





Prospectus 2009-2010





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# Part

### Message from the Chancellor

### Message From the Chancellor

Message from the Chancellor



#### In the name of God

Iran University of Science and Technology (IUST) has a solemn promise to strive for fulfillment of its commitment in growth, excellence, ethical and moral elevation of the human, followed by technical promotion of scholarly learning and science and technology generation.

Relying on the contribution of the invaluable capital of faculty members, IUST has graduated more than 32000 students over past 80 years, and has provided the technical and engineering communities as well as national/international industries and research centers with its quality graduates.

We deem it our duty to step forward in the following research, technological, and educational dimensions:

- Theorizing and generating science, and encouraging the Software Movement;
- Educating entrepreneurial, creative and inspired researchers, faithful toward Islamic Revolution aspirations;
- Developing fundamental as well as applied researches in scientific, technological, and engineering domains;
- Educating high-tech, modern and applied sciences based on the international standards;
- Developing constructive international relationships and effective scientific exchanges;
- Elevating scholar's capabilities and personal dimensions.

Being chosen, by the Ministry of Science, Research and Technology, as a principal university within the country, we have a reputation of offering high quality teaching and research services. By our firm willpower initiated from our trust in God and in the hope of the bright futures, and by the endeavors of our students as the principal body of our university, and by the participation of our erudite managers and sympathetic personnel, we follow thriving in intellectual growth of the youth in line with promotion and excellence of our dignified Islamic Iran.

Dr. Mohammad Saeed Jabalameli Chancellor





Part

# General

Iran, Tehran
The University



General Information

### Iran at a Glance

### Geography

Iran, with an area of 1,648,195 square kilometers is a vast country in South-West Asia. It has borders with Iraq and Turkey to the west, Armenia and Azerbaijan to the northwest, Turkmenistan to the northeast and, Afghanistan and Pakistan to the east. The Persian Gulf and the Oman Sea border the country from the south and the Caspian Sea restricts it from the north. With a population of about 70 millions, Iran is divided into 30 provinces. It has four distinct seasons; a hot summer, a cold and frosty winter, and mild spring and autumn. In the coldest and warmest places there is a maximum  $\text{$$^{\circ}$} \cdot \text{degree}$  centigrade difference in temperature. Iran is rich in various underground and mineral reserves, including oil, gas, iron and copper. Iran ranks second in natural gas resources and fourth in oil reserves.

### Culture

The official language of the Iranians is Persian. The Shi'a branch of Islam is the official religion in Iran. However, a number of other religious minorities live in Iran, including Christians, Jewish, and Zoroastrians. The twenty first of March is celebrated as the first day of the New Year (Norouz) in Iran, which is the beginning of spring. The official calendar is based upon a solar year.

The Iranian plateau is as old as human civilization. The ancient era of Iran with all its social and cultural characteristics is considered as one of the most glorious and magnificent periods in world history. As an example of the rich cultural heritage and numerous historical monuments left from this era, one may be refer to Takhte Jamshid and Pasargad, in Shiraz, Tagh-e-Bostan in Kermanshah etc. During the Islamic era, Iranians achieved the peak of their glorious civilization and presented many scholars, philosophers and scientists to the world.

### Science and Technology

Science in Iran, as the country itself, has a considerable history. Iranians contributed to the current understanding of



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### General Information

astronomy, medicine, mathematics and philosophy. Modern Science and Technology owe a lot to Iranian scholars who can be considered as the pioneers of different scientific fields. Their achievements contribute to the current findings of man and scientific developments. One can name Kharazmi, Abu Raihane-Biruni, Khajeh Nasir-e-Toosi and Kahayyam in mathematics and astrology, Avicenna in medicine and philosophy, and Razi, the discoverer of medical applications for alcohol. Among contemporary scholars, Professor Hessabi in physics and mathematics is among many Iranian scientists well recognized in the globe.

Presently, Iranian scientists are trying to revive the golden age of Persian science. They also make up a significant portion of the international scientific community. Annually more than two million candidates compete with each other to pass the university general board examination organized by the Ministry of Science, Research and Technology. During the 2006-2007 academic year, more than 3 million students were studying in universities and higher education institutions. There are more than 90 governmental universities and higher educational centres and several non-governmental institutions in Iran.



These statistics prove that Iran is a country with the largest student population in Southwest Asia.

Basic industries such as petrochemistry, steel, cement and mining are growing fast and Iran is the biggest producer of industrial products in the neighboring region. Iran is advancing in modern technologies such as bio, nano and IT. In recent years, Iranian scholars have published numerous articles in these areas, devoting a top rank to the country in this regard, among Middle Eastern countries. Iranian scientists are also highly productive in several experimental fields as pharmacology, organic chemistry and polymer chemistry.

### Tehran

The capital city of Iran, is located on the slopes of the Alborz Mountains in Northern Iran. It sits at the foot of "Damavand" the tallest mountain of the country. The city with a more than seven million population is the largest city in Iran and the center of cultural, economic, and social activities. The metropolis of Tehran enjoys a huge network of highways. Tehran has one of the most convenient metro systems, in terms of accessibility to different parts of the city, in the region. Taxis filled the void for local journeys. Tehran is served by Mehrabad National Airport, an old airport located in the Western part of the city, and Imam Khomeini International Airport, 50 kilometers south, which handles international flights.

The recently constructed Milad Tower together with Azadi Tower are typical symbols of the capital. The Milad complex contains the world's fourth tallest tower, several restaurants, a five star hotel, a convention center, a world trade center, and an IT park.

There are numerous large museums, art centers, palace complexes and cultural centers in the city. Also the Grand Bazaar, an important commercial center, is an interesting place to visit. Since the establishment of Darolfonoon in the mid 1800s, a number of prestigious, high quality universities are situated in Tehran. Iran University of Science and Technology is located in the northeast of the capital.

**General Information** 

### Iran University of Science and Technology



### **History**

Iran University of Science and Technology was originally founded in 1929 as the first Iranian institute to train engineers. It was initially named the State Technical Institute. Soon it was named Honarsaraye A'li, (Advanced Art College). The institute continued to educate engineering students in several areas who were well employed after graduation by the industries and the companies, mostly involved in industrialization and development process of the country. In 1972, the title of the college upgraded to Iran Faculty of Science and Technology due to the growth of the institute. The Faculty was still capable of more development. It proceeded the extension of educational programs by offering new fields of engineering. Eventually in 1978, it promote to the status of a technical university, which was approved by the officials of the Ministry of Culture and Higher Education. Since then, the institute was named "Iran University of Science and Technology" (IUST).

Since 1980, IUST made a great progress and enhanced its educational and research plans at postgraduate levels so that in 1990, it was qualified to admit students at Ph.D. programs in Civil Engineering and Materials Engineering fields for the first time. Other departments also followed in offering Ph.D. degrees one after another. In 1995, IUST pioneered in awarding the first Ph.D. degree in Iran in the fields of Materials and Metallurgical Engineering and Traffic Engineering.

Currently, the university is one of the major technical universities in Iran, with its main campus composed of 14 schools and departments. Altogether, the main campus as well as its two branches in Arak and Behshahr cities, enjoys services of 380 members of the academic board. Just on main campus, over 9900 students are studying in 90 specialized fields of engineering and sciences, out of which 3030 are M.Sc. and about 670 are Ph.D. students. Over 32,000 students have graduated from this university since 1932, starting with the first engineer educated in Iran who attained his bachelor's degree from the so called Institute.

The main campus is located in the northeast of Tehran, expanded in 42 acres. The campus includes schools and departments, research centers, the main library, residential halls, the mosque, administrative buildings, several sport playgrounds and covered spaces for varieties of sports such as football stadium, volleyball, basketball, and tennis courts. The facilities and the landscaped area of the main campus provide lively and pleasant environment for the students to pursue their education and enjoy their life.

### Location

The main campus, covering 42 acres, is located in the northeast of Tehran. The campus includes department buildings, research centers, central library, residential halls, the mosque, administrative buildings, playgrounds and indoor sport facilities and a football stadium. The facilities and the landscaped area of the main campus provide a lively and pleasant environment for the students to pursue their education. Furthermore, the IUST has also developed two other campuses in the cities of Arak and Behshahr.

### Structure and Administration

Being a state university, IUST is supervised by the Ministry of Science, Research and Technology. Under the auspices of the University Board of Trustees, the University Council comprised of the Chancellor and four Vice-Chancellors of Research & Technology, Academic Affairs, Finance & Administration, and Student & Cultural Affairs and determine the policies of the University and are involved in organizing and supervising the university affairs

IUST also enjoys services of a number of administrative staff, who provide appropriate support to enhance the quality of academic and research outcome of the faculty members.





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# International Cooperation

International Cooperation

IUST has all the wealth to claim for standing in a position of excellence. The most valuable capital of IUST is its knowledgeable faculty members who are dedicated to quality teaching and research. This, together with a tailored combination of an online library system, efficiently designed classrooms and laboratories equipped with the most advanced tools and techniques required for teaching and research, convenient online services for students, and a beautiful area of the campus, provides a pleasant environment for students that look for the best opportunity for an academic experience. IUST has always maintained, as its priority, scientific and educational collaborations and joint ventures with leading universities and research centers throughout the world. Besides, Office of Scientific and International Cooperation maintains and organizes all international relations relevant to the University. The main activities of the office are:

- Undertaking exchange programs of the faculty members and students with outstanding international universities and research centers, for the purpose of education, research, sabbatical studies and joint activities.
- Promoting the international and scientific letters of understanding between the university and leading international scientific centers and universities.
- Making provision for the faculty members in order to participate in national and international scientific events and sabbatical studies.
- Arranging scientific visits and meetings.
- Another main responsibility of the office is to introduce the scientific and technical aptitudes of the university to educational and research institutions throughout the world.

