State University of Nuevo Leon

Mechanical and Electrical Engineering School

Excellence and Humanism with Vision
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The advent of information technology brings the need to generate, develop, transmit, and disseminate knowledge in a frame of continuous improvement and international competence, in our Mechanical and Electrical Engineering School of the State University of Nuevo Leon, we are concerned provide academic enrichment programs and opportunities so that students may reach their best, to foster their own talent, to encourage their creativity for innovation and to involve them in a global culture. We are convinced that this kind of education carries out a fundamental role in the strengthening of the research activities, the generation of knowledge, the updating, and the improvement of the excellence level in their professional development.

FIME has many stories of triumph in 65 years, and now in the century XXI, we are the leader institute that faces the paradigm of the new information technologies, systems, production, nanotechnology, mechatronics, robotics, materials innovation, and aeronautics, through which we have generated unsuspected growth poles.

We are convinced that we live in a period of scientific and technological break through, where learning opportunities linking science to other subjects provide a rich context for integrating science, technology and mathematics. We collaborate with faculty and researchers to advocate for students and improve the academic experience, accomplishing with the strategic objectives of the VISSION UANL 2020, as an answer to the new demands and to the internationalization process we are experiencing.

FIME is a very strong, committed, responsible university community that generates great challenges. Form strong ties with the industry and government, and with whom we can carry out joint research projects. Through these cooperation agreements, we can further increase students’ employability and the quality of our courses and study programmes we offer. One of our main characteristics has been to.

There are naturally difficult economic situations all around the world, however, never before we have had so well prepared students, and that is why we try to generate opportunities for the knowledge, the innovation, and the creative ability.

M.C. Esteban Báez Villarreal
Dean
We foster student growth by serving education based on competences of engineers and researchers, so that students may successfully navigate the knowledge society, providing them with principles and university values, to engaged in sustainable, economic, scientific, technological, and cultural development of the humanity.

The generation and application of the scientific and technological knowledge, makes it possible to assure and improve the university integral education quality permanently, as an activity that contributes to the progress of the country towards an international context, and to the different society sectors.

Mission

Values

- Institutional Pride.
- Honesty.
- Commitment.
- Responsibility.
- Discipline.
- Truth.
- Equity.
- Freedom.
- Solidarity.
- Respect.
- Peace.
- Integrity.
- Ethical behavior.
- Justice.
Integral training

Humanistic Spirit
Research
Technology
Culture
Sports
The city of Monterrey reached a major expansion of its industrial activities in the forties. This industrial boom created huge scientific and technological needs, so that in 1947 our school was established in order to educate a high level professionals to strengthen the competitiveness in the local industry.

In January 1959 the Mechanical and Electrical Engineering School started its academic activities in the main campus of our university.

We have a history of high-quality academic programs centered on the student. With our alliances with the industry, we strive to blend classroom experiences with real-time hands-on learning, challenging academic programs that influence and respond to a changing society.

**Former Deans of FIME**

- Ing. Santiago Tamez Anguiano
  Sep.1947-May.1950
- Ing. Aurelio S. Fernández González
  Mar.1951-Nov.1953
- Ing. Pablo Espinosa Domínguez
  En.1954-Sep.1960
- Ing. René A. Mancillas Cantú
  En.1960-Oct.1960
- Ing. Benito Leal Cuen
- Ing. Nicolás Treviño Navarro
- Ing. Emilio Torres Patrón
- Ing. Jorge M. Unencio Ázegua
  Dic.1967-Abr.1978
- Ing. Cristóbal Monsiváis Lara
  Mzo.1971-Abr.1971
- Ing. Sabás Rodríguez Rodríguez
  Jun.1971-Nov.1971
- Ing. Lorenzo Vela Petia
  Abr.1978-Abr.1984
- Ing. Guadalupe E. Cedillo Garza
  Abr.1984-Abr.1990
- Ing. José A. González Treviño
  Abr.1990-Abr.1996
- Ing. Cástulo E. Vela Villarreal
  Abr.1996-Abr.2002
- Ing. Rogelio G. Garza Rojas
  Abr.2002-Abr.2008
We form professional prepared to face the actual challenges of the globalization and the competence on a market of constant expansion and technologic improvements.

