ITESO

Universidad Jesuita
de Guadalajara

INNOVATION, TECHNOLOGY MANAGEMENT AND ELECTRONIC DESIGN

ITESO, the Jesuit University of Guadalajara

CREATING ADVANCED EDUCATIONAL OPPORTUNITIES
FOR TALENTED AND SOCIALLY RESPONSIBLE CITIZENS

UNIVERSIDAD DE
EXCELENCIA ACADÉMICA
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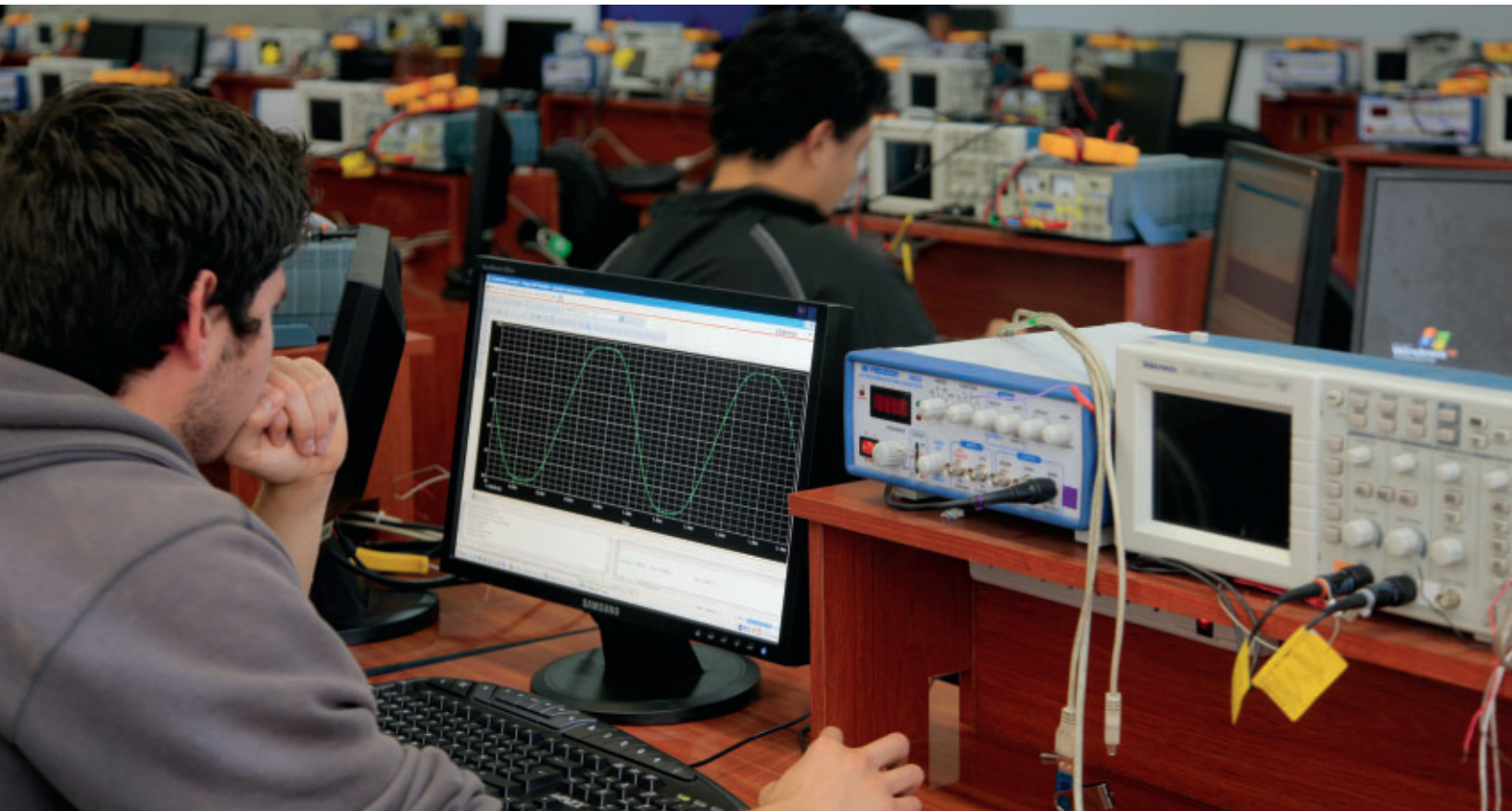