Recognizing high capacities and capabilities of IUST's students, OSIC is designing joint programs with a number of most distinguished universities and research centers, all around the globe, in terms of holding joint postgraduate degree-programs, international conferences, exchange of faculty and students and holding online lectures jointly by foreign universities. Typical current international cooperation of IUST includes ties with following institutes:

- Berlin University of Technology (Germany)
- Clausthal University of Technology (Germany)
- Ecole Nationale Supérieure des Arts et Métiers-ENSAM (France)
- Polytechnic University of Milan (Italy)
- Deakin University (Australia)
- University of Kagoshima (Japan)
- National Metallurgical Academy of Ukraine
- Sudan University of Science and Technology
- University of Torino (Italy)
- Simon Fraser University (Canada)
- Kazan State University of Architecture and Engineering-The Central Scientific and Research Institute of Geology and Non-metallic Minerals (Russian Federation)

Also through the IAESTE (International Association for the Exchange of Students for Technical Experience) programs, some students have been sent as apprentice to the educational and research institutes in Germany, Turkey, Greece, and Austria.

IUST is also a member of the following international organizations:

- International Association of Universities (IAU)
- Federation of the Universities of the Islamic World (FUIW)

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 Association of the Universities of Asia and the Pacific (AUAP)





**Study Resources** 

### Study Resources

• Central Library

Computer Center



**Central Library** 

Being located at the north of the university campus, the IUST central library was established in 1958 and developed twice in 1984 and 2001. The library, with more than 40 thousand technical and engineering books (%70 of which are in foreign languages) is one of the richest centers for books, journals, periodicals, microfilms, etc. on engineering sciences in the country. Together with 15 satellite libraries in the campus with more than 120 thousand technical and scientific books, the central library, with a valuable source of highly professional staff, provides quality services for the students, faculty members and research fellows. The audio-visual unit is comprised of a great number of videos in various fields, CDs, and valuable microfilms including about 690 titles of engineering and technical journals, most of which available back from the first date of publication (eg. some IEE publications back to 1884).

On the other hand, there is access to a comprehensive collection of electronic journals and online databases such as Elsevier, Springer, Wiley, IOP, ACM, ACS, ASME, ASCE, El Village, Math Sci. Proquest, Jstor, ISI, Scopus, Emerald, and Oxford University Press. About 970 titles of Persian as well as English journals with copying facilities, the information center, the data bank and the IT laboratory are available for the IUST students, faculty members and other research fellows.

The digital library has started its activities in 2001. Establishment and development of the digital library and reorganizing library resources digitally is of its main activities. Accordingly, the digital library mechanized system is established and utilized in the university schools and departments. The users can have access to the central library and the school library through http://dl.iust.ac.ir and perform a search simultaneously. This branch has processed 1129 copies of the M.Sc. and Ph.D. dissertations submitted until 2002 into electronic version. They are available offline on the central library information site (the completed list can be observed on http://dl.iust.ac.ir). In



### Study Resources

addition, a number of about 12700 titles of valuable English resources are available online on the central library website. These records are increasing continuously. The object character recognition (OCR) facilities for English resources section has

a valuable experience in transforming the printed resources into a digital format. Furthermore a number of more than ten thousand printed journals exist in the library, which have also been archived as electronic copies.



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**Study Resources** 

### **Computer Center**

The IUST computer center, located on the university main campus, has been serving the university community since 1969. It started using an IBM mainframe 4341 and a mini-computer VAX 6000- 410 series from Digital Equipment Company with 85 terminals. In 1992, IUST installed its first campus-wide LAN. Over 9500 personal computers are currently connected to the LAN and many software packages are available, ranging from office applications to database programs and specialized engineering and scientific packages. IUST Intranet is connected to the Internet via two parallel fiber optic links with a capacity of 34 Mbit/s. More than 50 dial up lines are also available to the staff and Ph.D. students. The Center is also connected to the national intranet with a capacity of 100 Mbit/s. The university intranet is totally based on Gigabit Fiber Optic Network. The Center has set up a wireless network over the university campus for all network facilities already delivered on wired LAN.

In addition to providing and maintaining the hardware, the center offers short courses each semester on programming, hardware, operating systems and computer applications. One by one consultation is also available upon request in particular areas such as statistics, programming, and computer equipment purchases. A campus-wide software for administration of all educational affairs, such as on-line registration, is available. The center has a data center which hosts the main university servers and provides easy access to a number of data banks for the faculty members as well as the students.



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## Student Services

- Students' Cultural and Scientific Associations
- Scientific Associations
- Residential Facilities
- Sport Facilities
- The Counseling and Psychotherapy Center
- Cultural Sites
- Other Facilities

Student Support Services

### Students' Cultural and Scientific Associations

The Office of Vice-chancellor for Students and Cultural Affairs organizes various social activities for the students such as managing tours and pilgrimage trips within the country and abroad, in addition to leading cultural, religious and social ceremonies.

Cultural activities of the students are performed through several Cultural and Art Associations such as Holy Quran, Film and Cinema, Music, Theatre, Poetry and Literature, Cultural Studies, Social Research, Iranology.



### **Scientific Associations**

The IUST is one of the most active universities in encouraging students to take part in extra curricular activities. The most prominent goal the associations pursue is instilling cooperation among students. The student associations also publish academic journals and carry out research projects. Currently fourteen Scientific Associations are active as follows:

- Physics and Astrophysics
- Metallurgy and Materials Engineering
- Chemistry
- Civil Engineering
- Computer Engineering
- Industrial Engineering
- Electrical Engineering
- Mathematics
- Mechanical Engineering
- Architecture
- Automobile
- Railway Engineering
- Industrial Design
- Chemical Engineering

### **Residential Facilities**

IUST provides accommodation for non-native national and international students. More than twenty blocks of accommodation, both on and off campus, provide a pleasant environment for students. Married student residence halls are also available for a limited number of students with families.

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### **Sport Facilities**

To advocate and publicize physical exercises among the academic, including the students, the following activities take place at the physical education center of the university:

- Various sports classes
- Sports events among various schools
- Physical education counseling

The Iran University of Science and Technology stadium is the largest in the north eastern part of the capital, with a capacity of 20 thousand spectators. It consists of a lawn and jogging fields. Other facilities include gymnasiums for weight-lifting, table- tennis, shooting, martial arts and two tennis courts. There are also many students' teams active including football, basketball, volleyball, taekwondo, judo, karate, table-tennis, chess, badminton, wrestling, kung-fu, weight lifting, fencing, mountain climbing, shooting, tennis, body building, and running for male, and basketball, volleyball, taekwondo, karate, table-tennis, chess, badminton, mountain climbing, shooting, tennis, body building, and running for male, and basketball, volleyball, taekwondo, karate, table-tennis, chess, badminton, mountain climbing, shooting, tennis, body building, and running for male, and basketball, volleyball, taekwondo, karate, table-tennis, chess, badminton, mountain climbing, shooting, tennis, body building, and running for male, and basketball, volleyball, taekwondo, karate, table-tennis, chess, badminton, mountain climbing, shooting, tennis, swimming, physical preparation, and running for female students. There is also a football team for students with disabilities.



Student Support Services

### The Counselling and Psychotherapy Center

The Counseling and Psychotherapy Center of the university aids the staff and students in various areas. The services include educational counseling marriage and, family counseling, job counseling, psychotherapy and personal counseling, and group counseling and crisis intervention. The psychometric unit of the center administers various measures of intelligence, motivation, and personality to aid the therapy process. The Staff comprises 16 consultants, 2 psychiatrists, and other skilled personnel. Counseling can be provided in correspondence, and anonymous tele-counseling is also available. The center enjoys a social work unit and a parents' relations unit, and has two monthly publications for students and parents.

### **Cultural Sites**

The cultural sites in IUST are meant to serve various purposes such as graduation, inaugural, cultural, and religious ceremonies. The sites are as follows:

- IUST Masjid with an area of 1800 square meters.
- Imam Khomeini Cultural Complex with 3 auditoriums for 700 audiences.
- Shahid Bahrami Amphitheater with an auditorium for 550 audiences.
- The outdoor Amphitheater with an area of 1500 square meters.
- Five amphitheaters in different schools.

### **Other Facilities**

Other Campus facilities for the students and University staff include:

Polyclinic center, providing of general, dermatology, cardiology, ophthalmology, gynecology, and dentistry services.

- Post office, bank, stationery and book store, bindery shop, type and photocopy services, photography studio.
- Self-service restaurants and snack bars for students, and restaurants for members of academia and administrative staff.
- Shoemaking shop, barber shop, laundry, bakery, supermarkets.
- Kindergarten for children of university students and staff.


Part

# Schools Départments

- Architecture and Environmental Design
- Automotive Engineering
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Foreign Languages
- Industrial Engineering
- Islamic Studies
- Mathematics
- Mechanical Engineering
- Metallurgy and Materials Engineering
- Physical Training
- Physics
- Railway Engineering

# School of Architecture and Environmental Design

The School of Architecture and Environmental Design was founded in 1968. Blending the aesthetic/artistic considerations with scientific/engineering necessities, the School provides instruction in architecture, urban design, urban and regional planning, industrial design and building, and environmental sciences. The School has as its aim, the education of a wide range of highly motivated students from a variety of backgrounds and disciplines. The School also provides many courses leading to higher degrees. The staff of the School has a variety of research interests, which include fields of study from architecture, environmental design and engineering activities to urban and regional planning. Members of the faculty are actively engaged in research concerning environmental design and engineering, building technology and process, architectural and urban history, as well as regional and rural planning. They are also committed to bring about relevant educational developments. The School enjoys a large library and an archive with a variety



of books and journals in Persian, English, German and Italian. The archive is located in a place where a large collection of theses, maps, and other research materials exists. The computer center of the School, provides the students with an opportunity to develop and work on their projects. The Architecture Research Center of the School was established in 1997 to facilitate research on Islamic and Iranian architecture and urban studies. The educational and research activities of the School within the

four past years include, but are not limited, to:

- Publication of 82 journal papers in highly accredited art and engineering journals at national and international levels.
- Presentation of 163 conference papers in national and international gatherings.
- Authorship and translation of 21 titles of books in the fields of Architecture, Urban Planning, Urban Design, etc.