In accordance with the UANL Vision 2020, we aim to discover, preserve, and disseminate knowledge; produce creative work; and promote a culture of broad inquiry through out and beyond FIME in a global context. We are committed to working with and fostering collaboration among the academic, scientific and technological community to enhance the life of our students, the region and our country.
Undergraduate Programs

The undergraduate programs cover ten strategic areas of Engineering:

- Mechanical and Electrical Engineering 1956
- Mechanical Administrative Engineering 1962
- Electronics and Communications Engineer 1975
- Systems Engineer Manager 1975
- Electronic Engineering and Automation 2000
- Manufacturing Engineer 2000
- Materials Engineer 2000
- Mechatronics Engineering 2004
- Aeronautical Engineer 2007
- Software Engineer Technology 2009

Around 1,100 students graduate per year.
The Mechanical and Electrical Engineering School has a total population of 14,046 undergraduate students.
Master Programs

The Mechanical and Electrical Engineering School offers Master’s Degree in two different ways: Research oriented or industry oriented programs.

Research Oriented

**Master’s Degree in Engineering Science**
- Materials
- Electric
- Thermal and Renewable Energy
- Systems
- Automotive
- Aerospace
- Ceramic

Industry Oriented

**Master’s Degree in Industrial and Business Management**
- Quality and Production
- Industrial Relations
- Finances
- External Trade

**Master’s Degree in Engineering**
- Electric
- Mechanics
- Manufacture
- Telecommunications
- Mechatronics

**Master’s Degree in Information Engineering**
- Computer Science
- Telematics
- Artificial Intelligence

**Master’s Degree in Logistics and Supply Chain**
- Management and Operations
- Analysis and Design
- Global Logistics

The Mechanical and Electrical Engineering School has a population of 760 master’s degree students.
Doctorate Programs

The Mechanical and Electrical Engineering School offers the next doctorate programs:

Semestral Plans
• Materials Engineering
• Electrical Engineering
• Systems Engineering

Tetramestral Plans
• Computing and mechatronics engineering

The Doctorate Program has 105 students

Specialization Programs

• Protection of Power Electronic Systems
• Thermo fluids
• Telecommunications

Tailor made specializations

This program involves a flexible academic program including the industrial society that is adapted to the academic courses to find solutions to specific necessities.

This program requires the collaboration of specific needs agreements.
Distance Education

To be a leader on the educational processes, the FIME offers courses of their Bachelor Degrees, Master and Continuing Education, on the distance modality through the use of internet on our platform of the UANL:NEXUS.

Nexus is a platform that responds to our necessities of the UANL teaching, it allows us to interchange the knowing how to create, publish and share classes in a fast, simple and friendly.

Language Courses

The FIME, in accordance with the globalization, offers curricular courses on English, German, Italian and French.

As a support to the foreign language learning, our School counts with the Self-Access Language Learning (CAADI, by its Spanish acronym), which prepares the students for their academic interchanges with Foreign Universities. It works through agreements with the Alliance Française and the German Academic Exchange Service (DAAD, by its German acronym).

The CAADI counts with the most modern within books, videos, cassettes, compact discs and software, so that you can enjoy while learning English.
Continuing Education

Our school offers courses of technological specialization on different areas of knowledge, structuring the services on:

Specialization Programs

Qualified course, courses and workshops

- Quality and continuous improvement
- Media Controls
- C++ Programming
- Aerospace
- Cisco CCNA Certification
- Logistics for manufacturing inventories
- Networks
- Design
- Software
- Mechanics
- Electrical
- Automation

Programs of technical formation

- Industrial electricity and electronics specialist
- Electro mechanical Maintenance
- Appliance Maintenance
- Organizational Quality Systems
- Parcel Computational
- Software Developer
- Computer Numerical Control
- Polymer Injection

Continuing Educations trains an average of 13,756 students per year.
External Advisory Council

The FIME has an External Advisory Council that works in collaboration with commissions, which aim to analyze, propose, evaluate and promote strategies and institutional improvement projects in science and teaching, among other issues, which help FIME meet challenges and attain goals.