CREATING ADVANCED EDUCATIONAL OPPORTUNITIES FOR TALENTED AND SOCIALLY RESPONSIBLE CITIZENS

ITESO, founded in 1957, is the Jesuit University of Guadalajara, Mexico. ITESO belongs to the network of over 230 Jesuit colleges and universities around the world. It shares with them an educational tradition of more than 450 years, historically recognized for preparing leaders in all fields of arts and sciences.

ITESO is cooperating with the IT business community, state and federal governments and other educational and research institutions in the development of the industry and the generation of educational programs to transform extraordinary students into high-calibre engineers capable of designing technologically competitive solutions.

The university finds itself working with two extremes in society. On the one hand it is involved in technology, research and economic growth, while on the other it is contributing to erasing poverty in Mexico and Latin America. ITESO is involved in teaching, research and the engagement of engineering and the social sciences for the growth of the electronic technology industry and for economic and social development

INDUSTRIAL CONTEXT

Jalisco, land of Mexican cultural icons such as tequila and mariachis, has also become Mexico's Silicon Valley. Since 1968, when Jalisco became the site of the first semiconductor plant in Latin America, run by Motorola, the state has developed a competitive electronic cluster comprised of twelve companies from among the top 100 makers of global electronic, including Jabil, Flextronics and Sanmina SCI. There are also research and development centers for world-class companies such as Hewlett-Packard, IBM, Intel, Freescale, ST Microelectronics and Continental Automotive.
The fastest growing industrial sector in Jalisco, electronic contributes significantly to the development of Mexico.

Jalisco's electronic industry is moving from a low cost-high volume manufacturer sustained during most of the past decade, to a smaller volume but significantly more value-added industry. Average annual growth has been 12.8% in the last few years. In 2005, investment in the sector was 147.1 billion dollars while total Jalisco exports in the sector were 16.6 billion dollars. Companies are investing in research centers aimed at designing and testing new solutions for the technologically sophisticated electronic industry.

The need to develop highly specialized engineers and technicians in Jalisco is at the top of government and educational institutions' agendas. In the past thirty years, ITESO has contributed to this industry with professionals from the fields of engineering, business management and the social sciences. It currently promotes engineering programs among young adults throughout western Mexico (*www.ingenierias.iteso.mx*)

FOR OVER FIFTY YEARS, ITESO HAS BEEN A VISIONARY IN THE FIELDS OF ENGINEERING AND TECHNOLOGICAL INNOVATION. THE UNIVERSITY HAS CONSISTENTLY FOCUSED ON THE DEVELOPMENT OF ACADEMICALLY RIGOROUS PROGRAMS TO CONTRIBUTE TO THE GROWTH OF THE TECHNOLOGICAL AND INDUSTRIAL SECTORS.

ITESO's commitment to technological development is manifest in its engagement and collaborative agreements with both businesses and national and international organizations that seek innovation, technological development and commitment to society. To this end, the university:

- Set up its own Technology Park, a facility devoted to the research, design and development of high-quality, technology-based projects and businesses, bringing together the varied initiatives of academics, researchers, students, private, national and international business developers, and government agencies. It is the Mexican headquarters of ten companies in software and hardware development, aeronautics, electronic design, video games and others. The park is now in its second phase of development with the construction of a new building.
- Promoted the creation of the Biocluster of Western Mexico, a conglomerate of biotechnology-oriented businesses and organizations in the region.
- Is the headquarters of the Center for Vehicular Electronic Technology, which grew out of a collaborative agreement between ITESO and Soluciones Tecnológicas, a firm which integrates efforts from the automotive, electronic and software sectors for the design, construction and testing of electronic systems for automobiles.
- Set up the Center for Assembling Electronic Card Prototypes, where high-quality prototypes are designed and produced for developers, ranging from university projects to international corporations.
- Is the first university in Latin America to sign a collaborative agreement with Cadence and Mosis, worldwide leaders in the design and manufacture of integrated circuits, which allows ITESO students the opportunity to create their own designs with CAD tools, in line with industry standards, and then manufacture the finished product.
- Involves students, professors and researchers in Professional Application Projects, taking knowledge developed at the university and channeling it to businesses, organizations and institutions, both public and private, that need support for implementing their development projects.
- Has a food engineering lab with equipment for product analysis, innovation and development.