- Recipient of 6 patents at international and national levels.
- 15 industrial project contracts with various institution such as Ministry of Housing and Urban Development, the Islamic Housing Foundation, the Building and Housing Research Center of Iran, and Tehran Municipality.
- The School has also recently established the Iranian Association of Architecture and Urbanism.

### **Departments**

- Architecture
- Urban Design
- Urban and Regional Planning
- Art and Technology
- Building & Urban Conservation & Renovation
- Industrial Design

B.Sc./ B. Arch.	M.Sc./ M. Arch.	Ph.D.
Architecture	Architecture:	Architecture
Industrial Design	Housing Architecture	
-	Sustainable Architecture	
	Technological Architecture	
	Cultural Building Architecture	
	Conservation and Restoration of Historic Buildings and Cities	
	Urban Design	
	Urban Planning	
	Industrial Design	



### **Programs and Degrees**

Schools and Departments

### **Research Focus**

- Architecture and Art Philosophy in Islam
- Sustainable Architecture
- Landscape Architecture
- Iranian Traditional and Native Architecture
- Urban Behavioral Studies and Behavioral Studies in Human Settlements
- Urban Conservation and Studies on Monuments and Old **Buildings**
- Urban Development and the Factors and Effects
- Housing Growth and Evolution
- Urban Design Theory and Practice
- The Evolution of Design Dimensions in Iranian Historical Buildings, Sites and Gardens
- The Study of Buildings and Monuments Damage, and Providing and Performing Designs for their Conservation, Revival, and Consolidation
- Ergonomic Product Evaluation and Design
- Product Packaging Assessment and Design

### Laboratories and Workshops

- Building Technology Workshop
  Model Making Workshop
- Urban Design Workshop
- Urban Planning Workshop
- Carpentry Workshop
- Decoration Workshop
- Ceramics Workshop
- Photography Workshop
- Energy Laboratory

### **Faculty Members**

### Associate Professors

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Schools and Departments

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# School of Automotive Engineering

The School of Automotive Engineering was established in 2000 in line with a dedicated research center and provides Masters of Science programs: power train, chassis systems, body and structure groups. Until 2007, more than 100 students have graduated and some 150 graduate students are doing their study and research.

From September 2007, the School founded a General B.Sc. program for Automotive Engineering. The purpose of this program was to train engineers for automotive and related industries. At present, there are more than 60 undergraduate students studying in the School. The School has also the plan to extend its postgraduate programs to Ph.D. level. Many outstanding graduates choose to continue their education in this field because automotive engineering which is a new multidisciplinary field has great potential for innovation and research. The automotive industry in Iran is prestigious and of high rank and is very promising in terms of job opportunities.

The library of the School acts as an educational support with subscription to 30 scientific journals. There exists a library of CDs related to courses and also a collection of the theses of students who have graduated. Access to the Central Library is also possible from the local library.

The educational/research achievements of the School of Automotive Engineering within the past four years include:

- Publication of 50 journal papers in highly accredited engineering journals at national and international levels.
- Exceeding 120 conference papers in scientific and engineering gatherings.
- Authorship and translation of 6 titles of books in the field of Automotive Engineering.
- Recipient of best national researcher award.
- Recipient of 20 patents.
- 30 industrial project contracts with the Ministry of

Industries and Mines and two main groups of automotive manufacturing companies (ie. Iran Khodro and SAIPA).

 The School has been acknowledged as the First School of Automotive Engineering in the Middle East.

### **Departments**

Power Train Chassis Systems Body and Structure

### **Programs and Degrees**

B.Sc.	M.Sc.
General Automotive Engineering	Power Train
	Chassis Systems
	Body and Structure

### **Research Focus**

- Design and Simulation of Internal Combustion Engines
- Gasoline, Diesel, CNG, LPG and alternative Fuel systems
- Design of Experiments for Engine systems
- Power Train Systems (Normal Transmission Systems, CVT, IVT, AMT)
- Aerodynamics and Body Design
- Vehicle Dynamics
- Chassis System Design
- Platform Design
- Automotive HVAC Systems
- Hybrid Vehicles
- Intelligent Transportation Systems

### **Educational Laboratories**

- Machinery Dynamics
- Strength of Materials
- General Workshop
- Heat Transfer
- Reciprocating Engines





Schools and Departments

Fuel Systems

Body and Structure

### **Research Laboratories**

- Transmission Systems
- Body and Chassis
- Automotive Aerodynamics
- HVAC Systems
- Engine Dynamometry for SI and CI Engines
- Air Pollution for Gasoline and Diesel Fuels
- Platform Design
- Engine Simulation
- New Fuel Systems and Energy Saving

### **Faculty Members**

### Professors

Shojaeefard, Mohammad Hassan, Ph.D., University of Birmingham (U.K.), 1987; Body and Structure, Internal Combustion Engines, Aerodynamics and Aerospace, Turbomachinery, Heat and Fluid, Computational Fluid Dynamics mhshf@iust.ac.ir

### Assistant Professors

**Goodarzi**, Avesta, Ph.D., Sharif University of Technology (Iran), 2001; Chassis Systems, Vehicle Dynamics, Chassis Systems Design, Alternative Technologies, Control, Electric Vehicles. a\_goodarzi@iust.ac.ir Kakaee, Amirhasan, Ph.D.; Sharif University of Technology(Iran), 2003; Power Train, Internal Combustion Engines, Computational Fluid Dynamics, HVAC Systems of Vehicle, FEM. kakaee ah@iust.ac.ir

Mashadi, Behrooz, Ph.D., University of Leeds (U.K.), 1996; Chassis Systems, Vehicle Dynamics and control, power train and driveline dynamics. b\_mashhadi@iust.ac.ir Marzbanrad, Javad, Ph.D., Tarbiat Modarres University (Iran), 2001; Body and Structure, Vibration, Control, Mechanism, Automotive Design, FEM. marzban@iust.ac.ir

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### Instructors

Talebi Tooti, Ruhollah, M.Sc., Iran University of Science and Technology (Iran), 2004; Body and Structure, Sound and Acoustic Transmission, Composite Materials, Vibroacoustic, Passive Control. talebi@iust.ac.ir





# School of Chemical Engineering

Established nearly eight decades ago, the School of Chemical Engineering targets academic objectives in general and applied research to serve the local process industry in particular. It serves as a reliable center for research and education. The School admits about 60 undergraduate and 90 postgraduate students each year including approximately 10 Ph.D. students. 20 faculty members are teaching approximately 300 B.Sc., 190 M.Sc., and 40 Ph.D. students at the moment. Due to the quality of the services the school's graduates are often employed by the local industry during their education or soon after. Many of our graduates have managed significant achievements at national and international levels.

The faculty members and students enjoy access to a schoolspecific library containing over 10000 books and 1800 electronic books and subscription to over 80 national and international journals as well as a well-equipped computer center. The school is also equipped with four laboratories, used as training centers for the school B.SC. students. The educational and research activities of the school within the four past years can be summarized as follows:

- Winning over 60 research contracts from the local industry.
- Publication of 250 journal papers in highly accredited science and engineering journals at national and international levels.
- Presentation of over 600 papers in scientific and engineering conferences.
- Publication of 4 titles of books in the field of chemical engineering.
- Winner of two best national researcher awards by faculty members.
- Winner of a third place of Kharazmi Festival Award.
- Receipt of 30 patents at international and national levels.

The school is organized in three departments of Petroleum Processing, Mineral Processing and Petrochemical Processing. School's excellence is centered on 8 research laboratories directed by the faculty members, dedicated to scientific research and solution developments for the local industry by the researchers employed in it as well as the many active postgraduate students attending to their dissertations. The school is also equipped with a chemical analysis service laboratory providing the widely needed services to the research laboratories, the postgraduate students as well as the external requests.

#### **Departments**

- Petroleum Processing
- Mineral Processing
- Petrochemical Processing

B.Sc.	M.Sc.	Ph.D.
Chemical Engineering	Process Modeling, Simulation & Control	Process Modeling, Simulation & Control
	Mineral Processing	Mineral Processing
	Advanced Membrane Processes	Advanced Membrane Processes
	Thermodynamics	Thermodynamics
	Reaction Engineering	Reaction Engineering
	Biotechnology	Biotechnology

### **Programs and Degrees**

Schools and Departments

### **Research Focus:**

- Membrane Separation Processes
- Thermodynamics
- Catalysis and Reaction Engineering
- Simulation of Chemical Engineering Processes
- Biotechnology
- Cement Process and Material Technologies
- Computer Aided Process Engineering
- Computational Fluid Dynamics
- Ceramic Process Technologies

### **Research laboratories:**

- Chemical Analysis Laboratory
- Chemical Reaction Research Laboratory
- Thermodynamics Research Laboratory
- Mineral Processing Research Laboratory
- Separation Processes Research Laboratory
- Computer Aided Process Engineering (CAPE) Research Laboratory
- Computational Fluid Dynamics (CFD) Research Laboratory
- Biotechnology Research Laboratory
- Simulation and Control Research Laboratory



Schools and Departments



### **Faculty Members**

### Professors

Mohammadi, Tooraj, Ph.D., University of New South Wales (Australia), 1996; Membrane Separation Processes, Transfer Phenomena. torajmohammadi@iust.ac.ir

### Associate Professors

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Schools and Departments

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Shirvani, Mansour, Ph.D., Niigata University (Japan), 1994; Simulation & Control, Process System Modeling and Control, Cyclone Dedusting. shirvani@iust.ac.ir

### Instructors

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Khanof, Mohammad-Hassan, M.Sc., University of South California (USA), 1998; Simulation & Control, Computational Fluid Dynamics (CFD), Rheology. khanof@iust.ac.ir

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Schools and Departments

### **Department of Chemistry**

The Department of Chemistry started its work in 2001, offering merely postgraduate programs leading to M.Sc. and Ph.D. degrees. It also provides service course of general chemistry each year for about 1100 students of other fields of study in the first year of their relevant study programs.