The External Advisory Council is composed of proven international, national and local leaders in industry, research and academia.
Research Projects

Scientific and technological research is a priority for FIME, and for that reason we have developed various research projects in six different areas.

**Materials Science**
- Computer Simulation
- Analysis of fractures
- Nanotechnology

**Information Technology and Software**
- Adaptive Systems
- Use of portable devices
- Optimization, complexity and data analysis

**Systems Engineering**
- Network Optimization
- Metaheuristic
- Operational Sequences
- Stochastic Processes
The knowledge developed by research teams provides quick solutions to National and International Companies.

**Electrical Engineering**

- Diagnostic system fault location in the power grid
- Analysis of the performance of a current limiter
- Intelligent Techniques for estimating inlet temperature in a milling hot rolling steel
- Design and implementation of algorithms for the protection of electrical networks

**Thermo fluids**

- Heat transfer, numerical models
- Design of fluid machinery
- Circulation of fluids

**Mechatronics**

- Robotics
- Autotronics
- Avionics
Engineering Services

Our school has a long tradition of working on practical issues. We focus on our students to attain the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.

We aim to provide the opportunity for our students to participate in projects of liaison university-government-industry, in fact, we have recently been recognized as a national leader in these kind of projects.

Main engineering services offered

• Consulting
• Advice
• Laboratory tests
• Certifications
• Maintenance
• Services Operation
Student Projects

School projects related practice (PEPV) is a scheme that combines the Education Program Unit Learning and professional practice through a school project that covers a real need from the company or organization in which the student will practice, giving our students a wider experience. Among the companies that participate are: PROLEC, NEMAK, GE Lighting and NASA.

Job Bank

Our school has a Job Bank which aims to create a direct link from various companies with our students and graduates, to offer them better employment alternatives.

In this way we contribute to the formation of the student as a professional and give graduates better options when entering the workplace.

We currently have around 2,156 registered companies interested in hiring our students and graduates.
Graduates

For us it is very satisfying to have the opportunity to reconnect with alumni of the institution.

With a university-wide perspective, our school considers its graduates as a substantial part of the larger university community, not merely in a symbolic manner, but also considering them as stakeholders for the construction of guidelines in the university growth.

To this end, our school regularly holds briefings with its graduates.

PROFIME Foundation

A group of distinguished alumni showing commitment and readiness to respond to the technological, human and administrative issues in FIME and its Alma Mater, were determined to create the foundation PROFIME with the purpose of working for our institution and its students, using different strategies and services to continue in the pursuit of the goals of excellence.

It provides an opportunity to give an enriching professional experience to Exafimes of various generations through events, with the aid of renowned speakers from the community and current issues.
Distinguished Members of FIME

Teachers and students are recognized based on scientific and academic merit in various events and competitions, and exafimes for their professional performance in the community.

Dra. Elena Rodríguez Falcón

She is a graduate from the Mechanical and Administrative Engineering, active member of the University of Sheffield, she’s got an acknowledgement from the Northern Champion, Research Institute for the public improvement of the United Kingdom. She is the director of the Female Academy of Engineering in the University of Sheffield, and is a member of the International Advisory Council of the UANL (by its acronym in Spanish), furthermore she is the Director of the Education for Entrepreneurship.

