rights
This course identifies the necessary elements about concepts related to: patrimony, goods, real rights, possession, copyrights, and property public records, in order to acquire knowledge on patrimony institutions.

DE414
Criminal Law II
This course identifies the necessary elements for the knowledge of felonies in general, and it is integrated to the knowledge of Criminal Law I in its dogmatic area, thus establishing a group of theoretical knowledge that students must learn. Therefore, through instructors' presentations, and students´ individual or group work, in addition to plenary, discussions, cases analysis, research and search for jurisprudence, students are able to identify human behaviors that are considered typical, unlawful, and guilty within society; in addition, they will learn to precise the elements of each criminal type. That is why it is indispensable to course Criminal Law I.

DE415
Constitutional Law
It is a general, but selective outline of the historical-political development of the principal and multiple acceptations by which the Mexican Constitutional Rights have gone through: institutions generated from a legal environment, regarding the organization and functioning of the Mexican State; therefore, students in this course are required to have a solid management on legal concepts and terminology and a wide knowledge of the theory of the State.

DE416
General Theory of Process
This course is centered on the study of the main institutions of procedural right, encouraging direct contact of students with these institutions, as much as possible, in order to generate learning and meaningful experiences. Therefore, through instructors' presentations, and students' individual or group work, in addition to plenaries, discussions, cases analysis, research and visits to institutions, students are able to obtain sufficient knowledge to achieve understanding of the procedural differences between law courses and its concepts.

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.

Musical appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music. Visual Arts this course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made. Literature this course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life. Performing arts this course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISIT:
CS403 Cultural I

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISIT:
College English Degree or English Language Center Accreditation

FOURTH SEMESTER

DE417
Obligations
Obligations as a legal relation between creditor and debtor, is one of the most transcendent acts in the world of law. Students will analyze, and explain the diverse topics that integrate the general theory of obligations from its concept, elements, sources, species, effects, modalities, and cause of extinction. In order to study this course, students must know, understand and manage Theory of Law, especially legal acts. Additionally, students must have skills to analyze, synthesize, deduce and argument. At the end of the course, students will discover, know, and understand the topics that integrate the general theory of obligations, from its legal concept, sources, elements, modalities, and legal effects, in a way that, at the time of concluding the course, students will be trained to explain and apply the legal dispositions to concrete cases on the requisites to create, transmit, modify, and extinct obligations.

DE418
Labor Law II
Students enrolled in this course, must have accredited the course Labor Law I, they will therefore have the skills to understand the course contents, and know the main concepts of the course; legal

concepts will be analyzed in this course, such as : Professional Association, Unions, Collective agreement, Working Regulations, and Strikes as well as those concepts concerning Procedural Labor Law.

PRE-REQUISITE:
DE311 Labor Law I

DE419
Commercial Law I
It is a theoretical course, an introduction to Commercial Law, where students will know the main legal concepts that integrate this part of Law. The second part of the course deals with topics related to commercial societies. In order to participate effectively in this course, students must have knowledge of the Theory of Law, Roman Law, as well as general concepts of Civil Law, specially the topics related to people. Students must show interest for reading and group work. This course is intended for students to be introduced to the world of commercial law, as well as the corporate area, parting from commercial legal people.

PRE-REQUISITE:
DE406 Theory of Law; DE407 Roman Law

DE420
Criminal Procedural Law
This course studies the norms that regulate criminal processes in Mexico, their origin, as well as the stages of process preparation, and the process itself, including sentence, objection means, and a tendency of orality of processes.

PRE-REQUISITE:
DE406 Theory of Law
DE416 General Theory of Process

DE421
Constitutional Rights
It is a theoretical course which deals with diverse constitutional rights protected by the Mexican constitution. Applicable generalities will be analyzed to the theory of constitutional rights, as well as their axiological aspects. This course is intended for students to acquire skills to identify the elements and violations of the constitutional rights, among others, so they can express such violations in the way of concepts of violation.

PRE-REQUISITE:
DE406 Theory of Law
DE415 Constitutional Rights

FIFTH SEMESTER

DE422
Contracts
This course analyzes the concept, elements, and legal consequences of contracts. This course is eminently practical, where students are intended to manifest their knowledge of the theory in the elaboration of specific contracts.

PRE-REQUISITE:

DE413 Goods and Real Rights
DE409 Family and Succession Law
DE417 Obligations

DE423
Commercial Law II
It is a practical course, where students will know the main legal concepts related to securities, and credit operations. The second part of the course is about the topics related to commercial contracts. The third part of the course deals with commercial items, including a few procedural dispositions. Students must show interest for reading and group work.

PRE-REQUISITE:
DE419 Commercial Law I
DE 406 Theory of Law
DE417 Obligations

DE424
Orders of Protection I
It is a theoretical course that sustains the process of protection, as the legal procedure to question all acts of authority that allegedly violate these subjective public rights consigned in the Mexican Political Constitution, in a way that those who know these principles, can acquire a gradual comprehension that will serve to develop a theoretical-practical technique on the management of the process of protection. Students must show interest for reading and group work.

PRE-REQUISITE:
DE415 Constitutional Right
DE416 General Theory of Process;
DE421 Constitutional Rights

DE425
Administrative Law and Social Security
The contents in this course correspond to the study of Public Administration in our country, where students will find fundamentals that determine the legal existence of each subordination that form the administrative area and its activities. Additionally, the principal institutions of social security in our country will be analyzed. This course is mostly theoretical, and it introduces the specific areas of the administrative law.

PRE-REQUISITE:
DE406 Theory of Law
DE415 Constitutional Rights

CS402
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

SIXTH SEMESTER

DE426
Procedural and Commercial Law
This course analyzes the fundamental procedural concepts of civil and commercial procedures. This course is eminently practical; students will apply the theoretical knowledge in diverse learning activities, such as the integration of files, elaboration, interpretation and analysis of legal documents, and their participation in diverse procedural acts, in a real or simulated way. In order to study this course, students must have studied the course General Theory of Process.

PRE-REQUISITE:
DE416 General Theory of Process

DE427
Orders of protection II
It is a theoretical-practical course. By students applying the knowledge acquired during the first course, and the theoretical presentation of procedural topics, they will proceed to, under the scrutinous supervision of the instructor, the practical application of protection in concrete cases, respecting the legal procedures to question all acts of authority that allegedly violate individual rights, from the beginning with the presentation of the lawsuit, until the conclusion with the dictation of sentence, and in its case, execution, in a way that students solve, apply, and develop a theoretical-practical technique on the management of the protection process. Students must show interest for reading and group work.

PRE-REQUISITE:
DE416 General Theory of Process
DE424 Orders of Protection I

DE405
Fiscal Law
It is a theoretical course where general topics of fiscal law will be analyzed, parting from the revision of the essential elements in this course, reviewed by valid doctrines and legislations. In order to study this course, students must have essential knowledge on the Theory of Law; likewise, they must have solid bases of Administrative Law and Social Security, Constitutional Law, and Constitutional Rights.

PRE-REQUISITE:
DE406 Theory of Law
DE415 Constitutional Law
DE421 Constitutional Rights
DE425 Administrative Law and Social Security

DE428
International Public and Private Law
In the contents of this course, students must have previous knowledge on civil, criminal, constitutional, administrative and procedural law and rights. International Law is indispensable for students' professional training, because it is part of the internationalization topics of Law. Students must know how to make selective information disseminations, be responsible and committed to activities. In order to participate in this course effectively, students must have solid knowledge on the theory of law, procedural law, and administrative law, in general, as well as skills to search and discriminate information in diverse sources, printed and electronic.

PRE-REQUISITE:
DE415 Constitutional Law
DE420 Procedural Law
DE410 Criminal Law I
DE414 Criminal Law II
DE406 Theory of Law
DE425 Administrative Law and Social Security

HU401
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself. In particular, this reflection will focus on the dimensions of history and society. First it approaches these dimensions of what constitutes man kind, and after that it considers its phenomenological expression methodically, the thematic contents of the social dimension will be linked to those historical ones, since both can be summed up as here and now.

SEVENTH SEMESTER

DE429
Fiscal and Administrative Procedural Law

DE430
Customs and Foreign Trade Law

DE 431
Philosophy of Law

OP400 Elective I

HU400
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

EIGHTH SEMESTER

DE432
Copyright Law

DE433
Alternative Methods for Conflict Resolution

DE 434
Treaties and Commercial Agreements

HU432
Mankind and Ethics
This course reflects on some anthropological conceptions that have taken place throughout history, to better understand how the image we have of human beings has been developed and how we perceive the world, entering the field of personal and social values, to establish some reflections on the professional ethics.

Bachelor's degree in **Clinical Psychology**

Clinic | Organizational
Educational | Child

Psychology, as professional training axis, has an important history and an established tradition of academic quality in our institution, in our city, and certainly in the northwest region of the country. The Bachelor's Degree in Psychology was started as a professional program at CETYS Universidad on February 11, 1980. Later, in 1996 the Doctoral Degree in Psychology was opened, a flexible program that offered the possibility of obtaining a specialization, master's degree, a doctoral degrees in Psychology. In 2001, the Master's Degree in Family Therapy was opened and in 2004 the master's degree in Psychology with 5 concentrations was designed. These last two graduate programs are still being offered to date.

Bachelor's degree in **Clinical Psychology**

The objective of this bachelor is to form professionals in the study and analysis of problems related to psychological adaptation. Clinical psychologists' main objective is to use their knowledge and skills to improve and promote the psychological welfare of people. Psychologists interested in understanding the different ways people interact with each other in their given environment and the different ways in which these relationships affect their behavior.

What are the career fields for a Clinical Psychologist?

- Higher Education Institutions.
- Rehab Centers
- Teaching
- As a private psychologist, either providing psychological services directly or managing psychological services programs for the community.
- Nongovernmental organizations that provide their services in mental health areas
- Governmental and nongovernmental organizations that create Personal and Social Development Programs
- Director of rehabilitation centers of nongovernmental organizations.

What are the abilities you will acquire at the end of the program?

At the end of this program you will be able to:

- Design fundamental psychological interventions based on the usage of psychological assessment instruments, either psychometric or as a forecast.
- They will be familiar with descriptive systems of emotional upheavals as well as with the research related to the effectiveness of different treatments applied to them.
- To carry out diagnostic integrations to formulate therapeutic hypothesis that help them design and evaluate treatment plans for different emotional upheavals.
- To be able to promote meaningful changes in people by providing psychological orientation to them in different stages of their development.

¿What is the profile you need to study Clinical Psychology?

If this is what you want to do, then your profile as a student of Clinical Psychology must meet the following characteristics:

- Interest in establishing interpersonal relationships and to have the willingness to support others, and to have abilities to work with groups of people in a collaborative way.
- Ability to express ideas verbally, graphically, and through writing before different audiences.
- Fond of reading, observing, researching, and reflecting.
- Interest in the different cultural expressions, diversity, and communication in other languages, especially English.
- Interest in your own personal developmental process and to have willingness to get involved in the personal therapeutic process as a means to provide the best therapeutic attention to people in need of your professional services.

Bachelor's degree in
Educational Psychology

An educational psychology is a professional capable of analyzing educational situations in different levels of social examination from a psychological perspective and to formulate problem and work hypothesis that allow the design of psychological intervention oriented to their solution in different educational and community settings. It provides spaces so the student obtains competencies in the development of skills for the solution of fundamental problems in the teaching-learning process.

What are the career fields for an Educational Psychologist?

- In Educational Institutions such as High School or College
- Rehab Centers
- Teaching
- Private Practice, either evaluating and designing curriculum and tutoring in Educational Psychology or administering educational and psychological service programs in the community.
- Non-governmental organizations oriented to provide attention to learning, motor, sensory, or intellectual disabilities
- Governmental and non-governmental organizations that develop support programs for the attention of autism.
- Counselor, director, professor, educational institutions, parents and social service practitioners linked to diverse educational situations

¿What are the abilities you will acquire at the end of the program?

At the end of this Bachelor's degree in Educational Psychology, you will be able to:

- Conceptualize the group of psychological problems related to the development of the processes presented in an educational community.
- Conceptualize the group of psychological problems related to the development of the processes in an educational community.
- Diagnose educational and especial education problems as well as to tutor educational staff and institutions, parents, and service practitioners related to diverse educational situations.
- They will be able to design and carry out career orientation programs.

What is the profile you need to study Educational Psychology?

If this is what you want to do, then your profile as a student of Educational Psychology must meet the following characteristics:

- Interest in establishing interpersonal relationships and have the willingness to support others, and to have abilities to work with groups of people in a collaborative way.
- Ability to express ideas verbally, graphically, and through writing before different audiences.
- Fond of reading, observing, researching, and reflecting.
- Interest in the different cultural expressions, diversity, and communication in other languages, especially English.
- Interest in your own personal developmental process and to have willingness to get involved in the personal therapeutic process as a means to provide the best therapeutic attention to people in need of your professional services.