A number of 16 faculty members conduct research and educational activities in the Department. At present 85 M.Sc. students are studying in the Department. Over 192 students have been graduated from the Department since its establishment. A library consisting of over 9000 books and subscription to over 80 national and international journals, together with a well-equipped computer center are the facilities available for the students and faculty members. The Department is equipped with 4 educational laboratories and 8 research laboratories, some of which are unique.

The educational and research activities of the Department have been resulted to following achievements:

- Publication of 185 journal papers, including 18 hot papers, in highly accredited engineering journals at national and international levels.
- Delivery of exceeding 499 conference papers in scientific and engineering gatherings.
- Authorship and translation of 11 Chemistry textbooks.
- Recipient of 9 national patents.
- 25 industrial project contracts with relevant ministries, companies and organizations.
- Dispersive liquid-liquid microextraction (DLLME) has been developed as a new microextraction technique. The details of such an innovative and unique approach has been explained in details in 11 international journals (including 3 distinguished papers) published in international journals so far.

### **Divisions**

- Analytical Chemistry
- Inorganic Chemistry

- Organic Chemistry
- Physical Chemistry

### **Programs and Degrees**

M.Sc.	Ph.D.
Analytical Chemistry	Inorganic Chemistry
Inorganic Chemistry	Physical Chemistry
Organic Chemistry	
Physical Chemistry	

Bio-inorganic Chemistry

Coordination Chemistry

Drug Design

Green Chemistry

Polymer Science

### **Research Focus**

- Atomic Force Microscopy
- Computational Chemistry
- Crystallography
- Electrochemistry
- Nanochemistry
- Synthetical Organic Chemistry

### **Educational Laboratories**

- Analytical Chemistry Laboratory
- General Chemistry Laboratory
- Organic Chemistry Laboratory
- Physical Chemistry Laboratory

### **Research Laboratories**

- Advanced Inorganic Chemistry Research Laboratory
- Organic Chemistry Research Laboratory
- Physical Chemistry Research Laboratory
- Simulation Research Laboratory



Schools and Departments

- Advanced Electroanalytical Chemistry Research Laboratory
- Advanced Chromatography Research Laboratory
- Advanced Spectroscopy Research Laboratory
- Nanoporous Materials Laboratory

### **Faculty Members**

### Professors

Seyed Sadjadi, Seyed Abolfazl, Ph.D., University of Kiel (Germany), 1979; Physical Chemistry, Thermodynamic, Polymer Science, Environmental Chemistry. seyedsajadi@iust.ac.ir

### Associate Professors

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Javanshir, Shahrzad, Ph.D., Alzahra University (Iran), 2007; Organic Chemistry, Green Chemistry, Synthesis of Organic Compounds, Applied Chemistry. shjavan@iust.ac.ir Manteghi, Faranak, Ph.D., Tarbiat Moallem University (Iran), 1993; Inorganic Chemistry, Coordination Chemistry, Crystallography, Nanochemistry. f-manteghi@iust.ac.ir

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### Instructors

Key- Arsalan, Soraya, M.Sc., University of Tehran (Iran), 1974; Physical Chemistry, Inorganic Chemistry. keyarsalan@iust.ac.ir

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Schools and Departments

### **School of Civil Engineering**

The School of Civil Engineering is one of the most successful schools in relaying of up to date knowledge and conducting research in the field of civil engineering. At present there are 40 full time faculty members. Having a long experience of undergraduate teaching, the School has initiated its activities

at the graduate level since 1983 and continued its efforts to expand the number of fields toward graduate degrees. Currently, there are 10 master and 7 Ph.D. programs. Many master and Ph.D. dissertations have valuable practical and theoretical applications, based on which an abundant number of articles have been published in national and international journals.

With regard to such accomplishments along with outstanding



Schools and Departments

and ongoing educational and research activities of the students and faculty members at various educational levels, the School of Civil Engineering was awarded the title of "the Eminent School of Civil Engineering in the Country" in the year 1992, by the Ministry of Science, Research and Technology.

The School has been also acknowledged as "the Center of Excellence" in the field of Structures since 2000. Also the post doctoral program in the field of Structural Engineering was

initiated in the school in the academic year 2001-2002 for the first time in Iran. In addition the School has established a Ph.D. program in Highway Engineering and Transportation and a Master program in Construction Engineering Management since the academic years of 1991-1992, and 2002-2003, respectively. The first Ph.D. student in the field of Highway Engineering and Transportation in Iran has been graduated from this School.



Most noteworthy educational/research achievements of the School of Civil Engineering within the past four years are summarized as follows:

- Publication of 353 journal papers in highly accredited engineering journals at national and international levels.
- Publication of 630 conference papers in scientific and engineering events.
- Authorship and translation of 39 titles of books in the field of Structural Optimization, Concrete Technology, Surveying, Structural Mechanics, Soil Mechanics, Soil Dynamics, Project Management, Highway Planning and Design, and Traffic Engineering.
- Receipt of distinguished national professorship award from the Ministry of Research, Science and Technology, 2005.
- Receipt of distinguished researcher award of Iranian Ministry of Science, Research and Technology in the years 2004 and 2006.
- Recipient of 6 patents at national levels for innovations.

- Signing 24 industrial project contracts with ministries and companies such as the Ministry of Road and Transportation, Iran Water Resources Management Co., and National Iranian Oil Company.
- The School has been acknowledged as "The Center of Excellence for Fundamental Research in Structural Engineering" since 2000.
- The school has established two research centers on "Asphalt Mixtures and Bitumen" and "Transportation".

#### **Departments**

- Geotechnical Engineering
- Water Engineering
- Structural Engineering
- Highway Engineering
- Transportation Engineering

B.Sc.	M.Sc.	Ph.D.
Civil Engineering	Structural Engineering	Structural Engineering
	Earthquake Engineering	Earthquake Engineering
	Construction Engineering Management	Construction Engineering Management
	Geotechnical Engineering	Geotechnical Engineering
	Highway Engineering and Transportation	Highway Engineering and Transportation
	Transportation Planning	Transportation Planning
	Water Resources Engineering	Water Resources Engineering
	Hydraulic Structures	
	Environmental Engineering	
	Marine Structures	

### **Research Focus:**

- Water Resources Management
- Water and Wastewater Conveyance and Distribution Systems
- RCC Dams
- Earthquake Engineering

**Programs and Degrees** 

- Random Vibrations
- Nonlinear Dynamic Problems

- Seismic Risk Analysis
- Hard Fill Dams
- Soil Dynamics
- Soil Amplification
- Geotechnical Earthquake Engineering
- Traffic Engineering
- Construction Management

Schools and Departments

- Environmental Engineering
- Transportation Engineering
- Asphalt Technology
- Highway Engineering
- Conceptual Structural Analysis
- Applied Topology and Graph Theory
- Soft Computing in Civil Engineering
- Structural Reliability
- Nonlinear Finite Element Analysis

Ghodrati Amiri,

Gholamreza, Ph.D., McGill

University (Canada), 1997;

Dynamic Problems, Earthquake

Kaveh, Ali, Ph.D., London

Engineering, Conceptual

Structural Analysis, Applied

Topology and Graph Theory,

Sanaei, Ebrahim, Ph.D.,

Curie (France), 1975; Structural

University Pierre and Marie

Engineering, Tall Buildings,

Composite Structures, Space

Combinatorial Optimization

University (UK), 1974; Structural

Earthquake & Structural

Engineering.

Problems.

Structures.

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- Concrete Technology
- Road Safely

### **Faculty Members**

### Professors

Afshar, Abbas, Ph.D., University of California, Davis (USA), 1979; Water Engineering, Water Resources Management, Hydro- Enviro- System Design and Management. a afshar@iust.ac.ir

Baziar, Mohammad Hassan, Ph.D., Rensselaer Polytechnic Institute (USA), 1991; Geotechnical Engineering, Soil Dynamics, Earthquake Engineering, Soil Amplification. baziar@iust.ac.ir

Behbahani, Hamid, Ph.D., University of Florida (USA), 1977; Transportation and Pavement Engineering, Transportation Engineering, Traffic Engineering-Highway, Geometric Design. hbeh@iust.ac.ir

# Public Transit

- Laboratories
- Soil Mechanics Laboratory
- Soil Dynamics Laboratory
- Hydraulics Research Laboratory
- Environment Research Laboratory
- Tar and Asphalt Research Laboratory
- Transportation Research Laboratory
- Traffic and Transportation Research Laboratory
- Structure and Concrete Technology Research Complex

### Associate Professors

Abbasnia, Reza, Ph.D., Southern Illinois University, Carbondale (USA), 1992; Structural Engineering, Nonlinear Analysis, Repair Strengthening of Concrete Structures. abbasnia@iust.ac.ir

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Afshar, Mohammad Hadi, Ph.D., University of Swansea (UK), 1993; Water Engineering, Numerical Modelling (F.E.), Optimization and Optimal Design. mhafshar@iust.ac.ir

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Amini, Fereydoun, Ph.D., Polytechnic Institute of New York (USA), 1982; Structural Engineering, Dynamics of Structures, Active and Passive Control, Seismic Engineering. famini@iust.ac.ir

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# Engineering, Seismic Hazard Analysis and Random Vibrations, Numerical Modeling of Nonlinear

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Ghaheri, Abbas, Ph.D., University of Colorado (USA), 1982; Water Engineering, Water and Wastewater Conveyance and Distribution Systems, Irrigation and Drainage Networks, Water Resources Management. ghaheri@iust.ac.ir

Ghiassian, Hossein, Ph.D., University of Michigan- Ann Arbor (USA), 1996; Geotechnical Engineering, Soil Improvement & Reinforcement, Laboratory & In-situ Testing of Soil, Slope Stability. h\_ghiassian@iust.ac.ir

Jabbari, Ebrahim, Ph.D. University of Leuven (Belgium), 1994; Water Engineering, Sediment Transport Hydraulics, Modelling Flow and Transport in Rivers and Estuaries. Jabbari@iust.ac.ir

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Ghoddousi, Parviz, Ph.D., University of Leeds (UK), 1992; Structural Engineering, Concrete Technology, Construction, Project Control and Scheduling. ghoddousi@iust.ac.ir

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Schools and Departments

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### Instructors

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## School of Computer Engineering

The School of Computer Engineering inaugurated its independence from the School of Electrical Engineering in 1986, starting with two undergraduate programs in Computer Engineering, namely Software Engineering and Hardware Engineering. Based on the school's strategic plan, postgraduate programs at the M.Sc. and Ph.D. levels were introduced later in four years. Currently, about 700 students study in different programs at different levels each year, with an estimation of five percent growth a year. Particular emphasis is on postgraduate program growth in terms of both the variety of disciplines and the number of students as well as on quality of education and research.