PROGINNT ITESO

INNOVATION AND TECHNOLOGY MANAGEMENT PROGRAM

ITESO is firmly committed to innovation and determined to contribute to the generation of new technologies for the development of businesses in the region. Through its business school, workshops and certificate courses, business incubator, technology management consultancies, and strategic, technological and market studies, university experts, academics, researchers and technological project leaders offer valuable services to the business sector.

In 2003, ITESO created the Innovation and Technology Management Program, through its alliances with industry and public and private organizations, devises specific strategies and programs for technological improvement and innovation that spur the development of entrepreneurs, small and medium enterprises, and international corporations that together drive the country's economic and social progress. (*www.proginnt.iteso.mx*)

CONSULTING CENTER IN INNOVATION AND TECHNOLOGY MANAGEMENT

Proginnt experts diagnose the status of businesses, and help them implement improvements and innovate processes, products and services, thereby increasing the value offered to clients and enhancing the business's competitiveness and profitability. The experience and know-how of Proginnt consultants represent a valuable resource that clients can tap into for the design and implementation of growth strategies for their business, by means of consulting, training and collaborative agreements that put the business in contact with the university and government agencies.

The Consulting Center has worked with 54 projects in 36 different size companies, from micro to large. Over 95 students from diverse degree programs have worked to develop their professional academic

project in a real life situation. Twenty-five of these projects were successful with a significant increase in sales; the remaining twenty-nine projects reported benefits in six areas: economic, operations, innovation, management, competitiveness, human resources.

COMPETITIVE INTELLIGENCE CENTER

The Competitive Intelligence Center experts are strategic collaborators in bringing ongoing innovation and high performance to organizations. Their services help enterprises keep abreast of their competitive environment and attain better business results on the basis of timely, relevant and useful information for decisionmaking and the dynamic and systematic creation of value proposals for their customers.

Since Proginnt was first created in 2003, the Competitive Intelligence Center has conducted 42 market studies for 13 companies with the participation of more than 96 students.

TECHNOLOGICAL BUSINESS INCUBATOR

With the incubation of innovative companies and new technology-based businesses in the booming fields of information technology, electronic, food processing, agricultural technology, recycling and biotechnology, among others, the Technological Business Incubator participates in the generation of wealth, combats unemployment in the region, and foments the development of new Mexican technologies for the world.

The Technological Business Incubator was granted the PYME award (small and medium-size companies) as the best of its type in the country in 2009, and its coordinator was certified as an Incubation Manager by the NBIA (National Business Incubation Association). An average of ten companies conclude the program every year.

Some of the incubated companies include:

- Compostamex (agrotechnology)
- Beek (GPS)
- Salamandra (software)
- Socialdot (internet/software)
- Centro de Ensamble de Prototipos de Tarjetas Electrónicas (Protoboards Electronic).

PROGINNT ITESO

Students, professors and researchers work side by side on Professional Application Projects that contribute knowledge developed at the university to companies, organizations and public or private institutions that require support to achieve their development projects.