Bachelor's degree in
Organizational Psychology

Organizational Psychologists study and design psychological interventions in work related problems. They specialize in two main areas: a) organizations development through diagnosis, planning, systematization, and coordination of activities from the areas dedicated to the promotion of human capital in companies, and b) the processes of organizational behavior. This Bachelor's degree provides spaces for the student to obtain competencies in the development of skills for the solution of fundamental problems in organizations.

What are the career fields for an Organizational Psychologist?

- In Organization Development Departments and in human resources in different companies and institutions.
- Teaching
- Private Practice whether it be providing organizational tutoring services in the development of psychological intervention programs (organizational environment studies, new system of recruiting, selecting and training human capital in a company and others) or administering psychological service programs for different companies.
- Director of psychological services programs for different companies.
- Human Resources Manager.

¿What are the abilities you will acquire at the end of the program?

At the end of this Bachelor's degree in Organizational Psychology, you will be able to:

- Conceptualize the group of psychological problems related to the development of organizations as systems and individuals that form their human capital.
- Use the tools, diagnosis, and development methodologies in the field of organizational psychology. They will be able to advise companies' staff in order to look for solutions to problems related to organizational situations.
- Design and carry out primary and secondary prevention programs in the area of health in different companies.

¿What is the profile you need to study Organizational Psychology?

If this is what you want to do, then your profile as a student of Organizational Psychology must meet the following characteristics:

- Interest in establishing interpersonal relationships and have the willingness to support others, and to have abilities to work with groups of people in a collaborative way.
- Ability to express ideas verbally, graphically, and through writing before different audiences.
- Fond of reading, observing, researching, and reflecting.
- Interest in the different cultural expressions, diversity, and communication in other languages, especially English.
- Interest in your own personal developmental process and to have willingness to get involved in the personal therapeutic process as a means to provide the best therapeutic attention to people in need of your professional services.

Bachelor's degree in
Child Psychology

Child Psychologists are able to apply the conceptual, methodological, technical, contextual, integrative, and ethical competencies as well as the assessing and intellectual qualities of the Institutional Educational Model in the professional practicum of research, evaluation, planning and intervention in the field of child behavior.

¿What are the career fields for a Child Psychologist?

- Educational Institutions: preschool, elementary, and secondary school
- Health Institutions
- Welfare Institutions
- Institutions of Social Readjustment for Minors
- Private Practice

¿What are the abilities you will acquire at the end of the program?

At the end of this Bachelor's degree in Child Psychology, you will be able to:

- Elaborate Diagnostic Integrations for Children
- Apply psychological evaluation techniques for children
- Design brief psychological interventions
- Provide psychological orientation

- Use psychological evaluation tools
- Carry out family orientation
- Take care of especial educational needs
- Intervene in child behavior problems
- Give advice regarding child sexual development
- Intervene by providing attention to minors in risk situations

¿What is the profile you need to study Child Psychology?

If this is what you want to do, then your profile as a student of Child Psychology must meet the following characteristics:

- Observation, communication and team work skills.
- Computer literate.
- Low intermediate English level.
- Fond of reading.
- Interest in research.
- To have interest in general culture and cultural expressions
- Emotional stability
- Interest in working with children and/or adolescents.

Do you want to know which courses you will take in the Bachelor's degree in Psychology in its clinic, educational, organizational, or child concentrations?

Plan de estudios

Materias sugerida por semestre

			H. Clase	H. Lab	Unid.	LPC	LPE	LPO	LPI
1	CS400	Comunicación avanzada en español	4	0	8	●	●	●	●
	CS401	Habilidades del pensamiento	4	0	8	●	●	●	●
	HU400	Ser humano y medio ambiente	4	0	8	●	●	●	●
	PB400	Psicobiología	4	0	8	●	●	●	●
	PG400	Procesos humanos	4	0	8	●	●	●	
	PB404	Desarrollo infantil I	4	0	8				●
2	HU401	Ser humano, historia y sociedad	4	0	8	●	●	●	●
	CS402	Metodología de la investigación	4	0	8	●	●	●	●
	CS403	Cultural I	2	0	4	●	●	●	●
	PG407	Teoría de la personalidad	4	0	8	●	●	●	
	PB401	Desarrollo psicológico	4	0	8	●	●	●	
	PS400	Desarrollo social	4	0	8	●	●	●	
	PG401	Teorías psicológicas	4	0	8				●
	PB407	Desarrollo infantil II	4	0	8				●
	PS410	Socialización y afectividad en el niño	4	0	8				●
3	ID400	Comunicación Avanzada en Inglés	4	0	8	●	●	●	●
	CS404	Cultural II	2	0	4	●	●	●	●
	MA415	Estadística para las ciencias sociales	4	0	8	●	●	●	●
	AC404	Estrategias preventivas	4	0	8	●	●	●	
	EV404	Entrevista psicológica	4	0	8	●	●	●	
	PG408	Psicopatología	4	0	8	●	●	●	
	EV400	Técnicas de evaluación psicológica	4	0	8				●
	PB405	Desarrollo físico y psicomotor I	4	0	8				●
	PB403	Desarrollo sexual infantil	4	0	8				●
4	AC403	Diseño de intervenciones	4	0	8	●	●	●	
	PS406	Psicología social comunitaria	4	0	8	●	●	●	
	PB402	Sexualidad humana	4	0	8	●	●	●	
	CS406	Investigación social	4	0	8	●	●	●	
	VI420	Prácticas sup. en prevención y tratamiento de violencia intrafamiliar	4	0	8	●			
	VI425	Prácticas supervisadas de facilitación del aprendizaje	4	0	8		●		
	VI430	Prácticas supervisadas de comunicación organizacional	4	0	8			●	
	VI415	Prácticas en psicología infantil I	4	0	8				●
	PB412	Socialización y afectividad en el niño II	4	0	8				●
	PB408	Desarrollo físico y psicomotor II	4	0	8				●
	EV401	Instrumentos de evaluación psicológica I	4	0	8				●
	AC400	Intervención cognitivo-conductual	4	0	8				●
5	EC400	Globalización y Desarrollo Económico	4	0	8	●	●	●	●
	PG404	Psicología criminológica	4	0	8	●	●	●	
	EV401	Instrumentos de evaluación psicológica I	4	0	8	●	●	●	
	AC406	Terapia breve	4	0	8	●			
	PG400	Prácticas supervisadas en prevención y tratamiento de adicciones	4	0	8	●			
	PB409	Neuropsicología	0	0	8		●		
			4	8	8		●		

Plan de estudios

Materias sugerida por semestre

			H. Clase	H. Lab	Unid.	LPC	LPE	LPO	LPI
	VI426	Prácticas supervisadas de evaluación y diseño curricular	0	8	8	•			
	RI413	Asistencia psicológica laboral	4	0	8		•		
	VI431	Prácticas supervisadas en recursos humanos	0	8	8		•		
	AE407	Niños en situación de riesgo	4	0	8				•
	EV402	Instrumentos de evaluación psicológica II	4	0	8				•
	AC401	Intervención humanista	4	4	8				•
	VI416	Prácticas en psicología infantil II	4	4	8				•
6	HU402	Ser Humano y la Ética	4	0	8	•	•	•	
	PS401	Facilitación de grupos	4	0	8	•	•	•	
	EV402	Instrumentos de evaluación psicológica II	4	0	8	•	•	•	
	AC400	Intervención cognitivo-conductual	4	0	8	•	•	•	
	VI422	Prácticas supervisadas en terapia individual	4	0	8	•			
	VI427	Prácticas supervisadas en orientación educativa	0	8	8		•		
	VI432	Prácticas supervisadas en reclutamiento y selección de personal	0	8	8			•	
	AE402	Necesidades educativas especiales	4	0	8				•
	PG406	Psicopatología infantil	4	0	8				•
	EV403	Integración diagnóstica	4	0	8				•
	AC402	Intervención psicodinámica	4	0	8				•
	VI417	Prácticas en psicología infantil III	4	0	8				•
7	AC405	Orientación familiar	4	0	8	•	•	•	
	EV405	Integración de estudios psicológicos	4	0	8	•	•	•	
	AC401	Intervención humanista	4	0	8	•	•	•	
	VI423	Prácticas supervisadas en terapia grupal	4	0	8	•			
	VI428	Prácticas supervisadas en discapacidad de aprendizaje	0	8	8	•	•	•	•
	VI433	Prácticas supervisadas en desarrollo organizacional	0	8	8		•		
	AC411	Problemas de conducta infantil	4	0	8			•	
	VI431	Prácticas de psicología infantil IV	4	0	8				•
		Optativa I	4	0	8				•
	AC403	Diseño de intervenciones	4	0	8				•
	AC404	Estrategias preventivas	4	0	8				•
8	PG405	Psicología geronotológica	4	0	8	•	•	•	
	AE400	Tecnología educativa	4	0	8	•	•	•	
	AC401	Intervención psicodinámica	4	0	8	•	•	•	
	VI424	Práctica supervisada en terapia familiar	4	0	8	•			
	VI429	Prácticas supervisadas en integración educativa	0	8	8	•	•	•	•
	VI434	Prácticas supervisadas en capacitación y desarrollo	0	8	8		•		
	HU402	Ser Humano y la Ética	4	0	8			•	
	AC405	Orientación familiar	4	0	8				•
	AC412	Terapia breve infantil	4	0	8				•
	VI419	Práctica en psicología infantil	4	0	8				•
		Optativa II	4	0	8				•

Course **Descriptions**

C: Clinic **E: Educational** **O: Organizational** **Ch: Child**

PRIMER SEMESTRE

CS401 (C, E, O, CH)
Thinking Skills
This is a workshop course designed to promote, through structured exercises, the development of thinking skills that students must use throughout their studies in order to have better academic achievements. These will also be of great importance in their personal lives and professional careers.

CS400 (C, E, O, CH)
Advanced Communication in Spanish
This course develops and improves students' abilities to plan, structure, and correctly write documents in order to communicate in public with specific purposes. This course will mainly take place under a workshop modality, making it imperative for students to put into practice each aspect of the process, which includes planning different texts or speeches to orally presenting them before different audiences in order to inform, motivate, and persuade. This is not only intended to be applied in this course, but also in all other situations of their professional lives where it is required to face a specific audience.

HU400 (C, E, O, CH)
Man and Environment
This is the first of three courses focused on human beings. It develops around the relationships that stem from three concepts: human beings, society and nature, since the main focus is for students to be able to perceive the way that an individual's development moves society in a direction, and how a social environment strongly modifies natural environments. The last part of the course focuses on the search for alternatives that offer sustainable development.

PB400 (C, E, O, CH)
Biopsychology
This course is centered on the study of biological mechanisms of behavior making emphasis on the evolution, genetics and adaptable quality of behavioral processes. It is the study of man emotional, affective and cognitive processes from a biological perspective.
It is the biological property that allows organisms to reestablish an active relationship with the environment. Thus, Biopsychology's objective is to show the processes and biological systems involved in behavior and in which way natural selection has conformed these systems and processes as well as behavior itself, contributing to the evolution of varied behavioral repertoires in human beings.
This course approach is oriented to learning-centered education.

PG400 (C, E, O)
Human Processes
This course includes those processes that characterize human beings both individually as collectively: self-esteem, communication, leadership, decision making, conflict management, teamwork, assertiveness and emotional intelligence. It is designed with a workshop modality in such way that conceptual and practical aspects are included.
To successfully complete this course, it is necessary that students have willingness towards a personal development, personal experience sharing and to have analysis and synthesis skills.

PB404 (CH)
Child Development I
The academic activity contents of Child Development I integrate the basic information that will be expanded with other courses of the major, so that students have the bases to apply their knowledge in a systematic way in the future educational practice. Such is the case of purposes and content of the preschool education, where students can identify the purpose and content of this educational level from the precise and clear knowledge of the characteristics of the preschooler, elements that the Child Development I course provides.

SECOND SEMESTER

HU401 (C, E, O, CH)
Man, History and Society
This course belongs to those called "CETYS courses", whose objective is to promote Humanism in all of CETYS' collage students. Its focus is Philosophy of Man, and therefore emphasizes the permanent critical-analytical reflection of man about himself.

CS402 (C, E, O, Ch)
Research Methodology
This subject intends to awaken in student a certain taste for social research. Parting from the elements they learned in high school, the idea is to make up a common platform of information, and from there, students will develop basic research processes on topics related to the labor market related to their major, in the understanding that this will allow them to identify the importance of this subject in the practice of their professional careers.

CS403
Cultural I
This course intends to allow students to understand the development of culture throughout time and in present times, from an artistic and social point of view, in order to contribute to their growth as individuals.
This course must be understood as the first part of two parts, which is considered as a general introduction to the tasks that students will be carrying out.