Only high ranking applicants get the opportunity to study in this school through the general board exam administered by the Ministry of Science and Technology each year. Computer Engineering is one of the most competitive disciplines in the country, in general and at the IUST, in particular. Apart from higher education, the school is also fully engaged in stateof-the-art research in major fields of Artificial Intelligence, Software Engineering, Information Technology and Computer Architecture. Currently 13 research laboratories at the school support the research activities, some of which are sponsored by research institutes outside the IUST.

The research achievements of the School within the past four years include:

- Publication of 110 journal papers in highly accredited engineering journals at national and international levels.
- Presentation of 540 conference papers in scientific and engineering gatherings.
- Authorship and translation of three titles of books in the field of Computer Science and Engineering.

### **Departments**

- Software Engineering
- Hardware Engineering
- Information Technology



Schools and Departments

### **Programs and Degrees**

B.Sc.	M.Sc.	Ph.D.
Hardware Engineering	Software Engineering	Software Engineering
Software Engineering	Artificial Intelligence	Artificial Intelligence
	Computer Architecture	Computer Architecture
	Information Technology	

### **Research Focus**

- Distributed Systems & Supercomputing
- Image Processing
- Audio and Speech Processing
- Computer Networks
- Wireless and Mobile Networks and Technology
- Parallel Processing
- Data Mining
- Computer Security

- Databases
- Artificial Intelligence
- Modeling and Performance Evaluation
- Fuzzy and Chaos Theories

### **Research Laboratories**

- Image Processing Laboratory
- Audio and Speech Processing Laboratory
- Complex Systems Laboratory
- Intelligent Automation Laboratory
- Parallel and Concurrent Processing Laboratory
- Computational Cognitive Model Laboratory
- Performance and Dependability Engineering Laboratory
- Soft Computing and Multiagent Systems Laboratory
- Distributed Systems Laboratory
- Data Bases and Data Flow Laboratory
- Network and High Performance Computing Laboratory
- Computer Networks Laboratory
- Wireless Network Laboratory



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### Faculty Members Associate Professors

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Schools and Departments

# School of Electrical Engineering

Situated on an area of 12500 square meters with a complex of laboratories and workshops and also with well-experienced faculty members, the School offers study programs leading towards, B.Sc., M.Sc., and Ph.D. degrees.

The School inaugurated the Electronic Research Center in 1997 to establish an appropriate scientific ground for the development of electronic industry. One of the important characteristics of the center is its molecular beam epitaxy equipment in a modern clean room for applied and fundamental research in the fields of microelectronics and semiconductors.

Currently there are over 670 B.Sc., 490 M.Sc. and 140 Ph.D. students studying in the School. At present the School has 49 faculty members. Its library includes more than 6000 volumes of books in various Electrical Engineering fields. A collection of various engineering journals, encyclopedias, dictionaries, sufficient archive samples of B.Sc. and M.Sc. projects, and papers presented in seminars and conferences are also available. Computer facilities and audio-visual systems are available to students at all levels in the computer center of this school and the classrooms are all equipped with computers, video projectors and smart boards.

The educational and research activities of the School within the past four years include but are not limited to:

- Publication of 380 papers in highly accredited engineering journals at national and international levels.
- Presentation of 1260 conference papers in scientific and engineering gatherings.
- Authorship and translation of 46 titles of books.
- Recipient of a distinguished national professorship award.
- Recipient of best national researcher award.
- Recipient of second and third places in 19th International Kharazmy Festival Award, 2006.

- Recipient of 7 patents at national & international levels.
- Signing 291 industrial project contracts with ministries and companies such as Iran Telecommunication Research Center.
- Being acknowledged as the Center of Excellence for Power Systems Automation and Operation in 2005.

### **Departments**

- Electronic Engineering
- Communication Engineering
- Power Engineering
- Control Engineering
- Biomedical Engineering

### **Programs and Degrees**

B.Sc.	M.Sc.	Ph.D.
Communication Systems	Communication Systems	Communication Systems
Power Systems	Power Systems	Power Systems
Electronics	Electronics	Electronics
Control Systems	Control Systems	Control Systems
	Biomedical Engineering	Biomedical Engineering





### **Research Focus**

- Optoelectronics
- Molecular Beam Epitaxy
- UWB Antennas and Systems
- Microwave and Millimeter Wave Communication Systems
- Wireless Mobile Cellular Systems
- High Voltage and Magnetic Materials
- Power Electronics
- Relays and Protections
- Industrial Automation
- Aerospace Control Systems
- Robotics and Mechatronics
- Signal and Image Processing
- Information Security
- Electric Machines & Drives
- Power Quality
- Nanoelectronics
- Quantronics

### Laboratories

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- Microelectronics Research Laboratory
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- Optoelectronics and Laser Laboratory
- Antenna and Microwaves Research Laboratory
- Digital Signal Processing Research Laboratory
- Digital Communication System Research Laboratory
- Electric Machine Behavior Control Research Laboratory
- Electric Machines Research Laboratory
- Signal and System Modeling Laboratory
- High Voltage Research Laboratory
- Electrical Energy and Load Management Laboratory
- Bioelectric Research Laboratory
- Encryption and Secure Systems Advanced Research Laboratory
- Mechatronics and Robotics Laboratory
- Aerospace Control Systems Laboratory
- Nanoptronics

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## Department of Foreign Languages

The Department of Foreign Languages is as old as the university itself, dating back to the time of establishment of the University in 1929. Since then, the Department has provided other schools of IUST with such service courses as General English and English for the Students of Science and Technology. As for graduate studies, the Department offers a Master of Arts degree in Teaching English as a Foreign Language (TEFL); in addition, it potentially possesses the requisite qualifications to offer other graduate programs in translation, linguistics, literature, and English for specific purposes. It has a wellequipped language laboratory, providing instruction to one hundred students simultaneously. In addition to this laboratory, the Department has a professional library with a good number of up-to-date books and references in the areas of language teaching methodology, language assessment, English as a foreign language, English as a second language, English for specific purposes, linguistics, and literature.

The faculty members have been granted awards by outstanding authorities in the country. An award of the most Eminent Year-Book of Islamic Republic of Iran, along with two awards granted to two Selective Year-Textbooks, being taught throughout the universities of this country, are examples of these recognitions. In addition, the faculty members have had an active role in participating at local and international conferences. They are well-recognized for their publications in local as well as international journals. The faculty members have always been engaged in providing EST textbooks for the students of science and technology all over the country. Among them, one can name English for the Students of Engineering, English for the Students of Metallurgy, English for the Students of Systems Analysis, English for the Students of Industrial Technology, English for the Students of Manufacturing Engineering, English for the Students of Ceramics, English for the Students of Railway Engineering, and English for the students of Industrial Safety.

Another achievement of the Department is the publication of a two-volume Dictionary of Engineering Sciences. This dictionary is available in different sizes for different purposes: A Twovolume Dictionary of Engineering Science, a Concise Dictionary of Engineering Sciences, an Abridged Dictionary of Engineering Sciences, a Pocket Dictionary of Engineering Sciences, and an Electronic- Word- Finder Dictionary of Engineering Sciences.

During the past few years, the Department experienced publication of 15 books and journal papers and presentation of a number of conference papers, and had cooperation with the Ministry of Education in a research project on the standardization of private language institutions in Iran.



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# School of Industrial Engineering

The School of industrial Engineering has a long history of research and active collaboration with national projects in industry and the government. Presently there are 30 faculty members, 500 undergraduate, 165 M.Sc., and 65 Ph.D. students in the school. The Industrial Engineering curriculum equips students with strong aptitudes in engineering, controlling and designing complex industrial systems with efficient production of goods and services. Professional services performed by industrial engineers include: Facilities Layout Design, Feasibility Studies, Cost and Economic Analysis, Project Management and Control, Quality Control, Time and Work Management, Inventory and Production Control, Systems Analysis and Design, Computer Aided Manufacturing, Production Management Systems, Design for Static and Dynamic Systems, Maintenance and Repair Planning, Strategic Planning and Systems Simulation.

The main focus of many research areas in this school is to use the recent advances of optimization techniques such as Robust Optimization, Geometric Programming, Meta-heuristics on Industrial Engineering (IE) problems. The results of the recent advances not only are used for many Iranian industries but also they are published on quality index journals with relatively high impact factors such as Fuzzy Set and Systems, International Journal of Advanced Manufacturing, European Journal of Operational Research, Computers and Industrial Engineering, etc. The school's officials are committed to play an important role on adding value on leading edge IE problems and create a valuable environment for researches.

The school also supports a digital MBA unit which is located at the university. The main responsibility of this unit is to train top industry managers across the country using internet facilities and other electronic devices.

The school has established in the recent years a welding center which has received technical assistance from Islamic Development Bank (IDB) for enhancing quality welding training and research. The aim of this center is to provide the technicians from the industry and the students with skills and principles of welding, and to enable them to plan, design, implement and manage verity of welding systems. It aims also to provide the students with an understanding of the physical principles,



operating characteristics and practical applications of Gas, Fluxcored ore and other welding processes.