Ing. José Antonio González Treviño

He has been trained as a Mechanical Engineer Manager in the School of Mechanical and Electrical Engineering, and completed his Masters in Management Sciences with Specialization in Production and Quality at the State University of Nuevo Leon. He began teaching in 1973 in the same School, and became the Administrative Secretary (1978-1990) and then the Dean of the School (1990-1996). During these years he chaired the Doctoral Committee and was a member of the Academic Committee of the Honorable University Council of the University. From 1996 to 2000 he served as Academic Secretary of the UANL, and was appointed Secretary General in 2000 until December 2003. At that momento he was elected President of the University, which he held until october 2009.

He has been a distinguished participant as Board Vice President and Regional Representative for Mexico’s Consortium for Higher Education in America, CONAHEC (2008-2010), Representative of the Council of State Universities and Allied Institutions at the National Council ANUIES (2008-2009), Chairman of the National Sports Council of Education (2007 to present), Vice President of the Pan American Sports Organization University, (2007-present), President of the Mexican Confederation of World Trade Centers (2008-2009) and Northeast Regional Chairman of the National Association of Universities and Institutions of Higher Education, ANUIES (2004-2008). He is currently the Secretary of Education in the State of Nuevo León.
Administrative and Academic Accreditation

Accreditation is important for FIME because it engenders confidence in the quality of the education we offer, it also encourages innovation and quality improvements. We keep all of our academic and administrative processes under the highest quality assessments on a national and international level.

Our School promotes quality culture through internal and external assessments.

In FIME we maintain a creative and forward-thinking approach to student learning, and demonstrates how the university community works together to improve educational outcomes.
Agreements with other Universities

To enrich the heritage of our school, international exchanges, among other things, are considered a priority of our Administration.

Regular exchanges take place with several universities in USA, Latin America and Europe.
The FIME offers to its faculty and students the possibility to participate on interchanges on different countries. The programs offered include: academic interchange, practices and final projects.
Industrial Cooperation Agreements

After 65 years of pursuit of innovation and creativity, FIME has mapped out a unique path to deliver education with its own characteristics. It has become a cradle for nurturing talent in science and technology, and innovation for the region and the country.
FIME has made significant contributions to the industry by cooperation agreements for the development of science and technology forward, and in serving as a model in higher education.
Industry Partnerships

In accordance with the policies of international cooperation, the FIME pursues the creation and development of industry partnerships, to improve professional development for the students and, in turn, has increased the quality of hives for business and industry.

Areas:
- Aerospace
- Automotive
- Appliances
- Software and Information Technology
- Steel Museum
- Agrifood
- Federal Electricity Commission
It has been the constant endeavour of FIME to incorporate features of excellence in its campus. Every effort is made to improve upon the existing best practices in our fields of study.

4 Research and Development Centers  
154 Classrooms  
32 Well equipped laboratories  
29 Computer Rooms  
2 PLM Rooms  
7 Video Conference Rooms  
40 Work Areas  
2 Libraries  
2 Sports Centers  
1 Soccer Field  
1 Softball Field  
6 Auditoriums  
3 Square Domed Rooms  
1 Cafeteria
CIIDIT (for its acronym in Spanish) 
Center for Innovation, Research, and Development 
in Engineer and Technology

It is a multidisciplinary and integration center of excellence, where the knowledge is generated in an innovative way in the areas of:

° Nanotechnology
° Advanced Materials
° Mechatronics
° Software Engineering

CIIIA (for its acronym in Spanish) 
Center for Research and Innovation in Aeronautical Engineering

Its objective is to contribute to the Regional and national development of the aeronautical industry, general and commercial aviation. We offer two academic programs: Aeronautical Engineering and Aeronautical Maintenance.

Main Activities:
° Research and Technological development
° Develop of Human Capital of the Aviation Industry
° Technological Services for the Related Industries

Location: 
Park of Research and Technological Innovation. 
Highway to the Airport, Km 10, 
Apodaca, Nuevo León.
CIDET (for its acronym in Spanish)  
Center of Research and Technological Development

It is a knowledge center for technological development for the industry through its researchers and students. Solutions and technological services on priority areas such as mechatronics technology information, telecommunications, materials engineering, networks supply and distribution.