The program has contributed to the development of:

Continental Automóvil ■ NEOX ■ SILIJAL ■ ARVA ■ LALA ■ Verde Valle ■ V-TEK ■ Índice ■ Fragamex ■ Restaurant Shangai ■ Bio ZOO ■ Pharmacos Exakta ■ Pura Santa ■ Copyroyal ■ Smart Drinks ■ SIAC ■ Mercantil Doméstica ■ Wintel ■ World Trade Center (WTC) ■ E-Quallity ■ Club Hacienda San Javier ■ Micro Herros ■ Instituto Fray Pedro de Gante ■ Recubrimientos Metálicos Metal Speed ■ American All Medics

ITESO DEPARTMENT OF ENGINEERING IN ELECTRONIC, COMPUTER SYSTEMS AND INFORMATION TECHNOLOGY

- Undergraduate programs in electronic, information technology, computer systems, networks and telecommunications (605 students). ITESO engineering programs obtained first place in Jalisco. Ranking: One of the best universities in Mexico. Newspaper *El Universal*, March 30, 2009
- Graduate programs in electronic design, integrated circuit design, and applied IT (100 students).
- Building T infrastructure: 14 computer rooms with 448 PCs; 17 specialized labs for computer systems and electronic; 15 servers, 1 CISCO switch 6000 for network connections; wireless network, fully equipped laboratories for electronic design.
- Government-Business-ITESO cooperation projects: Graduate program in Integrated Circuit Design.

Business-University Research Centers: The Automotive Electronic Technology Research Center in cooperation with Soluciones Tecnológicas (CTEV). (*www.ctev.iteso.mx*)

Experiment, Invent and Create in our laboratories equipped with technology from Texas Instruments, CISCO, Mosis, Cadence Design Systems, Freescale and Intel.

MIDTERM STRATEGIC GOALS FOR IT AND ELECTRONIC DESIGN AT ITESO

- Focus on high-tech human resources development to contribute to the expansion of the electronic industry in Mexico and the state of Jalisco.
- Incorporate the design of basic integrated circuits into the undergraduate electronic curriculum.
- Reinforce links between the university and the high-tech regional electronic industry via ITESO Professional Application Projects.
- Develop integrated circuit design projects based on industry related projects such as Freescale and Intel design centers, and the Automotive Electronic Technology Research Center (CTEV) hosted at ITESO.
- Increase links with international IC designer networks, e.g. IBERCHIP.
- Create a leading regional research group in integrated circuit design.
- Create a PhD program in electronic, with academic support from the best Jesuit universities in the world.
- Increase the number of engineering students.

A MODEL OF UNIVERSITY-ENTERPRISE-ACADEMIC RELATIONSHIP

ITESO is developing cooperation projects with world-class IT and electronic companies. Universities in Mexico need to play a much more active role in developing applied science through cooperation with industry.

Intel: With its sponsorship, the department has organized two international conferences on signal integrity. Currently there are ten students doing internships at this company. A three-year research project has produced three Masters degree dissertations plus several papers by Professor Ernesto Rayas.

Hewlett Packard: This renowned enterprise has donated equipment for RFID technology applications. And by offering a free trial of their products on campus, it was able to upgrade them.

Texas Instruments: Having assigned ITESO the "elite university" status, it donated electronic equipment (such as development tools) for student and faculty use at the undergraduate and graduate levels and taught free courses.

Freescale Motorola: There is a strong relationship that has produced an abundant exchange of ideas. The most important is the Integrated Circuit Design Program. Besides, there are about twenty students doing internships and several alumni working there.

Jabil: Faculty and students have contributed with projects for their production line, and there are some students doing internships.