In addition to the central library of the university, a well-equipped library helps to support fundamental and applied research in the school. There are approximately 11,000 volumes of books in the school library. Besides, the graduate and undergraduate students have the access to a number of well-known online libraries such as Elsevier, Science Direct, Scopus, etc. The students also have access to hard copies of more than a hundred international journal. In addition, many industrial engineering software packages are available for both postgraduate and undergraduate students.

During the past four years, the school of Industrial Engineering has managed to complete several research works. The following summarizes some of the recent advances:

 There were over 260 journal papers in quality international journals, mostly included in extended science citation index such as European Journal of Operational Research, Fuzzy Sets and System, Computers and Industrial Engineering, International Journal of Advanced Manufacturing Technology, Journal of Intelligent and Fuzzy Systems, Communications in Statistics, Reliability Engineering and System Safety, Knowledge Based Systems, Energy, Computational Optimization and Applications, etc.

- The faculty members and graduate students has speeches in approximately 400 recognized conferences such as International Conference on Computers and Industrial Engineering, IEEE conferences, etc.
- About 30 volumes of books written by faculty members, mostly published by the university press. Besides, other 30 book titles were translated to Persian, including the most recognized university textbooks worldwide.
- There were over 20 different research contracts signed with and implemented for industrial sectors in order to resolve many real world problems.

### **Departments**

- Industrial Engineering
- Systems Management and Productivity
- Socio-Economic Systems Engineering
- Electronic Commerce
- Executive Management

### **Programs and Degrees**

B.Sc.	M.Sc.	Ph.D.
Industrial Production	Industrial Engineering	Industrial Engineering
Planning & Systems Analysis	Systems Management and Productivity	Systems Management and Productivity
Industrial Technology	Socio-Economic Systems Engineering	Socio-Economic Systems Engineering
	Electronic Commerce	
	Executive Management	—

### **Research Focus**

- Supply Chain Management
- E-Commerce
- Production Planning
- Strategic Planning
- Econometrics
- Value Engineering

- Risk Analysis
- Knowledge Management
- Simulation
- Flexible Manufacturing Systems
- Transportation Planning
- Operations Research



Schools and Departments



### Laboratories and Workshops

- Welding Laboratory
- Welding Workshop
- Machine Tools Workshop
- FMS and Robotics Center

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Schools and Departments

## Department of Islamic Studies

The Department of Islamic Studies offers general courses to IUST students, namely Islamic Thought, Commentary on the Holy Quran, Commentary on Nahjol Balageh, Analytic History of the Early Islamic Era, History of Imamat, Islamic Culture and Civilization, Social and Political Rights in Islam, Imam Khomeini's Political Thought, Islamic Ethics, The Islamic Revolution of Iran, and Persian Literature.



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Schools and Departments

## **School of Mathematics**

The School of Mathematics was established in 1984 and now provides a comprehensive spectrum of relevant courses, from introductory undergraduate courses to postgraduate programs, in pure and applied mathematics, and statistics. It runs research programs on selected themes in mathematics and the mathematical sciences, with various applications in science and technology.

From 2001 to 2009, a number of 381 students including 46 Ph.D., 420 M.Sc. and 225 B.Sc. students have been graduated from the School. There are 17 full time faculty members in the School. The library of the School contains over 5300 books. The School also provides computer facilities in its computer center.

Some educational and research achievements of the School of Mathematics within the past four years include:

- A number of 285 journal papers published in highly accredited scientific journals at national and international levels and 228 conference papers presented in scientific and engineering gatherings.
- Authorship and translation of 35 books in different fields of mathematics.
- Seven industrial projects completed in collaboration with a number of relevant ministries and the industry.

#### **Departments**

- Pure Mathematics
- Applied Mathematics
- Statistics

#### **Programs and Degrees**

B.Sc.	M.Sc.	Ph.D.
Pure Mathematics	Pure Mathematics	Pure Mathematics
Applied Mathematics	Applied Mathematics	Applied Mathematics
	Statistics	

#### **Research Focus:**

- Algebra and Graph theory
- Approximation Theory, Spline approximation, Perturbation Theory and Application
- Differential Geometry
- Finite Element
- Functional Analysis, Nonlinear Analysis and PDE's
- Integral Equations, Wavelet Analysis and Application
- Inverse Problems
- Number Theory, Cryptography and Coding Theory
- Numerical Analysis
- Operational Research
- Ordinary and Partial Differential Equations
- Stochastic Processes and Statistics
- Theoretical and Computational Fluid Dynamics

#### Laboratories:

Mathematics Laboratory



#### Faculty Members

#### Professors

Malek Nejad, Khosrow, Ph.D., University of Wales (UK), 1980; Applied Mathematics, Numerical Solution of III-Posed Problems, Numerical Solution of ODE & PDE & IE, Perturbation Methods.

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## School of Mechanical Engineering

The School of Mechanical Engineering at IUST was established in 1932. The School offers programs leading to undergraduate and graduate studies. There are a total of 37 full time faculty members in the school. They are mostly involved in teaching, conducting funded research and supervising graduate students. Student population at the School is comprised of 855 B.Sc., 413 M.Sc. and 62 PhD. students in academic year 2008-2009. The School's exclusive library contains over 6813 volumes of technical books in addition to an archive of 50 scientific journals. It is also equipped with an advanced inter-library loan services system that enables it to request books from other national libraries.

There are three separate computer centers for undergraduate students, graduate students, and the CAD/CAM Laboratory in the Technology Research Center. A host of well-known Engineering Software Programs are widely available for use at the school on both PCs and workstations. More than 20 well-equipped laboratories and workshops along with updated research facilities have created a suitable environment for



#### Schools and Departments

graduate studies and research activities.

The School of Mechanical Engineering has a long and shining history of research at national and international levels. Most noteworthy achievements of research activities within the past four years include but are not limited to the following:

- Publication of 385 journal papers in highly accredited engineering journals at national and international levels.
- Exceeding 1201 conference papers in scientific and engineering gatherings.
- Authorship and translation of 23 titles of books in mechanical engineering.
- Recipient of distinguished national professorship award on two occasions.
- Recipient of best national research professor award.

- Recipient of third place title in highly prestigious international Kharazmy engineering and invention award.
- First through third place prize recipient at young Kharazmy international engineering and invention contest by students on five occasions.
- Recipient of 56 patents in engineering at the national level.

#### **Departments**

- Applied Design (Solid Mechanics Vibration and Control)
- Manufacturing
- Aerospace
- Energy Conversion
- Biomechanics



Schools and Departments

#### **Programs and Degrees**

B.Sc.	M.Sc.	Ph.D.
Mechanical	Applied Design	Mechanical
Engineering	<ul> <li>Solid Mechanics</li> </ul>	Engineering
	<ul> <li>Dynamics and Control</li> </ul>	_
	Energy Conversion	
	<ul> <li>Thermal Science</li> </ul>	
	<ul> <li>Fluid Dynamics</li> </ul>	
	<ul> <li>Energy Systems</li> </ul>	_
	Manufacturing	
	<ul> <li>Metal Forming</li> </ul>	
	<ul> <li>Mechatronics</li> </ul>	
	<ul> <li>Manufacturing Systems</li> </ul>	_
	Aerospace	
	<ul> <li>Aerodynamics</li> </ul>	
	<ul> <li>Propulsions</li> </ul>	
	<ul> <li>Structural Design</li> </ul>	_
	Biomechanics	



#### **Research Focus:**

- Aerodynamics
- Hydrodynamics
- Control Systems and Automation
- Solar Energy
- Applied Heat Transfer
- Bio-Mechanics
- Mechanics of Composite Materials
- Structural Dynamics
- Fatigue and Fracture Mechanics
- Mechatronics
- CAD-CAM
- Metal Forming

#### **Research Laboratories**

- Digital Control Research Laboratory
- Biodynamic Research Laboratory
- Combustion Research Laboratory
- Fatigue and Fracture Research Laboratory
- Robotics Research Laboratory
- Aerodynamic Research Laboratory
- Modal Testing Research Laboratory
- Acoustic Research Laboratory
- Systems Simulation and Control Systems Laboratory
- Heat Transfer Research Laboratory
- Production Technology Research Laboratory
- Hydrodynamics Research Laboratory
- Composites Research Laboratory
- Energy Systems Improvement Research Laboratory

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- Metal Forming Simulation Laboratory
- Computer Aided Engineering Center

#### Faculty Members

#### Professors

Ahmadian, Hamid, Ph.D., University of Waterloo (Canada), 1994; Nonlinear Mechanical Joints Modeling and Identification, Rotor Dynamics, Chatter Vibration. ahmadian@iust.ac.ir

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#### Associate Professors

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Schools and Departments

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Schools and Departments

## School of Metallurgy and Materials Engineering

The School of Metallurgy and Materials Engineering is the founder of metallurgical engineering and ceramics technology in Iran dating back to 1957. At present there are over 600 students studying at the undergraduate level, and around 250 students at the graduate level, of whom about 25 percent are Ph.D. students. There are 36 faculty members working in the School. The library of the School contains 7000 volumes of specialized books, and also subscription to 50 scientific journals that are available to the students and faculty members. The library is equipped with on and off-line search systems, for instance, the Metadex Data Bank is accessible. The School also has a computer center that provides facilities for the students and faculty members. In addition, many courses of computer application in materials science are offered by the center.

The educational and research activities of the School within the four past years include but are not limited to:

- Publication of 340 journal papers in highly accredited engineering journals at national and international levels.
- Presentation of 585 conference papers in scientific and engineering gatherings.
- Authorship and translation of 14 titles of books in the field of ceramics, glasses, nano-bio technology.
- Receipt of second and third rank award in Kharazmy Festivals.
- Recipient of 46 patents at international and national levels in the fields of glass, glass-ceramics, glaze, composites, and nanomaterials.
- The School was nominated as Center of Excellence of Advanced Ceramic and Metallic Materials by the Ministry of Science, Research and Technology, since 2001.