PG407 (C, E, O)
Theory of Personality
The academic activity of Psychological Theories covers the evolution psychology has had throughout history in a historical and cultural context of the different stages

this science has gone through.
During the first part the history of psychology will be revised until its creation as a formal discipline in the late 19th century. The second part will be focused on the study of psychological systems that have originated from diverse expressions of psychology during the 20th century. To successfully complete this academic activity, it is desirable that students possess skills to analyze and synthesize information, as well as to establish relationships among different kinds of information.

PB401 (C, E, O)
Psychological Development
This course includes the processes of human development, birth, early childhood, intermediate childhood, adolescence, youth, maturity, old age and death.
This course is described as a base line to cover different psychotherapies in children, adolescents and adults since it contains topics of biopsychosocial development.

PS400 (C, E, O)
Social Development
This course includes the revisions of theoretical-practical aspects and legal foundations related to social development, from fundamental concepts to social intervention. Designed under the scheme of learner-centered education it is necessary that students have an active role during the course through independent activities, either individual or in groups. For a better performance it is convenient that students have the willingness to visit government departments, civil society organizations and deprived areas.

PG401 (Ch)
Psychological Theories
This course covers historical aspects of psychology's development as a science, as well as the main psychological theories. It is a learner-centered course that uses electronic media.

PB407 (Ch)
Child Development II
This course is a follow-up to Psychological Development I, therefore it is a numbered course. Here human development from 6 to 18 years of age is revised, seeking for the understanding of the changes experienced in this process and the psychological implications they have. For a Child Psychologist the knowledge on human development is the framework to analyze, evaluate and design actions that allow them to intervene in situations in which his professional participation is required.

PS410 (Ch)
Child socialization and Affection
This course implies the knowledge and management prior to children psychological development in general, and the family vital cycle.
Students will understand the process through which a child grows and develops his personality and affection in the primary fundamental experience he has in a family and with his immediate surrounding, considering his context and distinctive individual characteristics, as well as the effects his parents, siblings and upbringings have on this socialization process.
This course is designed on a learner-centered approach, therefore it is necessary that students have a predominantly active role in the course, through individual or group activities. It is also important to bear in mind that this is the first course on these topics. The second part will be given in fourth semester.

ID400
Advanced Communication in English
For this particular course, its main objective is that students develop their communication skills in English, focusing on their major. During this course, students will have the opportunity to substantially improve their proficiency level, especially through constant practice of the four skills: speaking, listening, reading and writing.
PRE-REQUISITE: **College English Degree or English Language Center Accreditation**

THIRD SEMESTER

CS404
Cultural II
This course should be understood as the second part two: Cultural I and Cultural II, under the premise of the first part is the general introduction to artistic expressions, while the second focuses on the assessment of a specific artistic expression.

Musical Appreciation
This course helps students to appreciate different musical demonstrations by obtaining a greater and better approach to music.

Visual Arts
This course helps students to appreciate the Visual Arts through the development of sensitivity and creativity. Through the appreciation of this branch of the arts, a contribution to the personal development of students is made. Literature this course helps students to approach to literature through the knowledge of the most important literary currents as well as the historical moment they lived, with special emphasis on the impact that the reading of the great literary works can bring to our everyday life. Performing arts this course helps students to learn the development of culture through theatre and dance, as well as their social impact and the influence of the environment in performing different expressions.
PRE-REQUISITE:
CS403 Cultural I
MA415 (C, E, O, Ch)
Statistics for Social Sciences
This course covers the behavioral and theoretical aspects of quantification, as well as the statistical processes applicable to behavioral sciences. This is a course designed under the learning centered model and the electronic learning scheme that will require the active participation of students to carry out the different exercises.

AC404 (C, E, O)
Preventive Strategies
This course covers the concepts related to health that are founded on prevention strategies, as well as the different strategies for health promotion, health education and communication in health. This is a course designed under the learner-centered model and the electronic learning scheme, therefore students' active participation is required, as well as Internet skills, particularly the use of Blackboard Learning System ML.

EV404 (C, E, O)
Psychological Interview
Psychological evaluation is one of the first steps to follow in all psychological intervention. Thus, it is important that students acquire the skills to pose practical problems in a professional way, and decide which information they need and choose the best way to collect it.
The objective of this course of Psychological Evaluation Techniques is that students acquire the necessary tools to successfully carry out interviews in clinical, educational and organizational environments, as well as to design and apply observations and self-information tools.

PG408 (C, E, O)
Psychopathology
This course is characterized for carrying out a revision of the concepts of symptomatology, incidence among other elements of the different psychological disorders, according to DSM – IV TR. It is important to consider that this course was designed as learner-centered, therefore it is necessary that students have and active role through independent activities, either individually or in groups.

EV400 (Ch)
Psychological Evaluation Techniques
Psychological evaluation is one of the first steps to follow in all psychological intervention. Thus, it is important that students acquire the skills to pose practical problems in a professional way, and decide which information they need and choose the best way to collect it.
The objective of this course of Psychological Evaluation Techniques is that students acquire the necessary tools to successfully carry out interviews in clinical, educational and organizational environments, as well as to design and apply observations and self-information tools.

PB405 Physical and Psychomotor Development I (Ch)
In Physical and Psychomotor Development I, students will study aspects related to children's brain development during their first years and its relationship with growth processes, physical development and acquisition of basic motor abilities. They will identify some patterns related to weight, size and body constitution, that allow them to explain the most important physical changes during childhood and the individual variations that occur in this development stage. They will also know the fundamental aspects that allow them to understand children's motor development: the sensor-perceptive process, the motor-perceptive development, the progressive acquisition and evolution of the basic movement patterns (movement, jumps, spins and manipulations), as well as the motor basic abilities during their first years of life. Students will also analyze the cultural surroundings and influence of physical and psychomotor development. It is important to consider that this course was designed as learner-centered, therefore it is necessary that students have and active role through independent activities, either individually or in groups.

PB403 (Ch)
Child Sexual Development
This course has a seminar modality and is oriented towards the revision of children sexuality, its development and the repercussions it has in human adult life. It is recommendable that students have knowledge on the process and development of Child sexuality and of their own sexuality, with the aim of achieving a respect and comprehension attitude towards sexuality.

FOURTH SEMESTER

AC403 (C, E, O)
Interventions Design
This course includes the elaboration of psychological treatment plans in work, children, educational and clinical areas. The elaboration process is based on the work of Arthur E. Jongsma Jr. and his collaborators (1995). Students will have to become familiar with the necessary strategies in the elaboration of treatment plans as indicated in each of the corresponding texts in each of the specialization areas. This course was designed as learner-centered, therefore it is necessary that students have and active role through independent activities, either individually or in groups.

PS406 (C, E, O)
Social-Community Psychology
In this course students are introduced to the study of social-community psychology, which is conceptualized as an approach of psychology that uses concepts of varied theoretical-methodological approximations in social and behavioral sciences and as a research and intervention area in different social analysis levels (individual, family, small group, organization, community).
This course provides a general vision of social-community psychology making emphasis on those aspects that are relevant to the planning, implementation and evaluation of intervention projects in diverse community contexts.
The course also presents a general view of theories on community processes and their research. Emphasis will be made on an ecological orientation of systems as well as their use to conceptualize and define community problems, their possible solutions and the consequences of the latter.

PB402 (C, E, O)
Human Sexuality
Sexual education and scientific knowledge that conforms it are necessary to the correct formation of all professionals, but are imperative on professionals specialized on human health, such as psychology.

CS406 (C, E, O)
Social Research
This course revises research ethical aspects, measurement and evaluation, diverse research designs applicable in the social area, as well as the instrument elaboration process. This course was designed as learner-centered, therefore it is necessary that students have and active participation in teamwork. This course is related to statistics for social sciences and research methodology.

VI420 (C)
Supervised Practicum in Domestic Violence Prevention and Treatment
This course includes the topics and/or factors related to addictions; individual, family and social variables implied in any addiction are described. It also covers the attention models in the three modalities of psychotherapy (individual, family and group) and the prevention strategies for different populations.

It is designed with a workshop methodology in such way that it includes conceptual and practical aspects.
To successfully complete this course it is imperative that students have willingness towards a professional development and to carry out field and research practicum.

VI425 (E)
Supervised Practicum in Learning Facilitation
This course revises the teaching strategies for the achievement of a meaningful learning, educational motivation and its aspects in learning, the interpersonal nature of learning, the meaning of learning to learn and performance assessment. The theoretical aspects will be covered in the weekly sessions under the instructor supervisions.
In this course, all students previously assigned practicum within the institution will be of great importance, also each student will develop a project to work on with instructors and classmates.

VI430 (O)
Supervised Practicum in Organizational Communication
To research the impact that individuals, groups and structures have on the behavior within organizations, with the final purpose of applying this knowledge on the improvement of the organization's effectiveness.

VI415 (Ch)
Practicum in Child Psychology I
This 4th semester course is divided in 50% practicum and 50% theory. It includes the first human development processes, birth, early childhood, intermediate childhood and adolescence. To successfully complete this course it is required that students have prior knowledge on the first stages of Human Development.
This course contents are described as the theoretical-practical basis for future Child psychologists since this is the moment in which students start receiving direct supervising and tutoring on their first field practicum.
This is a practical course since it combines the theoretical contents with two hours of fieldwork a week. Furthermore, this course is related to the supervised practicum.
The course is closely related to Child Development I from First Semester, and Child Socialization and Affection from second semester.
In this course students will develop skills to interact with children that go to daycare and early stimulation centers. They will be able to carry out controlled observations and behavioral records in children.
The course requires that students design an intervention project that will be included in the program developed in the assigned institution.

PB412(Ch)
Child Socialization and Affection II
This course intends the acquisition of theoretical bases and experiences related to children and adolescents' socialization and affection. It is a complement to Child Socialization and Affection I.
Its importance relies on the fact that students will identify the variables that intervene in the adequate socialization of children and adolescents.

PB408 (Ch)
Physical and Psychomotor Development II
In this second course of Physical and Psychomotor Development students will analyze the development of motor abilities and the healthcare of preschool and elementary school children. This analysis will allow them to carry out pedagogical intervention designs to provide attention to children's motor needs.

EV401
Psychological Evaluation Instruments I (Ch)
This course covers the use of psychometric and projective tests to carry out personality, intelligence and neuropsychological evaluations. It is a theoretical-practical course in which students will develop skills to apply, assess and interpret diagnosis tests and instruments as well as the elaboration of the corresponding reports.

AC400 (Ch)
Cognitive Behavioral Intervention
This course covers the basic elements for the management of cognitive-behavioral strategies in clinical, organizational and educational scenarios. It is a theoretical-practical course that includes ethical aspects applicable in interventions, as well as the diverse cognitive-behavioral strategies, including evaluation and treatment techniques. On the other hand, this course is related to all those previous courses that have to do with therapeutic processes. To complete the course it is required that students have willingness and basic observation and analysis as well as data systemization skills.

FIFTH SEMESTER

EC400 (C, E, O, Ch)
Globalization and Economic Development
This is one of the first courses that form the life formation area, and as such, pretends that students achieve a general vision of cultural, technological, political, social and economical aspects that allow them to have a basis to interpret the global world and its transformation since the 1980's

PG404 (C, E, O)
Criminological Psychology
This course implies the knowledge and previous management of psychometric, intelligence and projective tests to make diagnosis and elaborate the corresponding reports and the knowledge of the different psychopathological disorders. Students will analyze the origin of criminal behavior. The internal and external factors that influence this behavior, they will know the victim's personality and his relationship with the victimizer and also they will have the opportunity to know what readapting a criminal is, as well as ways to prevent crime.

EV401 (C, E, O)
Psychological Evaluation Instruments I
This course covers the use of psychometric and projective tests to carry out personality, intelligence and neuropsychological evaluations. It is a theoretical-practical course in which student will develop skills to apply, assess and interpret diagnosis tests and instruments as well as the elaboration of the corresponding reports.

AC406 (C)
Brief Therapy
This is a theoretical-practical course whose objective is to have students analyze the main theories on child therapy and their derived techniques and to use some of these techniques in a supervised case.
It is a course from educational psychology included in the eighth semester of the curriculum with the aim of helping students to use the tools acquired in the courses of psychological development, evaluation and diagnosis and to be able to use them in the design of the therapeutic process.

VI421 (C)
Supervised Practicum in Addictions Prevention and Treatment
This course includes the topics and/or factors related to addictions; individual, family and social variables implied in any addiction are described. It also covers the attention models in psychotherapy three modalities (individual, family and group) and the prevention strategies for different populations.
It is designed with a workshop methodology in such way that it includes conceptual and practical aspects.
To successfully complete this course it is imperative that students have willingness towards a professional development and to carry out field and research practicum.

PB409 (E)
Neuropsychology
This academic activity covers the revision of human beings neurological organization, as well as the neurological fundaments for learning.