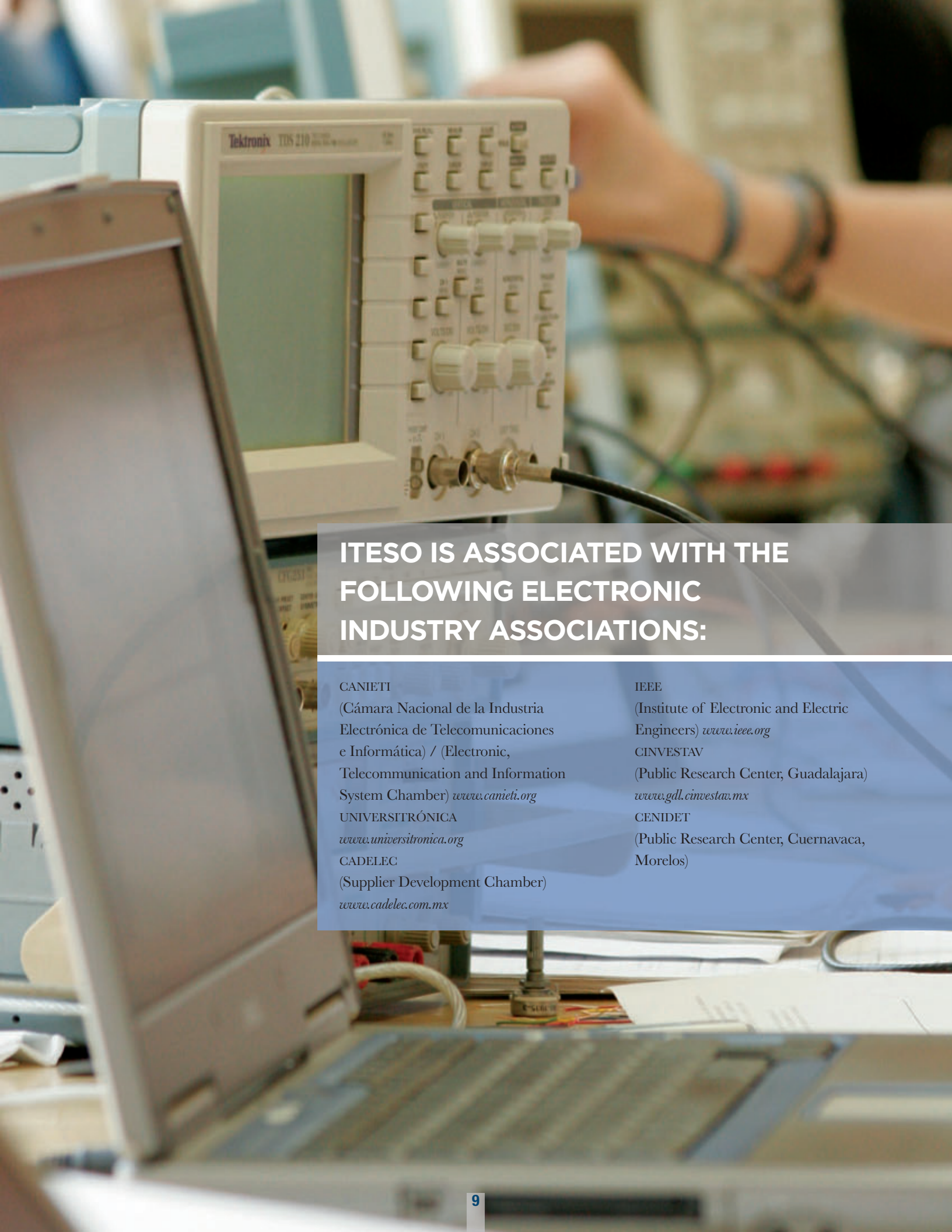
IBM: There is an exchange program in which students participate in software development, both here and at Rochester University. IBM also has donated equipment and software.

Pegasus Control: An ITESO student is doing a professional practicum there.

Sanmina-SCI: ITESO students are doing internships in this company. An ITESO alumnus is now Regional Vicepresident of Sanmina.

Cadence Design Systems: The goal of the Cadence® University Software programs is to grant easy access to leading electronic design automation (EDA) tools for educational institutions around the world. Cadence customers rely on skilled engineers entering the work force. ITESO has become the first educational institution in Mexico and Latin America granted a Cadence University software license.

Mosis Integrated Circuits: The university had access to the Mosis integrated circuit program that enabled the production of ten integrated circuits in the fall of 2007.