Schools and Departments

#### Departments

- Biomaterials
- Design and Selection of Engineering Materials
- Casting
- Ceramics
- Extractive Metallurgy
- Industrial Metallurgy

#### **Programs and Degrees**

B.Sc.	M.Sc.	Ph.D.
Industrial Metallurgy	Ceramics Engineering	Materials Engineering
Extractive	Materials Design and	Lingineening
Metallurgy	Selection	
Ceramics	Bio- Materials Engineering	
Engineering		
	Casting	_
	Materials Engineering	-

#### **Research Focus**

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- Physical and Mechanical Properties of Metals and Ceramics
- Novel Casting and Refining Methods
- Extractive Metallurgy
- Advanced Ceramics
- Composites
- Nanomaterials
- Biomaterials
- Numerical and Physical Simulation of Metallurgical Processes
- Characterization of Materials
- Refractories
- Super Alloys
- Magnetic Materials



#### Schools and Departments

#### Laboratories and Workshops

- Conventional Casting Workshop
- Advanced Casting Laboratory
- Machine Shop
- Mechanical Testing Laboratory
- Metallo-Ceramography Laboratory
- Ceramics Raw Materials Laboratory
- Advanced Ceramics Laboratory
- White-Wares Laboratory
- Electroceramics Laboratory
- Ceramics Workshop
- Glass and Enamel Laboratory
- Heat Treatment Laboratory
- SEM Laboratory

- X-ray Laboratory
- Thermal Analysis Laboratory
- ICP Laboratory
- Hydrometallurgical Laboratory
- Pyrometallurgical Laboratory
- TEM Laboratory
- Composites Laboratory
- Simulation Laboratory
- Novel Metal Extraction Laboratory
- Analytical Chemistry Laboratory
- Quantometry Laboratory
- Ceramics Synthesis Laboratories
- STM/AFM Laboratory
- Refractory Laboratory



Schools and Departments

#### **Faculty Members**

#### Professors

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#### Schools and Departments

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#### Instructors

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Schools and Departments

## Department of Physical Training

The Department of Physical Training includes the Physical Training Group and the Office of Extra Curriculum. The Physical Training Group offers sport courses for IUST students. The courses include physical Training (I) aiming at physical fitness, and Physical Training (II) for the purpose of specialization in particular sport fields. Both the above mentioned courses include theoretical as well as practical components. In order to encourage the students and staff to practice sport and to develop their physical competence, the Office of Extra Curriculum provides extra curriculum programs in diverse sport fields and conduct sport communities such as Dormitory Sport Community, School Sport Community, and Specialized Sport Community. The sport fields include football, volleyball, basketball, table tennis, bodybuilding, chess, footsall, mountain climbing, rock climbing, badminton, archery, swimming, karate, handball, fencing, cycling, wrestling, skateboarding, and track and field athletics. The sport areas include indoor and outdoor facilities and are expanded in more than 22000 square meters. These areas are comprised of four gymnasium, an stadium and tennis courts.

#### Faculty Members:

#### Assistant Professor

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#### Instructors

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Schools and Departments

## **School of Physics**

The School of Physics was established in 1985. The school has been expanded within almost 20 years and now offers various subjects leading to the degrees of B.Sc. in Physics, M.Sc. in Physics and Photonics, and Ph.D. in Physics. The graduate program was established in 1995, and the Ph.D. program started in 2002. The Photonics program is a new major in the school and the first students joined the program in October 2005. There are currently 150 B.Sc. and 74 M.Sc. students (including 15 students in Photonics program), and 18 Ph.D. candidates studying in this School. Besides, some 1600 undergraduate engineering students take general physics courses which are offered by this school each year. A course of Modern Physics is also offered by this school for engineering students.

All students can get benefit from various courses, advanced educational labs, a library with subscription of about 50 scientific journals and a computer site in the school. Modern facilities and laboratory equipments provide good opportunity for students to understand the fundamental of physics. Establishment of four new research laboratories, including Laser-Based Measurement Laboratory, Thin Film Technology laboratory, laser plasma and Matter Interaction Laboratory, and Photonics Laboratory had a big contribution in the development of school activities in recent years.

The educational and research activities of the School within the four past years include but are not limited to:

- Publication of several research papers in accredited Scientific and engineering journals and proceedings.
- Presentation of more than 150 papers in scientific and engineering conferences.
- Authorship of 3 books and translation of 2 titles of books in the field of physics and related subjects.
- 8 industrial project contracts with relevant ministries and the industry.

#### **Departments**

- Atomic and Molecular Physics
- Solid State Physics
- Nuclear Physics

#### **Programs and Degrees**

B.Sc.	M.Sc.	Ph.D.
Atomic and Molecular Physics	Atomic and Molecular Physics	Physics
Solid State Physics	Solid State Physics	
	Photonics	





Schools and Departments

#### **Research Focus**

- Plasma Physics including laser produced plasma and interaction, Magneto Hydro Dynamics (MHD)
- Photonics including laser beam propagation in atmosphere (and other media), laser based measurement, laser spectroscopy, and resonator design
- Free- Electron Laser
- Mesoscopic Physics
- Surface Physics
- Crystallography

#### **Research Laboratories**

- Laser Plasma and Matter Interaction Laboratory
- Laser Based Measurement Laboratory
- Laser Spectroscopy Laboratory
- Optics and Photonics Research Laboratory
- Thin Film Technology Research Laboratory
- Solid State Physics Research Laboratory
- Photonics Research Laboratory

#### Faculty Members

#### Professors

**Farman,** Hossein, Ph.D., University of Kent (UK), 1978, Characterization of Matters by Using High Flux Neutrons & X-rays, Geo- Space Physics. Nano Physics. h\_farman@iust.ac.ir

#### Associate Professors

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#### Schools and Departments

Mahdieh, Mohammad-Hossein, Ph.D., University of Essex (UK), 1996; Laser Plasma & Matter Interactions, Laser Beam Propagation in Different Media, laser resonator design mahdm@iust.ac.ir

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#### Assistant Professors

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#### Instructors

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## School of Railway Engineering

The School of Railway Engineering (SRE) was established in 1997 at Iran University of Science and Technology (IUST) as a positive answer to the public interests and Railway Industrial development plans in Iran. This outstanding achievement was constituted under the financial support of the Railways of the Islamic Republic of Iran. SRE started its educational programs in 1997 with 100 students, in three sub-disciplines at undergraduate level. It also commenced its postgraduate programs in master levels in 2001. So far, the School has admitted 1100 students from whom 565 have been graduated. SRE is also planning to offer Ph.D. programs in some of its research disciplines.

The full time academic staff of this School consists of 25 associate and assistant professors. The school also benefits from the cooperation of several part-time professors and experts from local and international industrial and scientific institutions.

SRE's dedicated library of 700 square meters contains 7000 volumes of technical books and offers study area to the students. It has subscription to some related international journals and provides online access to a number of international journals and dissertations. The computer site of the School includes 160 personal computers.

With regard to the academic and research potentials of the School of Railway Engineering, which is considered unique in the Region and by virtue of the necessity for a scientific center to offer training courses, the International Academy of Railway Transportation was launched officially in January 2008 at the School. The School directs the Academy's activities according to regional research aims in harmony with the International Union of Railways (UIC).

The followings can be attributed to the scientific achievements of this school since its establishment in 1997:

- Publication of 195 journal papers in highly accredited scientific journals at national and international levels.
- Presentation of 320 conference papers in scientific and engineering gatherings.
- Authorship and translation of 34 titles of books in different disciplines in the field of railway engineering.



- Acquisition of 14 national patents.
- Accomplishment of 70 engineering contracts including research activities directly related to the national railway industries.

#### **Departments**

- Control and Signaling
- Railway Transportation Engineering
- Railway Rolling Stock Engineering
- Railway Track and Structures Engineering
- Electric Railways Engineering

#### **Programs and Degrees**

B.Sc.	M.Sc.
Railway Transportation Engineering	Railway Transportation Engineering
Railway Rolling Stock Engineering	Railway Rolling Stock Engineering
Railway Track and Structures Engineering	Railway Track & Structures Engineering
	Electric Railways Engineering
	Railway Safety Engineering
	Railway Control and Signalling

#### **Research Focus**

- Dynamics of Railway Track
- Track Construction & Maintenance
- Track Safety
- Train-Track Interaction
- Contact Mechanics, the Wheel and Rail Interface
- Railway Electrification
- Railway Signaling Systems
- Train Scheduling & Planning
- Railway Transportation Demand Analysis
- Railway Management System
- Train–Bridge Interaction
- Design of Railway Machineries
- Rail Vehicle Dynamics
- Ride Comfort

#### Laboratories

- Bogie and Wagon Laboratory
- Locomotive Workshop
- Train Brakes Laboratory
- Advanced Vibration Laboratory (Modal Analysis and Railway Machinery Condition Monitoring)
- Track Substructure Laboratory
- Track Maintenance Workshop
- Control and Signaling Laboratory
- Rock & Soil Mechanics Laboratories
- Traction Laboratory
- Non Destructive Test Laboratory
- Infrastructure Dynamics Laboratory
- Railway Dynamics Laboratory







#### Faculty Members

#### Associate Professors

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#### Assistant Professors

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Farshad, Siamak, Ph.D., Northern Jiaotong University, (China), 2000; Electrical Railway Engineering, Electrification and Automation of Railway, Traction Motor Control, Traction Supply System Analysis. farshad@iust.ac.ir Fazel, Seyed Saeed, Ph.D., Technical University of Berlin (Germany), 2007; Electrical Railway Engineering, Power Electronics (Medium Voltage Drives, Power Converters, Electrical Drivers), Traction Machines. fazel@iust.ac.ir

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Schools and Departments

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# Part

## E-Learning Center

## **E-Learning** Center

**E-Learning Center** 

As a pioneer higher education institute in Iran, by expanding its educational domain, Iran University of science and Technology has established the E-Learning Center on 2004 as one of the first higher education centers in Iran which undertakes to admit and educate students via advanced technology of communication and Internet network. The main objective of this center is to admit and educate students in academic programs by using the electronic techniques. The E-Learning Center of IUST aims at serving social justice in the field of higher education through expanding admission capacity of the university and educating expertise who will satisfy specialized requirements of the society. The center has a comprehensive vision to arrive at excellence, and seeks to meet rapidly changing requirements of the current and future society in the fields of engineering and applied sciences.