VI426(E)
Supervised Practicum of Curriculum Assessment and Design
This course covers the theoretical aspects of the curriculum definition, composition and development. It also covers the processes for the elaboration of curriculum, study plan and course program, the purposes and function of assessment and the theoretical perspectives.

RI413 (O)
Labor Psychological Assistance
Since in organizations the most important factor is the human factor that spends a great amount of hours inside the facilities, the physical environment demands adaptation, as well as privacy, relationships with the authority and coworkers besides the fact that work can sometimes be impersonal. All of this has an influence and sometimes causes crises that require different approaches to confront them and prevent them.

VI431 (O)
Supervised Practicum in Human Resources
This course comprehends the concepts and techniques for the management and good performance of the staff that works in an organization.

AE407 (Ch)
Children at Risk Situations
In Children at Risk Situations students will analyze the social, family and school factors that when converge in an adverse way seriously affect children's development. This analysis will allow them to recognize that timely and effective psychological intervention can help children at risk situations to have the possibility of achieving a balanced and healthy development. This course will be managed under the learner-centered educational model, therefore it is imperative that students actively participate throughout the semester.

EV402 (Ch)
Psychological Evaluation Instruments I
This course covers the aspects related to personality multifactor tests, standardized proofs are presented, multiphasic inventories, projective and complementation proofs, drawing, evaluations through games and other special evaluation techniques. Application, evaluation and tests integration are also covered.
This is a theoretical-practical course, since the beginning students must apply psychological tests to the assigned population depending on their specialization.
In general, this course requires of a good level of analysis and data integration skills from students during the results evaluation and integration process.

AC401 (Ch)
Humanistic Intervention
This course covers the aspects related to Humanistic Intervention which is based on a "growth atmosphere" according to the client's expectations. This is a learner-centered course.

VI416 (Ch)
Practicum in Child Psychology II
This course includes the topics and/or factors related to risk situations, support resources as well as the merge of implied factors in vulnerable children. It covers the attention models in psychotherapy and the intervention strategies for children population.
It is designed with a workshop modality and it includes conceptual and practical aspects.
To successfully complete this course it is necessary that students have the willingness to a professional development and to carry out field practicum in community and/or educational institutions where they can apply different psychological intervention techniques.

SIXTH SEMESTER

HU402 (C, E, O)
Mankind and Ethics
Mankind and Ethics is the third of a series of three courses that CETYS has implemented in its three campuses for all college students. These courses are intended to leave a characteristic impression in all of our students through a reflection on Mankind and the way it relates to its surroundings, its past, its society, and itself. In short, this course reflects upon some of the anthropological conceptions that have taken place throughout history, in order to better understand how the image we have of mankind came to be and the way in which we perceive the world. Parting from this base we begin to accept some actions as being good or bad; this takes us to the field of personal and social values, which are assumed within certain margins of liberty, with these values we begin to accept or reject some obligations and rights we have towards others. With

this said, we can conclude by recognizing the responsibility we have in the world of work, in order to establish some reflection on professional ethics.

PS401 (C, E, O)
Group Facilitation
Group facilitation is a skill that, as any other, requires practice in order to be enhanced. This course comprehends a revision of the most important processes given in a group with the objective of helping the facilitator recognize them and manage them during the facilitation process.
There is not a single way to facilitate groups, therefore a detailed revision of the different theoretical approaches to carry out this task will be revised.

EV402 (C, E, O)
Psychological Evaluation Instruments II
This course covers the aspects related to personality multifactor tests, standardized proofs are presented, multiphasic inventories, projective and complementation proofs, drawing, evaluations through games and other special evaluation techniques. Application, evaluation and tests integration are also covered.
This is a theoretical-practical course, since the beginning students must apply psychological tests to the assigned population depending on their specialization.
In general, this course require of a good level of analysis and data integration from students during the results evaluation and integration process.

AC400
Cognitive Behavioral Intervention
(C, E, O)
This course covers the basic elements for the management of cognitive-behavioral strategies in clinical, organizational and educational scenarios. It is a theoretical-practical course that includes ethical aspects applicable in intervention, as well as the diverse cognitive-behavioral strategies, including evaluation and treatment techniques. On the other hand this course is related to all those previous courses that have to do with therapeutic processes. To complete the course it is required that students have willingness and basic observation and analysis skills as well as data systemization.

VI422 (C)
Supervised Practicum in Individual Therapy
In this course students will apply the principles and basic concepts of the selected individual therapeutic process (e. g. psychodynamic, person centered, etc.) based on the initial interview, diagnostic formulation and the elaborated plan for the treatment of the problem the patient presents.

VI427 (E)
Supervised Practicum in Educational Orientation
This course covers the aspects related to the educational orientation process from the psychological intervention point of view that it requires. Different types of orientations that can be present in psychology are analyzed. Each type of orientation presents particular intervention characteristics as well as a baseline from which all emerge, in such way that in this course these interventions are studied.
To successfully complete this course basic knowledge on psychological theories, psychological evaluation instruments and techniques, diagnostic integration and group facilitation is required.
This is a fundamental course in the Educational Psychology area of specialization and it is of a required and practical nature. The importance it bears in CETYS University Psychology programs is of terminal formation since it provides specialized knowledge in this particular field.

VI432 (O)
Supervised Practicum in Personnel Selection and Recruitment
This course belongs in the practical formation area, and as such, it is designed for students to apply different personnel selection and recruitment techniques.

AE402 (Ch)
Special Educational Needs
This course covers conceptual aspect and the ethical-legal framework of special educational needs, as well as strategies for its attention in the classroom. This is a course designed under the learner centered model and the electronic learning scheme, therefore students' active participation is required, as well as Internet skills, particularly the use of Blackboard Learning System ML.

PG406 (Ch)
Child Psychopathology
This course is distributed as follows: 25% practicum and 75% theory. It includes a wide global vision of child psychopathology, the concepts of normal and pathological in children, origins and theories of development problems, child depression and the use of DSM IV-TR to diagnose problems in children.
This course contents are described as the theoretical-practical basis for symptom detection, first diagnosis elaboration, the establishing of adequate treatment plans, the use of therapeutic strategies and techniques, the design of recovery prognosis and the use of DSM IV-TR in children.
During this course development there will be a direct connection with student's field practicum, so they can work with real cases to be analyzed in plenaries scheduled by the instructor. This is a base course that is deeply related to children's bio-psychosocial development.
Through an interview with a child, students will develop abilities to detect abnormal and/or pathological symptoms and will be able to elaborate a diagnosis. Guided by the instructor, they will design intervention plans as the case may be.

EV403 (Ch)
Diagnostic Integration
This course is the culmination of the courses destined to the evaluation and diagnosis in the child, educational, clinical and organizational scenarios. Therefore the participation of expert psychologists in each of these areas is of vital importance. For this course optimal development it is necessary that students have time to carry out activities out of the classroom and to create a connection with the supervised practicum.
This course methodology combines the theoretical part with practicum and daily exercises to make it a workshop within learner-centered education.

PRE-REQUISITEE:
EV400 Psychological Evaluation Techniques
EV401 Psychological Evaluation Instruments I
EV402 Psychological Evaluation Instruments II

AC402 (Ch)
Psychodynamic Intervention
This course's objective is that students understand psychoanalysis most important concepts, its main contributions and it therapeutic intervention model. It is expected that students develop the ability of analytical listening and that they carry out interventions with patients applying the theoretical elements learned in class.
In its first part this course will function as a seminar where the most important Freudian texts will be discussed, rescuing their key concepts, in its second part a clinical case with a patient will be developed. Readings and case elaboration will be out of class assignments.

VI417(Ch)
Practicum in Child Psychology III
This academic activity provides student with the opportunity to apply intervention strategies in special educational needs, under supervision in natural settings.

SEVENTH SEMESTER

AC405 (C, E, O)
Family Orientation
Family Orientation offers an approached centered in the general theory of systems, the concepts referred to are based on the communication theory, cybernetics and family structure. It also makes reference to schools evolution process and models.
The family orientation model in this course focuses on all the family as an organizational-relational system formed by subsystems that will have to be organized and coordinated in such a way that they can function effectively.

EV405 (C, E, O)
Integration of Psychological Studies
This academic activity comprehends the integration process of psychological studies including the relevant data of the interview, medical history, evaluation instruments and the elaboration of the report. It also includes the revisions of ethical aspects in psychological evaluation.

AC401 (C, E, O)
Humanistic Intervention
This course covers the aspects related to Humanistic Intervention which is based on a "growth atmosphere" according to the client's expectations. This is a learner-centered course.

VI423 (C)
Supervised Practicum in Group Therapy
In this course student will apply the basic principles and concepts of the therapeutic process in focus group, based on the selected approach (psychodynamic, person centered, Gestalt, Cognitive-Behavioral, etc.) according to the initial interview, diagnostic formulation and the elaborated plan for the treatment of the patient's problem.

VI428(E)
Supervised Practicum in Learning Disabilities
This course covers learning conceptual aspects such as communication and attention deficit disorders. The Supervised Practicum program is postulated as a model intended to reach knowledge through practical activities.

VI433 (O)
Supervised Practicum in Organizational Development
This course's objective is to keep a clear and precise vision of the concepts that constitute organizational development as an option to confront changes in organizations.

AC411 (Ch)
Child Behavior Problems
This academic activity is oriented towards the development of professional competencies for the treatment of diverse child behavior problems, essentially at school, including planning, assessment and intervention processes.

VI431 (Ch)
Practicum in Child Psychology
This academic activity provides students with the opportunity to apply supervised intervention strategies in child behavior problems in natural scenarios.
PRE-REQUISITE:
Elective I (C, E, O, Ch)

AC403(Ch)
Interventions Design
This course includes the elaboration of psychological treatment plans in work, children, educational and clinical areas. The elaboration process is based on the work of Arthur E. Jongsma Jr. and his collaborators (1995). Students will have to become familiar with the necessary strategies in the elaboration of treatment plans as indicated in each of the corresponding texts in each of the specialization areas. This course was designed as learner-centered, therefore it is necessary that students have and active role through independent activities, either individually or in groups.

AC404 (Ch)
Preventive Strategies
This course covers the concepts related to health that are founded in prevention strategies, as well as the different strategies to for health promotion, health education and communication in health. This is a course designed under the learner-centered model and the electronic learning scheme, therefore students' active participation is required, as well as Internet skills, particularly the use of Blackboard Learning System ML.

EIGHTH SEMESTER

PG405
Gerontological Psychology (C, E, O)
Nowadays, progress in science has achieved the prolongation of life expectancy in human beings, making old age a longer developmental stage. Therefore, individuals hope that death could be deferred having as a consequence a decrease in the possibility of growing old with dignity and a good life quality especially in the psychological and social areas.

The course covers topics such as: aging and genre, the psychological processes of aging, mental health and aging, organic disorders of aging, psychological evaluation of seniors, gerontological report and a gerontological intervention model.

AE400(C, E, O)
Educational Technology
In this course the theoretical aspects of the relationship between technology and education are revised, as well as the specific applications of educational technology. This is a course designed under the learner centered model and the electronic learning scheme, and in order to have a better performance team work and Internet skills, particularly the use of Blackboard Learning System ML are required.

AC402 (C, E, O)
Psychodynamic Intervention
This course's objective is that students understand psychoanalysis most important concepts, its main contributions and it therapeutic intervention model. It is expected that students develop the ability of analytical listening and that they carry out interventions with patients applying the theoretical elements learned in class.
In its first part this course will function as a seminar where the most important Freudian texts will be discussed, rescuing their key concepts, in its second part a clinical case with a patient will be developed. Readings and case elaboration will be out of class assignments.

VI424 (C)
Supervised Practicum in Family Therapy
In this course students will apply the principles and basic concepts of the systemic family therapeutic process, according to the selected modality (Strategic family therapy, Family therapy with the family of origin,psychodynamic familytherapy, etc.).

VI429 (E)Supervised Practicum in Educational Integration
This course covers the conceptual aspects of disabilities, as well as legal framework and types of learning problems. It is a learner-centered course since students will base their information on constant research. Theoretical aspect will be revised in weekly sessions under the instructor's conduction. The emphasis of the course will be on the practicum carried out in an institution assigned by the school, in which students will develop a project previously authorized by the instructor.