ITESO IS ASSOCIATED WITH THE FOLLOWING ELECTRONIC INDUSTRY ASSOCIATIONS:

CANIETI
(Cámara Nacional de la Industria Electrónica de Telecomunicaciones e Informática) / (Electronic, Telecommunication and Information System Chamber) *www.canieti.org*

UNIVERSITRÓNICA
www.universitronica.org

CADELEC
(Supplier Development Chamber)
www.cadelec.com.mx

IEEE
(Institute of Electronic and Electric Engineers) *www.ieee.org*

CINVESTAV
(Public Research Center, Guadalajara)
www.gdl.cinvestav.mx

CENIDET
(Public Research Center, Cuernavaca, Morelos)

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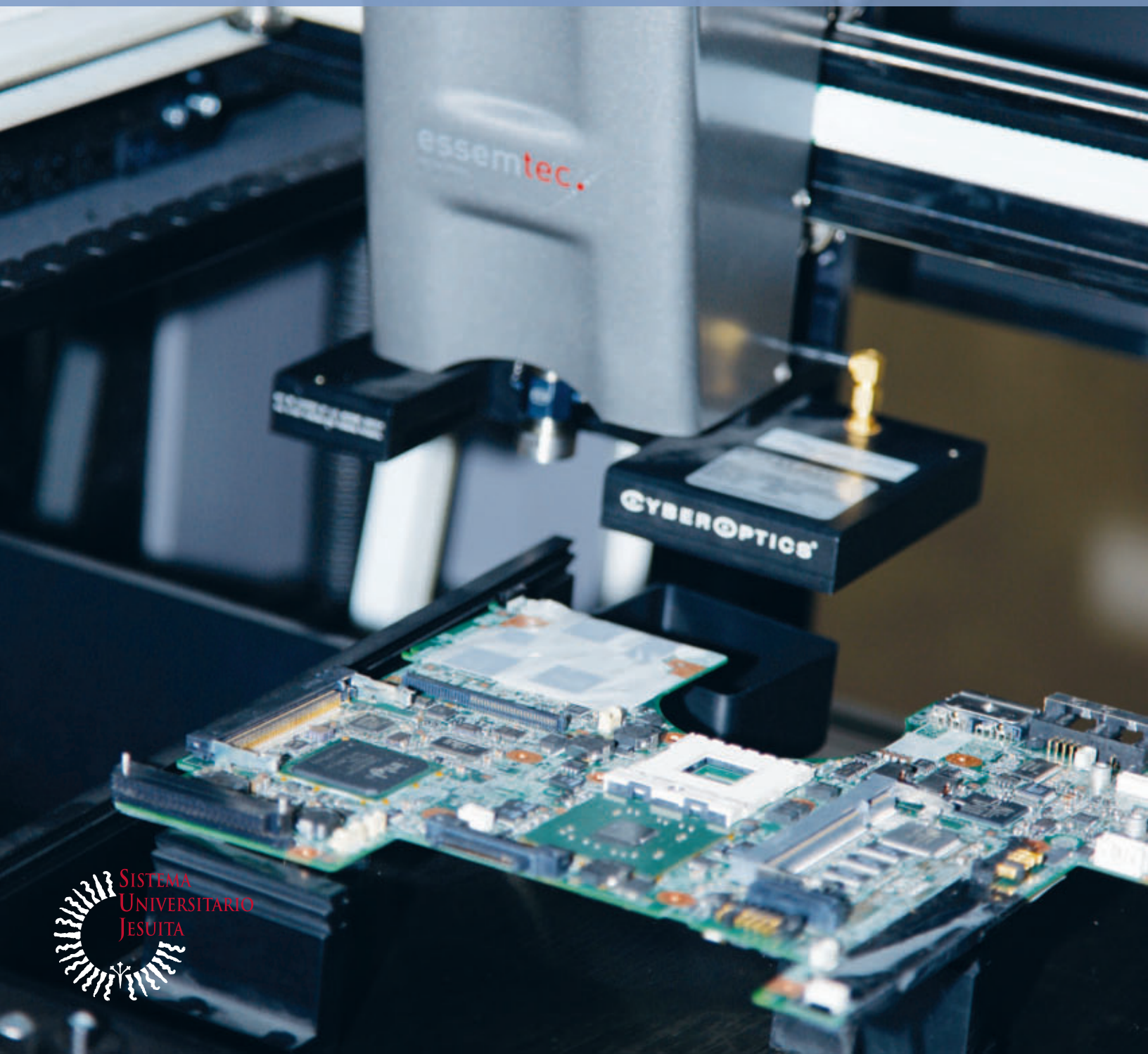

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