Location:  
Mechanical and Electrical Engineering School, UANL, Pedro de Alba, University City.

CCPI (for its acronym in Spanish)  
Center for Competitiveness and Productivity in Engineering

It provides services highly qualified services in management, planning, development, monitoring and control of state enterprise sector projects.

The innovation of the services of CCPI is based on the model of the triple helix, where the government, private enterprises and the university play vital role in each project.

Location:  
Mechanical and Electrical Engineering School, UANL, Pedro de Alba, University City.
In FIME we have a unique faculty who supports the students initiative to solve problems. And it is important to share what we do by:

**Scientific magazine “Ingenierías”**

The FIME promotes scientific and technological dissemination through our own academic journal “Ingenierías” (ISSN: 1405-0676), published every three months, in print and online: http://ingenieras.uanl.mx

**New Magazine “FIME HOY”**

Is a semestral electronic and printed magazine which aims to be an essential source of information for our students.
Website

FIME recognizes the www as an important electronic publication medium that facilitate its teaching, learning, research, student life and communications and administrative functions. The website was designed and developed to promote direct access to information resources and increase the visibility of the institution.

www.fime.uanl.mx
Facebook: fime.oficial
Twitter: @FIME_Official

International Congress of Science, Education and Technology

This Congress that takes place in October of each year as a part of the celebration of our School’s anniversary. Its objective is to convey news about academic formation, as well as cultural and sports news related to our school, students, graduates and general audience.

Activities:

• Conferences
• Courses
• Workshops
• Panels
• Scientific Publications
• Expositions and exhibitions
• Art space
• Culinary Exhibition
• Sports Activities
Given the stressed condition of the world and the ever-mounting needs of society every where, FIME promotes social responsibility to play a vital role in the teaching and educating system.

On programs such as “Un abrazo a tu comunidad”, students offer assistance to social institutions such as Red Cross and Green Cross of Monterrey, Nuevo Amanecer Institute, Casa Hogar Imperio de Amor, Father Infante’s Soup Kitchen, Hogar para Ancianos and Caritas de Monterrey, the Social Service providers participate each semester in a community activity as part of their work with these institutions.

Other social impact events are campaigns to collect used batteries, the celebration of World Environment Day, the celebration of Children’s Day and the Race for Life.
Scholarships and Financial Aid

We are conscious of the current economic situation, so we offer scholarships and financial aid to help students save money on their tuition so they can get an education by giving this support to low income, high academic performance and outstanding sporty students, as well as UANL employers and their children.

Students benefited per year:

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<th>Category</th>
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<tr>
<td>Undergraduate</td>
<td>13,246</td>
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<tr>
<td>Graduate (Masters Program)</td>
<td>1,465</td>
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<tr>
<td>Continuing Education</td>
<td>458</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>15,169</strong></td>
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In our graduate programs, we have 210 students with a scholarship from CONACYT.

The FIME also, through the foundations and organizations gives the opportunity to its students to participate in different supporting programs for financial aids such as:

- Pronabe
- Rocca
- Ternium Excellence
- GE
FIME campus has an academic spirit with an entrepreneurial bent, a diversity of human life, and some of the most valued professional opportunities.

On campus, FIME offers countless ways to connect with other members of the community. With students' clubs and organizations, sports and hall activities, and community service opportunities, students get involved with the FIME, and most importantly, with each other.

- Art Exhibition
- Musical Club
- Drama
- Music Contests
- FIME-Sing
- Dance Contests

Students and faculty have access to an exceptional range of facilities, services, and dining facilities. Academic facilities include a library as well as many laboratories and specialized centers.

On campus we offer to our students a diversity of sports activities in which the students' socialization and culture of health are promoted through teacher-student integration and through representative teams that participate in the intrauniversity tournaments, as well as in the local, national and international levels.

- Football
- Soccer
- Karate-Do
- Kung Fu
- Wrestling
- Racquetball
- Swimming
- Softball
- Basketball
- Volleyball
- Cycling
- Among others