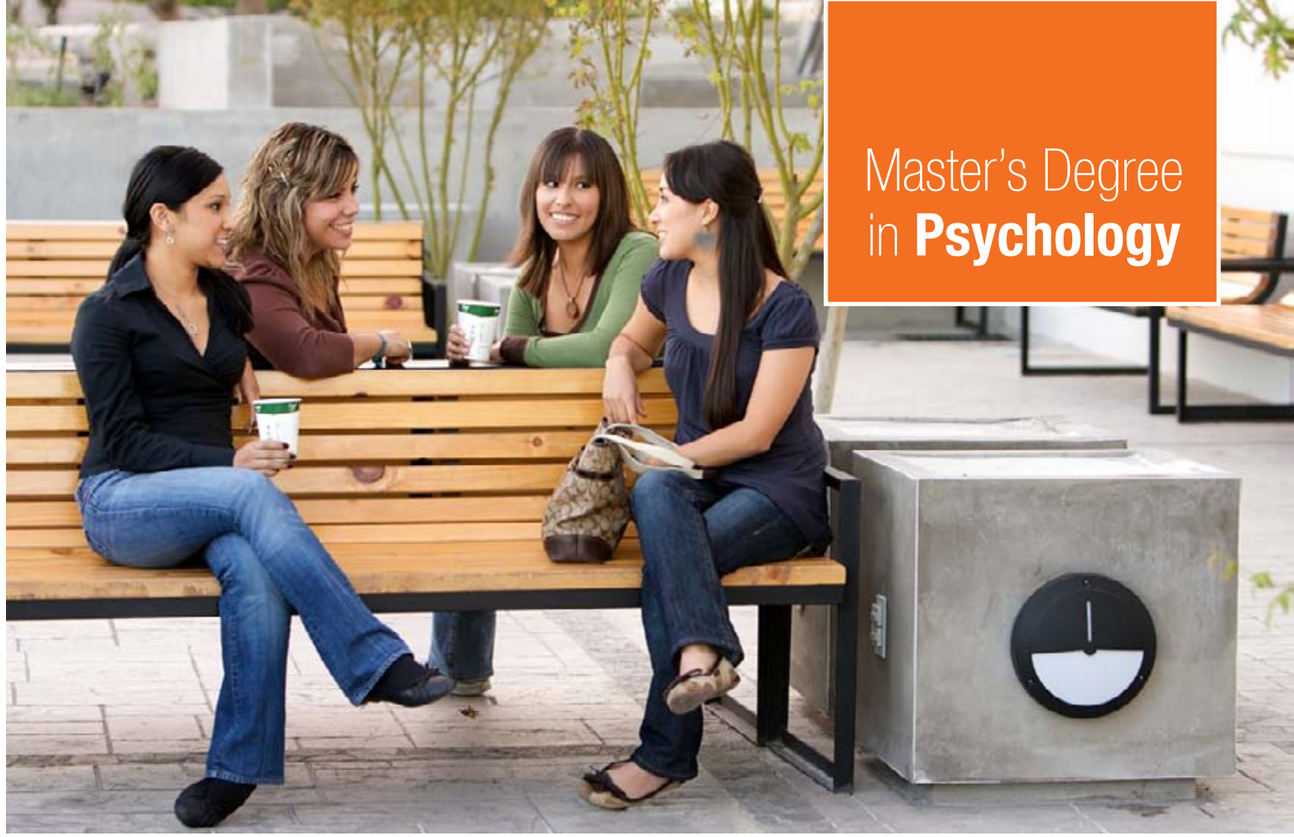
VI434 (O)
Supervised Practicum in Training and Development
Since the primary goal of training is to contribute to the company's global goals, it is imperative to develop programs that contemplate the organizational goals and strategies. Unfortunately, many organizations can never accomplish the connection between strategic objectives and training programs. The main promoters of training programs are: trends, whims, "anything that competitors do", instead. As a result a big part of the investment is misused because training programs are poorly directed, poorly designed and poorly assessed.
To make sure that investment in training and development has a maximum impact on individual and organizational performance, it is imperative to use a systemic approach on training. This approach comprehends four stages: 1. Evaluation of necessities, 2. Design of programs, 3. Instrumentation, and 4. Assessment.

HU402 (Ch)
Mankind and Ethics
Mankind and Ethics is the third of a series of three courses that CETYS has implemented in its three campuses for all college students. These courses are intended to leave a characteristic impression in all of our students through a reflection on Mankind and the way it relates to its surroundings, its past, its society, and itself. In short, this course reflects upon some of the anthropological conceptions that have taken place throughout history, in order to better understand how the image we have of mankind came to be and the way in which we perceive the world. Parting from this base we begin to accept some actions as being good or bad; this takes us to the field of personal and social values, which are assumed within certain margins of liberty, with these values we begin to accept or reject some obligations and rights we have towards others. With this said, we can conclude by recognizing the responsibility we have in the world of work, in order to establish some reflection on professional ethics.

AC405 (Ch)
Family Orientation
Family Orientation offers an approach centered in the general theory of systems, the concepts referred to are based on the communication theory, cybernetics and family structure. It also makes reference to schools evolution process and f models.
The family orientation model in this course focuses on all the family as an organizational-relational system formed by subsystems that will have to be organized and coordinated in such a way that they can function effectively.

AC412 (Ch)
Brief Child Therapy
This academic activity includes the application of brief therapy through assessment, diagnosis, planning and intervention processes in childhood and adolescence disorders, at an individual or group level.

VI419 (Ch)
Practicum in Child Psychology
In this academic activity student will have the opportunity to apply therapeutic intervention strategies with children, and adolescents in natural scenarios, under supervision.
PRE-REQUISITE:
Elective II



Master's Degree in **Psychology**

With concentration in:

Clinic, Family Therapy, Special Education, Organizational Development and Criminology

The objective of the program of the Master's Degree in Psychology is the training of professionals that, in a globalization context and with a high degree of human sensitivity, are able to help in the promotion of human welfare in the individual, familiar, work, and social areas. It is oriented to the primary prevention and to the design, execution, and assessment of psychological intervention programs in the different areas of social analysis (individual, small group, family, organizations and communities) as well as the participation in work, teaching, and research teams in private and government institutions.

The Master's degree Program is designed in a Common Education axis compound by basic Psychology courses and offers 5 modalities; Clinic Psychology, Organizational Development, Special Education, and Family Therapy and Criminology.

What is the required profile to study the Master's Degree in Psychology?

To have a Bachelor's degree in Psychology or in Health Sciences, Social Sciences, Education Sciences, or in a bachelor's degree in the Administrative area. Those candidates whose bachelor's degree is not Psychology, must take and pass the courses or propaedeutic courses stipulated by the Graduate School.

Do you want to know which courses you will take in this Master's degree?

This master's degree is integrated by 16 courses in 3 main axes in which each course has 6 academic credits. The courses will have instructor directed sessions and independent activities assigned by the instructor and carried out by students.

EJE COMÚN

- Técnicas de Evaluación
- Seminario de Psicopatología
- Seminario de Psicología del Desarrollo
- Diseño de Instrumentos
- Seminario de Comportamiento Social
- Seminario de Psicología del Mexicano
- Metodología de la Investigación
- Seminario de Comportamiento Grupal

EJES DE CONCENTRACIÓN

DESARROLLO ORGANIZACIONAL	• Estrés y Calidad de Vida en el Trabajo • Motivación y Productividad • Desarrollo y Cambio Organizacional • Evaluación del Desempeño • Consultoría Organizacional • Conducta Organizacional: Teoría y Diseño • Administración de Recursos Humanos • Administración en un contexto Transcultural • Alta Dirección

EJES DE CONCENTRACIÓN

TERAPIA FAMILIAR	• Funcionalidad y Disfuncionalidad Familiar • Modelos Teóricos de la Terapia Familiar • El Pensamiento Sistémico en Terapia Familiar • Entrevista Diagnóstica Familiar • Proceso de Cambio y Familia • Terapia de Pareja • La familia de Origen del Terapeuta
PSICOLOGÍA CLÍNICA	• Entrevista Clínica • Trabajo Clínico con Niños y Adolescentes • Instrumentos de Evaluación • Integración Diagnóstica • Principios y Métodos de Psicoterapia I (Perspectiva Dinámica) • Principios y Métodos de Psicoterapia II (Perspectiva Cognitivo-Conductual) • Psicoterapia de Grupo
EDUCACIÓN ESPECIAL	• Evaluación y Diagnóstico en la Educación Especial • Análisis Comparativos de Modelos de Educación Especial • Problemas de Aprendizaje y Bajo Rendimiento Escolar • Desarrollo de los Procesos Cognoscitivos • Evaluación Neuropsicológica • Taller de Estrategias de Enseñanza I • Taller de Estrategias de Enseñanza II
CRIMINOLOGÍA	• Seminario de Ética y Derechos Humanos • Seminario de Criminología • Seminario de Sociopsicología Criminal • Política Criminal Internacional • Estadística y Sistemas de Información Criminal • Seguridad Pública y la Comunidad • Administración de Justicia y Seguridad Pública • Criminalística y Medicina Forense • Seminario de Sistemas Penitenciarios • Cultura de la Legalidad • Victimología • Política criminal y Teoría del Delito

Course **Descriptions**

COMMON CORE

PS509
Assessment Techniques
Different techniques are included: interview, observation and recording that are applied into the social, working, educational and practical fields.

PS506
Psychopathology Seminar
This course deals with behavioral disorders, childhood disorders, adolescent disorders, and social psychopathologies.

PS502
Development Psychology Seminar
In this course, students will study changes in behavior during different stages in life: infancy, childhood, adolescents, young adulthood, adulthood and old age. These changes are analyzed not only from a psychological perspective, but also taking into consideration their historical context and socio-cultural influence they have received.

PS501
Instrument Design
This course includes psychometric, sociometric, and projective instruments.

PS504
Social Behavior Seminar
This course reviews the social dynamics that generate functionality or malfunctionality in social groups or communities.

PS533
Psychology of Mexicans Seminar
This course includes a discussion con cultural topics that have influenced the development of Mexico's working environment and the psychology of workers; expanding its analysis to the configuration of current Mexican society and the values that are acquired through our own idiosyncrasies.

PS503
Group Behavior Seminar
This course deals with the study of group behavior by reviewing basic theories and concepts that allow students to understand its characteristics and formation, as well as the intra and inter group processes in which they live.

CS 502
Research Methodology
This course provides the necessary tools to carry out the general process of applied research focusing, specifically, on elaborating the protocol for an application project.

CONCENTRATION AREA CLINICAL PSYCHOLOGY

PS511
Clinical Interview
This is a course in which the student is exposed to the clinical interview fundamentals, defined as "a conversation with a purpose", or a conversation between an expert and a patient with the objective of clarifying the characteristic patterns that conform the life-style of an individual to determine if such patterns are pathological, how severe they are, and what actions are needed for the patient's benefit.

PS512
Clinical Work with Children and Adolescents
In this course students will be introduced to therapeutic work with children and adolescents. Problems related to diagnosis will be checked from a psychological development approach. A revision of the psychological and behavioral disorders from these stages of development will be done and prevention strategies and treatment generated in the last years will be reviewed, which are part of clinics in their daily performance.

PS514
Diagnostic Integration
In this course the elements that include a diagnosis will be checked, as well as its theoretical- methodological fundamentals. Ethics and social implications of the diagnosis are considered as reference, as well as the advantages and disadvantages for strategies and intervention planning.

PS515
Psychotherapy Principles and Methods I (Dynamic Focus)
Psychotherapeutic approaches will be checked from a psychodynamic perspective as well as the correct technique for these approaches, therapeutic process, therapeutic contract, transference and counter- transference, and process termination.

PS516
Psychotherapy Principles and Methods II (Cognitive-Behavior Perspective)
Brief approaches of psychotherapy will be checked such as cognitive behavior, making emphasis on its application to different problems such as depression, ingestion disorder, obesity, posttraumatic stress disorder, among others. Its pros and cons will be emphasized.

PS517
Group Psychotherapy
Group therapy is presented as an effective approach for diverse personality disorders treatments, as well as an experience of personal and group development obtaining very important learning applicable in personal and interpersonal life. Students will be introduced to group and couple psychological intervention from a multidisciplinary approach.

ORGANIZATIONAL DEVELOPMENT

RI502
Stress and Life Quality at Work
Stress is an everyday phenomenon that is present in adaptation disorders in general life as well as in work specifically. It is calculated that around two thirds of all diseases are related to stress. Stress is a process in which biological, psychological, and social variables interact giving way to numerous disorders that are physical as well as emotional. In this course the main topics of stress are reviewed from a theoretical-practical perspective, such as personality, stress and health, psychobiology of stress, stress and emotional disorders, sexual and cardiovascular disorders, work stress, burn out syndrome, prevention strategies and stress interventions, work with populations at risk.

RI503
Motivation and Productivity
This couse reviews diverse central topics that refer to motivation and their relation to behavior and performance of individuals in organizational contexts. Contemporary theories and practical applications of motivation towards work that relate personal and environmental problems with the acquisition of abilities, work performance, organizational behavior, organizational commitment, and work satisfaction.

RI510
Organizational Development
Organization Development (OD) will be presented as a planned systematic effort, for the study and improvement of Systems, focusing specifically on changing formal and informal procedures, processes, norms or structures using concepts from the science of conduct. The goals of organization development include improvement of quality of an individual's life, as well as the better functioning and performance of a given organization. The way that organization development is related to other social sciences will be established.

RI520
Organizational Behavior, Theory and Design
This course focuses on organizations, their structure, the outcome they wish to obtain, and how they solve situations related to culture, behavior of employees and values. Students will examine strategies designed to create and assess knowledge, including psychological bases of human behavior, individual learning, communication among cultures and intellectual and human capital. Other topics such as communication, motivation, team work, organizational change, stress, power, influence and trust are also reviewed.

RI505
Human Resource Administration
Application of theory and psychological research to the selection, assessment, and training of personnel in organizations. The principles related to individual differences and decision making with psychological measurements will be applied to hiring and personnel management and organization training. The concepts and techniques related to the analysis of positions, recruitment, assessment, selection, performance assessment, life training and other processes that positively and/or negatively affect learning and performance in organizations will be reviewed.

RI515
Administration in a Transcultural Context
The importance of globalization is becoming more present everyday. Markets have opened up to new plains that represented great risk in the past and it is vital to be familiar and manage these changes. Culture is part of this phenomenon; it gives us different ways of acting and perceiving the actions of others, among them, business. In the border we face this human manifestation, which is why it is important to be familiar with it and be able to mediate the needs and resources of people who work with us. It is necessary to understand need as cultural diversity, understanding and doing part of the management process and its tools and instruments as a fundamental support for this area.

AD503
Direction Skills (Upper Management)
Nowadays, company managers must turn to different techniques to motivate and increase employee efficiency; they are able to achieve this by knowing the needs of their human resources and the Management of strengths and weaknesses that are present inside as well as outside the company, that is to say, Management of their internal and external environment. Techniques such as benchmarking, SWOT analysis, opportunities, weaknesses and strengths, determine very valuable information that allows manager to make informed decisions of cause and effect that lead to better guided intentions, behavior, and commitment of human capital in an organization.

SPECIAL EDUCATION

PS525
Diagnostic and Assessment of Special Education
This course includes different techniques to assess children with special education needs..

PS526
Special Education Model Comparison Analysis
This course is designed for teachers, psychologists or people who work in the field of special education. Throughout the course different models of special education will be analyzed and comparisons among them will be discussed.

PS527
Learning Problems and Poor Performance at School
This course is oriented to instructors, psychologists or people directly involved in the process of teaching children and adolescents in different educational levels. Throughout this course an analysis of the most common learning processes and the deep connection they have with

a high/poor school performance will be carried out. A theoretical revision of the contents and practical application of such processes will be done. During this course students will apply their acquired knowledge in their work centers.

PS528
Cognitive Process Development
This course presents basic cognitive processes and their development. They are presented as basic processes that help organize the behavior and complex experience of the subject. The basic idea that this is fundamental no only for understanding human conduct, but also for the development of diverse fields inside and outside psychology are proposed (e.g. neuropsychology, psychotherapy, artificial intelligence, among others).

PS529
Neuropsychological Assessment
This is a course in which students are introduced to neuropsychological assessment, its history, its evolution, methodology, its reach and limitations as a focus point o understand the cognitive functioning of people. A methodology to carry out a global assessment in this area is presented, the adequate tests are revised for each step of assessment and intervention guidelines are suggested.

PS530
Learning Strategy Workshop I
This course covers aspects related to the experience of the reality of having a child with special educational needs and the strategies through which families can collaborate in a positive way in rehab processes, attention and care of their children.

Participants will design strategies in order for families in this situation to develop attitudes and abilities that allow them to collaborate in a more committed way in the process of rehabilitating their children.

This is a course where the participants are required to be actively involved in helping families who have children in these circumstances by adopting an educational focus – prevention to allow the family to confront this reality with the most adequate resources.

PS531
Learning Strategy Workshop II
Brief approaches of psychotherapy will be checked such as cognitive behavior, making emphasis on its application to different problems such as depression, ingestion disorder, obesity, posttraumatic stress disorder, among others. Its pros and cons will be emphasized.

FAMILY THERAPY

PS518
Family Functionality and Malfunctionality
The main topic of this course is the comprehension of theories and procedures that explain the reasons why a family develops a dysfunctional process in a given stage of a life cycle. Topics such as family health, successful and unsuccessful adaptation processes to the demands of life, as well as the means used by families to adapt are part of this course. Concepts such as Normalcy and abnormality, referring to the optimal functioning of a family within changing socio-cultural contexts are reviewed.

PS519
Theoretical Models in Family Therapy
This is a course in which the anthropological and epistemological fundaments are reviewed, as well as the concepts of family and family development, health and pathology, functionality and malfunctionality in family and couple relations, and the therapeutic strategies developed within the same. Among the topics approached in this course, there is the question of effectiveness of the different approaches related to therapeutic interventions. Available research about the results of family therapy with different types of families is reviewed.

PS520
Systematic Thinking in Family Therapy
Thinking in systematic terms is basic for family therapy. This course's objective is to provide students with conceptual and developmental elements of competencies for thinking in Systems. It opposes linear thinking which has been present in the paradigms that are currently being used to conceptualize the problems of human relations and the methods used for their treatment.

PS521
Diagnostic Family Interview
This is a course in which the different modalities of a family interview are revised and exemplified, as well as the unique traits each of them has. Through exercises such as role playing, video tape review, as well as student exposure to actual interviews, performed by family therapists subscribed to this program, students will develop a comprehension of this method of work and obtain basic competencies in this area. Assessment instruments used with families will be reviewed, and this will demonstrate how to use them in the design process of family therapy.

PS535
Therapy and Family Change
Among other topics, the following will be approached: the dilemma of change, the formation of problems, more of the same, simplifications, utopias, paradoxes. Problem solving, primary order change, secondary order change, hypothesis formulation, behavioral level, emotional level, idealism level. The practice of change, and different ways of producing and assessing it in family systems.

PS523
Couples Therapy
A couple is a system that plays a crucial role in family development. Attending to this importance, matters related to the formation of a marital relation and other intimate relationships that are functional as well as dysfunctional according to society will be reviewed during this course. Modern and post-modern perspectives on couples and family will be studied. The role played by therapy in pre-marital, marital relations and divorce and custody procedures will be explored. Concepts related to couples communication as well as the influence of differences of gender in the organization of marital life will be viewed. In this course, the aspects of Mexican culture and its influence on the formation and life of a couple will be studied.

PS524
The Therapist's Family of Origin
In this course, students are introduced to their own roots as individuals. The analysis of their own family at nuclear and intergenerational level will allow them to adequately handle those feelings, thoughts, and attitudes that have been developing as their life cycle advances and they will be put to work in the process of therapy.

CRIMINOLOGY

CS503
Ethics and Human Rights Seminar
En este curso se incluyen los elementos básicos de la ética y de los derechos humanos en el campo de la Criminología.

PS505
Criminology Seminar
This course reviews elements of criminology such as the history of crime, parasocial conducts, predisposing crime factors, victimology, penology and the social cost of crime.

PS508
Criminal Psychology Seminar
This course includes the functions of professionals required to carry out prevention interventions, control, orientation and re-adaptation in society in the field of male, female, juvenile delinquency.

DE505
International Criminal Policies
This course deals with different aspects of criminology seen from a global point of view, analyzing relevant aspects of international criminal policy, its impact, intervention and prevention experience, tendencies, and research.

SI500
Criminal Statistics and Information Systems
Throughout this course students will develop the ability to interpret crime statistics, using practical tools as well as applying information systems in criminal investigations. This course will also deal with the analysis of the main mechanisms to mediate and do empirical research on insecurity and victimization in Mexico.

AP510
Public Security and Community
This course begins with the interdisciplinary analysis of insecurity as a social representative, to later propose a conceptual analysis of public security and the justice system in order to understand the general framework of their performance and impact in results and social perception, deriving from policies implemented in Mexico, as well as citizen response to this problem.

AP509
Justice and Public Security Administration
This course begins with the general study of justice administration in Mexico, where students will analyze the integration and competency of different judicial organisms that are involved, at a federal and state level, focusing the discussion on topics related to efficiency, perspective and impact on public security.

PS500
Criminology and Forensic Medicine
Throughout the course, students will use an interactive methodology with theoretical classes and practical workshops to study the field of action and the main methods and techniques for criminal investigations and forensic medicine.

PS507
Penitentiary Systems Seminar
This course reviews generalities on penitentiary systems, security systems and social readaptation strategies.

Master's Degree in **Education**

With a specialization in the **Culture of Legality**

The objective of the program is to update faculty and educational administrators in the new educational trends for the XXI century, particularly in the learner centered educational model. This master's degree also offers the necessary knowledge on the Mexican Constitution and the Justice Administration system to allow the participation in the changes required by our Legality Culture.

What are the career fields for a student of the Master's Degree in Education with a specialization in the Culture of Legality?

- Institutions as updated instructor on the new educational paradigms that focus their attention on the learner and the different methods to facilitate learning.
- In educational institutions as instructors or in administrative functions.
- Collaborating in all the initiatives taken inside or outside of the educational institutions that have the purpose of a change in the Culture of Legality such as consensus, commitment towards the respect for the law, and common welfare.

What are the characteristics or abilities you will acquire at the end of the program?

Upon completing your Master's Degree in Education with a specialization in Culture of Legality you will be competent to:

- Re-dimension the importance of the civic education objectives according to the necessities of our time.
- Apply the last findings of behavioral sciences that are necessary to modify the community's culture.

¿What are the entry level characteristics you need to study the Master's in Education with a Specialization in Legality?

- To have finished a bachelor's degree in a national or foreign institution with official diploma.
- It is desirable that candidates finished a major that is related to the field (Education, Psychology, Sociology), but they will be able to start the program if they possess teaching or administrative experiences in basic, middle and higher education institutions.
- In case of not being a professional with teaching experience you will have to have a great interest in the Culture of Legality and in any of the forms of teaching activities.

With Specialization in **Organizational Development**

The objective of the program is to update faculty and educational administrators in the new educational trends for the XXI century, particularly in the learner centered educational model. This master's degree is a clear and viable way to face the great challenge of harmonizing the life of educational organizations and of the people that make them possible through the contributions made by Organizational Development as a discipline that reconsiders the person as the center and recipient of all human activities.

¿What are the career fields for a graduate of the Master's Degree in Education with specialization in Organizational development?

- Institutional initiatives with aims to reduce harmful work related stress to achieve educational goals.
- Institutions where you will be able to collaborate with the school administration in actions to improve the quality of life of the staff.
- You will be able to develop administrative functions and directly influence in the organizational culture changes, at the same time that you explore and analyze the environment of the educational institution.

¿Cuáles son las habilidades que obtendrás al egresar de la MEE con opción en Desarrollo Organizacional?

At the end of the Master's Degree in Education with option in Organizational Development you will:

- Possess a solid knowledge in the discipline through a basic training in education, pedagogy, and the methodology and techniques updating areas, according to the findings in educational research.

- Be an agent of change in the organizational culture at the same time that you explore and analyze the educational institution environment in the cultural, economical, political, and social aspects.

What are the entry level characteristics you need to study this Master's?

If this is what you want to do, then your profile as a student of the Master's Degree in Education with specialization in Organizational Development must meet the following characteristics:

- To have finished a bachelor's degree in a national or foreign institution with official certification of studies.
- It is desirable that candidates finished a major that is related to the field (Education, Psychology, Sociology), but they will be able to start the program if they possess teaching or administrative experiences in basic, middle and higher education institution
- In case of not being a professional with teaching experience you will have to have a great interest in Organizational Development and particularly in any of the forms of teaching activities.

With Specialization in **Special Education**

The objective of the program is to update faculty not only in general pedagogy, but also in the specific knowledge of Special Education fields to propose the best solutions to the problems that arise in their daily work, and strongly collaborating in the integration and inclusion processes of students with special educational needs.

What are the career fields for a Master's Degree in Special Education?

- As instructor in educational institutions of any level.
- Institutions as an advisor for parents to establish with them follow up educational programs oriented towards the completion and happy development of students with special educational needs.
- An educational administrator in institutions that are aware of the integration and inclusion processes for students with special educational needs.

¿What are the characteristics or abilities you will acquire at the end of the program?

At the end of the Master's Degree in Especial Education you will:

- Possess a solid knowledge in the discipline through a basic formation in education, pedagogy, and the methodology and techniques updating areas according to the findings in educational research related to Special Education.
- Be an agent of change with knowledge and educational experiences of personal and professional growth, and capable of influencing in a positive way in the harmonic development of your students both regular and the ones that require different educational strategies.

¿What are the entry level characteristics you need to study the master's Degree in Special Education?

If this is what you want to study, then your profile as a student of the Master's Degree in Special Education must meet the following aspects:

- To have finished a bachelor's degree in a national or foreign institution with official diploma.
- It is desirable that candidates finished a major that if related to the field (Education, Psychology, Sociology), but they will be able to start the program is they possess at least two years of teaching or administrative experiences in basic, middle, and higher education institutions.
- In case of being a professional without teaching experience, you will have to manifest a great interest in education in general, in special education particularly, and in teaching in any of its forms.

EJE DE CONCENTRACIÓN COMÚN

- Educación para el siglo XXI
- Desarrollo Curricular e Institucional
- Facilitación del Aprendizaje
- Aprendizaje Mediado por Tecnología
- Evaluación de Aprendizaje
- Investigación Educativa
- Administración Educativa
- Didáctica General

EJE DE ESPECIALIZACIÓN

EDUCACIÓN ESPECIAL

- Psicología del Desarrollo
- Funcionalidad y Disfuncionalidad Familiar
- Evaluación y Diagnóstico en la Educación Especial
- Análisis Comparativo de Modelos de Educación Especial
- Problemas de Aprendizaje y Bajo Rendimiento Escolar
- Desarrollo de los Procesos Cognoscitivos
- Taller de Estrategias de Enseñanza I
- Taller de Estrategias de Enseñanza II

DESARROLLO ORGANIZACIONAL

- Estrés y Calidad de Vida en el Trabajo
- Motivación y Productividad
- Administración de Recursos Humanos
- Desarrollo Organizacional
- Teoría de la Comunicación Humana
- Conducta Organizacional, Teoría y Diseño
- Alta Dirección
- Ética y Valores en el Ejercicio Profesional

CULTURA DE LA LEGALIDAD

- Sistema Político Mexicano
- Cultura de la Legalidad
- Administración de Justicia y Seguridad Pública
- Seguridad Pública y la Comunidad
- Ética en la Función Pública
- Seminario de Ética y Derechos Humanos
- Derecho Constitucional

EJE TERMINAL: SEMINARIO INTEGRADOR

Course **Descriptions**

COMMON CORE COURSES

CS519
Education For The 21st Century
This is the first course of the master's degree. Students must go through an introductory session where the history of the institution is described, as well as its educational model and the central aspects of Graduate School Management. After this, the program contemplates two essential aspects: understand the importance of an educational model even in times of conflict. The second aspect focuses on the student with an initial glance at the educational paradigm centered in learning, all of which will be seen in depth in later courses.

CS520
Curricular and Instructional Development
The structure of this course has the ultimate goal of developing in students a reflexive development on cutting edge didactic focuses, which try to center in learning as a fundamental change for new didactics: from focusing on pure learning to learning focused on the student, taking on the elements that constitute the curriculum in its foundation, design and assessment, as well as the theoretical aspects that intervene in the process of teaching learning, taking some of the paradigms of cognitivism and constructivism.

CS521
Learning Facilitation
Seminar modality, this course is focused on the revision of psychological and pedagogical aspects that fundament the facilitation of learning. Also, in workshop modality, it is oriented toward the development of teaching abilities to facilitate learning through individual and group strategies.

CS522
Learning Through Technology
This course intends to present an overview of education based on electronic media, especially communication mediated by computer, with the objective of valuating its potential in education. This course focuses on the presentation and discussion of education supported by electronic media and the application of some media considered as work tools for instructors.
For the course's development, it is necessary to have the support of a computer laboratory equipped with internet access, office tools and access to blackboard.

CS523
Learning Assessment
This course is oriented towards the revision of ethical and technical aspects that are the foundation of learning assessment, which will be imparted in a seminar modality. On the other hand, it will also be worked on as a workshop, which focuses on the development of instructor abilities for the use of objective and alternative assessment techniques and instruments.

CS524
Educational Research
This course is centered on the analysis of paradigms of research for their comprehension and application in education, within the daily activities of each instructor. In other words, the theoretical-practical aspects of research paradigms are revised. Different types of research are analyzed and the general components of a research project are also reviewed.

CS525
Educational Psychology
This course focuses on the revision of different scenarios that coexist in the field of educational psychology, specifically in the area of learning, taking the student into consideration, and teaching, taking the instructor into consideration.

CS526
Educational Administration
This course focuses on the revision of normative, structural, and management aspects that are present in the process of educational institution management.

CS527
General Didactics
Through this course the concept of Didactics is reviewed in light of the multiple focuses of its authors. An analysis on the historical evolution of Didactics is made and culminates with an anthology of successful learning experiences of the participants. It is a very vivid course. Students have studied basic common core courses where they have reviewed the elements that make up the process of teaching – learning focused on the learner and learning. Now, in this course, students will have the opportunity to integrate the acquired knowledge and abilities to determine an adequate instructor profile in concrete didactic proposals in their field of work.

CONCENTRATION CORE SPECIAL EDUCATION

PS502
Development Psychology
In this course people's behavioral changes are studied through different stages in life: childhood, school age, adolescence, youth, maturity and seniority. Changes are analyzed not only from a psychological point of view but also considering the historical context and socio-cultural influences in which they are developed.

PS518
Family Functionality and Malfunctionality
The main topic of this course is the understanding of the theories and processes that explain the reasons why a family develops a dysfunctional process in a given stage of the vital cycle. This course comprehends topics such as family health, successful and unsuccessful adaptability processes in life demands, as well as the means used by families to adapt. Concepts such as normality and abnormality, referring to the family's optimal functioning inside changing socio-cultural contexts are revised.

PS525
Special Education Diagnostic and Assessment
This is a study including different techniques for the assessment of children with special educational needs.

PS526
Special Education Model Comparison Analysis
This course is directed to instructors, psychologists or people that work in special education areas. Throughout this course different special education models will be analyzed and contrasted among them.

PS527
Learning Problems and Poor Performance at School
This course is oriented to instructors, psychologists or people directly involved in the process of teaching children and adolescents in different educational levels. Throughout this course an analysis of the most common learning processes and the deep connection they have with a high/poor school performance will be carried out. A theoretical revision of the contents and practical application of such processes will be done. During this course students will apply their acquired knowledge in their work centers.

PS528
Cognitive Process Development
This course covers the basic cognitive processes and their development. The basic processes that contribute to behavior organization and individuals' complex experience are presented. The basic idea that studying is essential not only for the understanding of human behavior but also for the development of different fields in and out psychology's scope (e.g. neuropsychology, psychotherapy, artificial intelligence, among others).

PS530
Teaching Strategies Workshop I
This course covers aspects related to the experience of the reality of having a child with special educational needs and the strategies through which families can collaborate in a positive way in rehab processes, attention and care of their children.

PS531
Teaching Strategies Workshop II
This course presents an overview of the difficulties a child with special educational needs encounters at school and the support that must be provided to teachers. This course offers a reference frame to understand this situation and to think of alternative ways to confront and solve it.

Organizational Development
RI502
Stress and Quality of Life at Work
Stress is a daily phenomenon in adaptation disorder, in life in general, as well as in a specific area. It is estimated that two thirds of all diseases are related to stress. Stress is a process in which biological, sociological and psychological variables interact, giving place to a big number of emotional and physical disorder. During the course the main topics about stress are checked from a theoretical and practical perspective. Among others, personality, stress and health, stress psychobiology, stress and emotional, sexual and cardiovascular disorder. Stress, couples and family. Work stress and the burn out syndrome. Preventive and intervention strategies in stress. Work with risk population.

RI503
Motivation and Productivity
Several central topics regarding motivation and its relation to behavior and the individual performance in organizational contexts are checked. Theories and contemporary applications about motivation towards work related to personal and environmental facts will be checked, as well as abilities acquisition, work performance, organizational behavior, organizational commitment, and work satisfaction.

RI505
Human Resource Administration
The course offers general background about human resources administration, covering the different aspects and elements of position planning, designing, and analysis, recruitment and selection, training and development, assessment and labor relation.

RI510
Organizational Development
This course focuses on fundamental concepts of Organizational Development analysis, through studying how and why organizations change, adapt, or fail, as well as empiric tools and practical cases that allow diagnosing and interfering successfully in change and organizational innovation processes. The course focuses on the analysis of the main concepts of Organizational Development, through the study of how and why organizations change, adapt or fail, as well as the empirical tools and practical cases that allow a successful diagnosis or intervention in the process of change and organizational innovation.

RI519
Human Communication Theory
Current theories about human communication will be checked, especially those derived from Palo Alto School. Due to the transactional nature of human relations, and the multiple ways of relation produced in the family circle, it seems to be comprehensible to think of the necessity of instructors getting reference about the importance of human communication.

RI520
Organizational Behavior, Theory and Design
This course is focused on organizations, their structure, the results they want, and how they solve situations regarding culture, employee behavior, and values. Students will analyze strategies designed to create and assess knowledge, including the psychological basis of human behavior, individual and organizational learning, the communication among cultures and the human intellectual capital. Topics such as communication motivation, team work, organizational changes, stress, power, influence and confidence will be checked.

AD503
High Administration
The study of management as a discipline develops abilities and knowledge needed to formulate and set a work culture

oriented to reach excellence in business management and business administration. A proper model in management must be oriented to find the highest survivor levels when running any human activity. Through a process of innovation, the environment variables affecting the managing action must be understood, as well as managing successfully the culture, idealism, and values of the human capital involved through a leadership process.

CS506
Ethics and Values During the Exercise of the Profession
This is a course in which personal and social values, as well as the ones in professional performance, are discussed widely. The instructor, the Mexican psychologist, and the family therapist ethics code will be revised as well as some theories about ethics, applying such concepts and principles in Mexican and regional context. Practical case utilization to be analyzed, will allow students to develop a critical sense on their own professional performance and on resources and limitations; they have to face ethical and questionable situations.

LEGAL CULTURE

AP505
Mexican Political System
This course presents the development of the current Mexican political system, its genesis from the revolutionary movement, the classic stage of consolidation, the procedures for political and economic liberation, to the analysis proposal and discussion of a new socio-political profile in Mexico.

AP508
Legal Culture
This course deals in a reflective manner with the inherent values of humans in contemporary society, and allows for the analysis of the deterioration of social coexistence due to phenomena like delinquency, organized crime and corruption, searching to generate a discussion about alternatives in the a legal culture framework.

AP509
Justice and Public Security Administration
This course is part of the general study of justice administration in Mexico, where we analyze the integration and competency of different legal organizations involved at federal and state levels, focusing the discussion on topics related with efficiency, perspective and impact on public security.

AP510
Public Security and Community
This course is part of the interdisciplinary analysis of insecurity as a social representation, to later propose a conceptual analysis on public security and the justice system that allows to understand the general framework of its development and impact on results and social perception, derived from implemented politics in Mexico as well as citizen response to this problem.

CS500
Ethics in Public Office
This course presents a contemporary vision of ethics in public office, from the analysis of the corruption phenomenon to the framework in which current administrative and legal systems are developed. Different topics of the subject are approached to discuss alternatives and mechanisms of transparency and legality.

CS503
Ethics and Human Rights Seminar
This course includes the basic elements of ethics and human rights in the field of Criminology

DE502
Constitutional Rights
This course takes on the constitutional bases of organizational structure and functioning of the Mexican State, individual rights and social principles and values that make up the Constitution and its elements and control procedures. Also, it offers an approximation to constitutional right compared to the case of the U.S. and Mexico.

TERMINAL COURSE

CS505
Integrating Seminar
Participants will create a final application project considering the most important personal and professional knowledge acquired throughout this Master Degree. They will emphasize the need of developing appropriate methods and systems to assess their own practice and to continue the learning process that will make them competent and better qualified professionals in their specialization area. An ethics and values workshop is included with the purpose of making the participants analyze the contents of the professional ethics and values codes in special education.

Master's Degree in **Criminology**

Criminology is a discipline that studies the antisocial behavior. A criminologist is a professional that must be trained to carry out defined actions for crime prevention, orientation of criminals, and their social readjustment.
At CETYS Universidad, it is considered that Criminologist are professionals that influence in the events that have to do with crime prevention and control, the orientation of young offenders, the social readjustment of prisoners, and to contribute in law enforcement. They are agents of change because they are experts in the design of situations in which behavior and attitudes that contribute to a harmonic social relationship are generated.
The Master's Degree in Psychology and Criminology curriculum consists of 16 courses.

What are the entry level characteristics you need to study the Master's Degree in Criminology?

- Los criminólogos poseen una amalgama de conocimiento, por tanto su caLmpo laboral es vasto, pudiendo desempeñar investigación criminológica en el sector privado.
- Servidor público en la prevención del delito y a la readaptación social.

¿Cuáles son las habilidades que obtendrás al egresar de la MC?

- Obtienes conocimientos y herramientas específicas en el área de la criminología, a fin de mejorar el desempeño y fortalecer tu capacidad de liderazgo en las diferentes actividades y campos de acción.
- Eres capaz de incidir en los acontecimientos que tienen que ver con la prevención y el control del delito, con la orientación de menores infractores, la readaptación social de los reclusos y la impartición de justicia.
- Manejas a un nivel especializado el conocimiento de los diferentes ámbitos de la criminología, específicamente: Administración de justicia y seguridad pública; criminalística y medicina forense; estadística y sistemas de información criminal; política criminal internacional; teoría del delito; sistemas penitenciarios; victimología; sociopsicología criminal, así como cultura de la legalidad, ética y derechos humanos.
- Manejas la metodología de la investigación, las técnicas de evaluación y el diseño de instrumentos propios de los fundamentos del estudio psicológico.

¿Qué perfil necesitas para estudiar Maestría en Criminología?

If this is what you want to do, then your profile as a student of the Master's Degree in Criminology must meet the following traits:

The program is directed to people that studied a bachelor's degree in: Psychology, Law, Health Sciences, Administrative and Social Sciences in general. Preferably with working experience in areas related to public security.

CURRICULUM

COMMON AXIS (Select 4 courses)

- Assessment Techniques
- Psychopathology Seminar
- Development Psychology Seminar
- Instrument Design
- Social Behavior Seminar
- Mexican's Psychology Seminar
- Group Behavior Seminar
- Research Methodology

SPECIALIZATION AXIS (Select 9 courses)

- Ethics and Human Rights Seminar
- Criminology Seminar
- Criminal Sociopsychology Seminar
- International Criminal Policies
- Criminal Statistics And Information Systems
- Public Security and Community
- Justice Administration and Public Security
- Criminalistics and Forensic Medicine
- Seminar of Prison Systems
- Culture of Legality
- Victimology
- Criminal Policy and Crime Theory

OPTIONAL AXIS

Students must select two additional optional courses of any of the CETYS postgraduate programs.

- Optional I
- Optional II

TERMINAL AXIS

Integration Seminar

Course **Descriptions**

EJE COMUN

PS 501
Diseño de instrumentos
En este curso, se incluyen instrumentos psicométricos, sociométricos y proyectivos. Al finalizar el curso, el alumno será capaz de utilizar instrumentos de evaluación en diferentes campos de aplicación.

CS 502
Metodología de la Investigación
En este curso, se incluyen diferentes métodos y diseños de investigación. El participante realizará lecturas previas tareas y ejercicios, ensayo y reportes así como trabajos de investigación. Al finalizar el curso, el alumno será capaz de utilizar estrategias metodológicas para el diseño de investigaciones en escenarios diversos.

PS 502
Psicología del Desarrollo
En el curso el alumno estudia los cambios del comportamiento de las personas a través de los diferentes periodos de la vida: infancia, edad escolar, adolescencia, juventud, madurez y senectud. Se analizan los cambios no sólo desde una perspectiva psicológica sino también teniendo en cuenta el contexto histórico y las influencias socioculturales en que éstos se desarrollan.

PS 533
Psicología del mexicano
El curso comprende una discusión sobre temas culturales que han influenciado el desarrollo del ambiente laboral mexicano y de la propia psicología del trabajador; ampliando el análisis a la configuración de la sociedad mexicana actual y a los valores adquiridos a través de nuestra idiosincrasia.

PS 503
Seminario de comportamiento grupal
El participante tiene la oportunidad de abordar el estudio del comportamiento grupal haciendo una revisión de las teorías y conceptos fundamentales que permiten comprender sus características y formación, así como los procesos intragrupales e intergrupales en los cuales se desenvuelven.

PS 504
Seminario de comportamiento social
En este curso, el alumno revisa la dinámica social que genera funcionalidad o disfuncionalidad en los grupos sociales o comunidades.

PS 506
Seminario de psicopatología
En este curso, el participante revisa los transtornos del comportamiento, infantiles, del adolescentes y psicopatologías sociales. Al finalizar, el alumno es capaz de explicar diferentes cuadros psicopatológicos.

PS 509
Técnicas de Evaluación
Se incluyen diferentes técnicas de entrevista, observación y registro aplicables en los campos social, laboral, educativo y clínico. Concluido el curso, el alumno es capaz de realizar entrevistas, observaciones y registros en diferentes campos de aplicación.

EJE DE ESPECIALIZACIÓN

AP 509
Administración de Justicia y Seguridad Pública
El curso parte del estudio general de la administración de justicia en México, donde se analiza la integración y competencia de los diferentes órganos jurisdiccionales involucrados, en los niveles federal y estatal; enfocando la discusión a temas relacionados con su eficiencia, perspectivas e impacto en la seguridad pública.

PS 500
Criminalística y Medicina Forense
A través del curso se utiliza una metodología interactiva con clases teórico presenciales y talleres prácticos de estudio de casos, para el estudio del campo de acción y de las principales métodos y técnicas de la investigación criminalística y la medicina forense. Al finalizar, el alumno es capaz de identificar las etapas y metodologías de la investigación criminalística, para su posterior aplicación.

AP 508
Cultura de la legalidad
El alumno aborda de manera reflexiva los valores inherentes al ser humano en la sociedad contemporánea, y analiza de manera crítica el deterioro de la convivencia social por medio de fenómenos como la delincuencia, el crimen organizado y la corrupción, buscando generar la discusión de alternativas en el marco de una cultura de legalidad.

SI 500
Estadística y Sistemas de Información Criminal
A través del curso se desarrollan habilidades para la interpretación de la estadística delictiva, haciendo uso de herramientas prácticas, así como de la aplicación de la informática en la investigación criminal. Por otra parte, se aborda el análisis de los principales mecanismos de medición y de investigación empírica sobre la inseguridad y victimización en México.

DE 505
Política Criminal Internacional
El participante aborda desde diferentes ámbitos a la criminología vista de manera global, analizando aspectos relevantes de la política criminal internacional, su impacto, experiencias de intervención y prevención, tendencias e investigación.

DE 506
Política Criminal y Teoría del Delito
El alumno se enfoca al análisis de los principales postulados de la teoría del delito, a través del estudio de los presupuestos jurídicos de la punibilidad de un comportamiento humano y sus efectos en la política criminal en México.

AP 510
Seguridad Pública y la Comunidad
El curso parte del análisis interdisciplinario de la inseguridad como representación social, para posteriormente proponer un análisis conceptual de la seguridad pública y el sistema de procuración de justicia que permita conocer el marco general de su desenvolvimiento e impacto en los resultados y en la percepción social, derivado de las políticas implementadas en México, así como de la respuesta ciudadana ante la problemática.

PS 505
Seminario de Criminología
En este curso se revisan elementos de la criminología como historia del delito, conductas parasociales, factores predisponentes del delito, victimología, penología y costo social del delito. Al finalizar, el alumno es capaz de utilizar la información sobre causas y manifestaciones de la delincuencia y del comportamiento del delincuente para proponer estrategias de prevención del delito.

PS 507
Seminario de Sistemas Penitenciarios
En el seminario, el alumno revisa las generalidades de los sistemas penitenciarios, de los sistemas de seguridad y de las estrategias de readaptación social; al finalizar, el participante es capaz de manejar la información de los sistemas penitenciarios para proponer estrategias de readaptación social.

PS 508
Seminario de Sociopsicología Criminal
En el seminario se incluyen las funciones profesionales requeridas para realizar intervenciones de prevención, control, orientación y readaptación social en el campo de la delincuencia masculina, femenina, juvenil, y manejo integral de la delincuencia, lo que le permitirá al alumno realizar las intervenciones requeridas en el campo de la delincuencia, así como en el manejo integral de la misma.

PS 510
Victimología
El curso aborda el estudio de la víctima desde diferentes planos, desarrollando los conceptos victimológicos básicos, así como la vinculación de la materia con el derecho penal y procesal, incursionando en los nuevos enfoques sobre los sistemas de reparación del daño y atención a víctimas del delito; todo ello complementado con el estudio de casos sobre las diferentes tipologías de victimización.

EJE TERMINAL

CS 501 Proyecto de Aplicación
A través del curso el alumno desarrollará y demostrará su capacidad de análisis, trabajo en equipo, interpretación y aplicación de los conocimientos adquiridos en el estudio del comportamiento antisocial, mediante la proposición de acciones definidas para la prevención del delito, la orientación del criminal y/o la readaptación social de éste.

Master's Degree in **International Corporate Law**

To provide candidates with the theoretical knowledge in the different fields that make up the law-business relations by forming professionals with the capacity to diagnose, analyze, and create strategies that prepare them to confront the complex problems and to reach adequate legal solutions related for the company by formulating alternatives of action supported by the systematic and profound analysis through the practical approach; as well as to perform business development tasks in both the corporate offices environment as well as the international negotiations.

What are the career fields for a graduate of the Master's Degree in International Corporate Law?

- Administration Boards.
- Counselor and legal board member of public, private, and foreign companies.
- Commercial Arbitration.
- Litigant in Mexico or as a counselor overseas.
- Professor or researcher in public, private, national or international higher education institutions.

What is the profile required to study this Master's Degree?

If this is what you want to do, then your profile as a student of this master's degree you must meet the following characteristics:

- To know how to interact with individuals from other cultures and languages.
- Ability to analyze and summarize all kinds of problems.
- To have a natural talent to manage national and international legal norms.
- Ability to have a personal development that allows you to positively interact in any circumstance.
- To be organized and systematic.
- Interpret all kinds of information with the ability to transmit.

and give guidance to others on the content of such information.

- To look for the mutual and balanced benefits in all actions, to be equitable.

Do you want to know the courses you will take in the Master's Degree in International Corporate Law?

The program consists of 14 courses, each one of them with 6 academic credits. The courses will have instructor guided sessions and independent assignments and research assigned by the instructor.

Materias

- Marco Jurídico de la empresa
- Contratos Mercantiles
- Títulos de Crédito y código de comercio
- Ley Federal del Trabajo I
- Ley Federal del Trabajo II
- Derecho Fiscal
- Derecho Bancario y Financiero
- Régimen Jurídico del Comercio Exterior y Aduanas
- Controversias Internacionales
- Tratados y Acuerdos Comerciales
- Derecho de la Propiedad Intelectual
- Derecho Ambiental
- Proyecto de Aplicación
- Deontología Jurídica

Course **Descriptions**

EJE COMUN

DE507
Business Legal Framework
The course develops the fundamental elements of the business legal framework, civil and commercial contracts, negotiable instruments and credit operations, property and intellectual rights, foreign investment and immigration rights, ecological and labor law, and the legal means to solve conflicts.

DE508
Commercial Contracts
In this course, students are related to and know the field of action of Commercial Law and the concept of intermediation, applying it to diverse cases that involve the elaboration of civil and commercial contracts, in addition to knowing the principal functions of the different subjects participating in acts of commerce.

DE509
Negotiable Instruments and Commerce Code
This course covers the different Negotiable Instruments, its formal elements, legal nature, general characteristics, classification, representation, and legal and doctrinal meaning, as well as integrating the related elements In the Code of Commerce and Commercial Law.

DE510
Federal Labor Law I
This course introduces students in the concepts that originated this law, labor law, its interpretation, sources and hierarchies. The will in relation to work, employers, employees and all those general concepts that regulate, modify, cancel or end a working relation.

DE511
Federal Labor Law II
Some legal concepts are analyzed, such as: professional association, unions, federations, collective contracts, working regulations, strikes, and protection, as well as those concepts concerning inheritance law work.

DE512
Fiscal Law
At the end of the course, students will be able to know and manage concepts of Fiscal Law, its diverse ordinances, and the parts that intervene in the development of fiscal obligations, as well as the ways to fulfil it.

DE513
Financial Banking Law
This course includes the necessary comprehension elements to manage a fiscal structure in our tax system and its procedures; its importance relies on the knowledge that students obtain from the background of other courses regarding fiscal tax matters.

DE514
Legal Regimen in Customs and Foreign Trade
The course comprises a general analysis of the national legal framework regarding Customs and Foreign trade, as well as the way to interpret it in specific cases.

DE515
International Conflict
This course covers aspects of the Foreign Investment Law and its general concepts.

DE516
Treaties and Commercial Agreements
This course presents some resources in the commercial negotiation area, from the preparation stages, conflicts, and commitments and agreements; such process will conclude negotiations with other cultures; in addition, arbitration legislation, and international arbitration will be analyzed.

DE517
Property and Intellectual Rights
In this course, students will be related to the meaning of inventions, useful models, and industrial designs, brands and commercial names, by applying these to practical cases that involve the process for trademarks, analyzing similarities and differences with other countries, as well as the documentation required. Additionally, students will know the administrative procedures, inspection, fines and administrative penalties for the corresponding felonies.

EJE TERMINAL

DE518
Environmental Law
The course offers a general overview of the regulatory normative framework for the protection of the environment in Mexico, in the international, national, state, and local areas.

DE519
Capstone Project
Through the course, students will develop and prove their capacity on analysis, group work, interpretation, and application of fiscal dispositions, through the proposal of solution strategies within a legal framework, in the search for the optimization of the company's financial resources.

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