The students of this center are formally admitted to the University after successful passing of all courses of the first semester. Except the final term examinations in each academic semester, the students pursue their educational activities electronically and via Internet. More than 940 students are studying in the center at the moment. Currently, 4 Bachelor degree programs and 6 Master Degree programs are available. Also, various short-term/long-term tailored courses are available to ministries, governmental divisions, and private and public sectors.



#### **Programs of study**

#### Available Bachelor Degree Programs:

		Filed	Major
	1	Computer Engineering	Information Technology
I	2	Computer Engineering	Software Engineering
	3	Industrial Engineering	System Analysis
	4	Industrial Engineering	Industrial Production

#### Available Master Degree Programs

	Filed	Major
1	Computer Engineering	Communications and Information Technology
2	Computer Engineering	Software Engineering
3	Industrial Engineering	MBA
4	Chemical Engineering	Simulation and Process Control
5	Chemistry	Physical Chemistry
6	Architecture	Urban Studies

The center is considering to develop the number of majors of study and to admit more students, aiming to recruit a maximum of 10,000 students in 5 years. The IUST E-Learning Center has its own Data Center within the university server farm; empowered by a fast 100 Mbps communication link to the national intranet system. As a result, the center is ready to provide virtual learning opportunities to both the local education centers and other service users in national and international levels.



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# Research at

- Cooperation with Industry
- Publications
- IUST Scientific Journals
- IUST Press
- Centers of Excellence

Research at IUST

Research, is the main mandate of Research and Technology Division of the University, which is supervised by Vice Chancellor for Research and Technology. This Division makes policies and organizes research and technology related activities conducted by faculty members and graduate students at IUST. It also has the responsibility of general supervision, assessment and providing research grants to the faculty members. Providing financial resources to research projects and facilitating the highly advanced research laboratories and libraries are also important roles that Research and Technology Division plays for promotion of knowledge and technology at IUST.

## **Cooperation with Industry**

IUST has a long history of fruitful cooperation with the Iranian leading industries since 1929. According to the assessment conducted by the Ministry of Science, Research and Technology, IUST has acquired the first rank among Iranian technical universities in terms of research contracts signed with industries during the year 2007. Total income from industrial contracts

shows a 30 percent growth during 2007. Total income of around 35 million dollars, from 700 industrial projects has been earned during the last ten years. Such projects have been conducted by the faculty members as well as the graduate students.

Private sector has been the main partner for IUST, in the fields of steel industries, composite materials, advanced materials, and automation, just to name a few. Besides various flagship projects carried out with private sector have resulted in actual technology transfer to the industries for implementation in their production lines. The number of regional as well as international patents has grown rapidly during the recent years; in particular, the number of nationally and internationally recognized patents during year 2007 was more than 30. Meanwhile, IUST has been recognized as one of the ten accredited institutes by the Ministry of Science, Research and Technology for scientific assessment of patents.

Commercialization of research achievements is a program with high priority at IUST, which is being planned in collaboration with some local Venture Capital companies as well as the Iranian National Science Foundation.





#### Research at IUST



Research and Technology Conrtacts since 1998 (\$ million)



### **Publications**

The IUST faculty members have been very active in writing, compiling and translating a remarkable number of books as well as publishing and presenting papers in various national and international journals and seminars. During year 2007 and the first six-month of 2008, at least 950 journal papers, including ISI, have been published by IUST faculty members in various scientific and technical fields.

A total number of 1989 conference papers have been also presented in both national and international scientific gatherings. This number include 569 national and 1420 international conference papers.

## **IUST Scientific Journals**

IUST publishes four scientific journals with the aim of providing a medium for exchange of knowlege among Iranian scientists and engineers as well as the world's scientific community. The quarterly published journals are:

- International Journal of Industrial Engineering and Production Research.
- International Journal of Civil Engineering.
- Iranian Journal of Electrical and Electronic Engineering.
- Iranian Journal of Materials Science and Engineering.

## **IUST Press**

The IUST Press is one of the most advanced university publication and print centers nationwide. This is in part due to access to the latest software and hardware facilities. Being equipped with facilities that enhance the pre-publication, publication, and post-publication phases and enjoying the services of highly experienced experts and personnel, the Center not only meets the publication demands of the university at a very high quality, but takes publication orders from other universities and cultural institutes.

Research at IUST

## **Centers of Excellence**

Based on the declaration of the review committees assigned by the Ministry of Science, Research and Technology, three academic/research centers from IUST have been officially recognized as Centers of Excellence in the country. The national review committee procedures have been based on quantitative and qualitative assessment of research potentials of faculty members and their international scientific achievements. These centers are as follows:

#### Center of Excellence for Fundamental Studies in Structural Engineering

The main aim of this center is to develop novel methods and techniques for optimal analysis and optimal design of structures. Analysis is known as optimal if the structural matrices used are sparse, well-structured and well-conditioned. The main tools used for such optimization consist of graph theory, algebraic graph theory, linear algebra, mathematical programming, heuristic and meta-heuristic algorithms. An extension of these approaches to finite element models and other systems such as hydraulic systems forms other activities of the center. Due to the importance of earthquake resistant structures, attention is also paid to earthquake engineering aspects of the structures.

Chairman: Prof. A. Kaveh Contacts: Phone: +98 21 77240399 Fax: +98 21 77240398 Email: akaveh@iust.ac.ir

Center of Excellence for Advanced Materials and Processing In 2000, in response to the initiatives of Iran Ministry of Science, Research and Technology, responsible for the promotion of ideas for increased contributions in the emerging sciences and technologies, the Centre of Excellence for Advanced Materials was established at Iran University of Science and Technology. The Centre is built on its recognized expertise in the metals, ceramics and polymeric fields and is dedicated to developing interdisciplinary research and educational programs in high technology materials processing. Major priorities of the Center include promotion of university-industry collaborations and meeting their research problems, increasing contributions in international scientific activities, and developing new technologies in advanced materials processing. The main research focuses of the Center are Advanced Engineering Metals & Alloys, Advanced Engineering Ceramics, Composite Materials, Nano Materials, Bio Materials, and Electromagnetic Processing of Materials.

Chairman: Prof. F. Golestani Fard Contacts: Phone: +98 21 77240291 Fax: +98 21 77240480 Email: ceamp@iust.ac.ir

#### Center of Excellence for Power Systems Automation and Operation

Center of Excellence for Power System Automation and Operation has set its mission to develop state of the art techniques in the field of automation and operation to focus on this significant and vital requirement of the country. Researchers of this center in cooperation with their postgraduate students (M.Sc. and Ph.D.) have amended all their research efforts to build up and extend the necessary approach and practice in various automation and operation fields and have focused all their research case studies on electric industry challenges and shortcomings at a national level. Their activities mainly target to improvement of the current power system operation and automation standards as well as enhancement of and upgrading the present methods and techniques used in a variety of related fields of generation, transmission and distribution.

The main objectives of the Centre are to persuade utilization of automation and optimal operation techniques in electric industry, to encourage and increase the application of automation and information technology in industry throughout the country, to develop advanced techniques in power system automation and operation, to motivate cooperation with major industrial decision makers regarding power system automation and operation throughout the country, and to update and upgrade the knowledge of the electric industry personnel and academic skills by offering various professional workshops.

Chairman: Dr. Sh. Jadid Contacts: Telefax: +98 21 77240385 Email: Jadid@iust.ac.ir





## **Research Centers**

## Research

- Analytical Electrochemistry Research Center
- Asphalt Concrete Mixture and Bitumen Research Center
- Automotive Engineering Research Center
- Cement Research Center
- Electronic Research Center
- Green Research Center
- Information Technology Research Center
- Iran Aluminium Research Center
- Iran Composites Institute
- Technology Incubator
- Transportation Research Center
**Research Centers** 

### **Analytical Electrochemistry Research Center**

Electrochemistry Research Center has been established at IUST in 2006. This center provides postgraduate students as well as faculty members with research facilities. Four research laboratories within the Center pave the grounds for conducting high quality research and industrial projects.

#### Research laboratories

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- Advanced Electroanalytical Chemistry Research Laboratory
- Advanced Chromatography Research Laboratory
- Advanced Spectroscopy Research Laboratory
- Research Laboratory for Analyzing of Real Samples

#### Main Research Grounds

- Analytical Electrochemistry and Ion Selective Electrodes,
- Chromatography
- Nanochemistry
- Polymer Science
- Environmental Chemistry

#### **Research Fellows**

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### Assistant Professors





**Research Centers** 

### Asphalt Mixtures and Bitumen Research Center

IUST Asphalt Mixtures and Bitumen Research Center (ABRC) is one the first research centers in this field in the country. It has been established to meet research needs in the fields of pavement, bitumen and asphalt mixtures. Through various committees and partnerships, ABRC serves the community as a center for health and safety, and environmental issues. It promotes petroleum asphalt as a safe and environmentally friendly construction material for highways, streets, and roofing systems through a program of scientific research and technological developments. Investigation and recognition of research needs, conducting empirical research projects, and providing scientific and technical consultation services in asphalt mixtures and bitumen are the major aims of the center.

ABRC laboratories are leading facilities in asphalt industry research, testing and analysis. The laboratories are recognized for leadership in solutions to technical issues that impact the asphalt industry, and serve as focal points for the application of new technologies based on the highest standards of performance.

The Center provides technical support to member companies, users and agencies through on-site job visits, consultation services, training programs, presentations and informative gatherings.

#### **Research Fellows**

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**Research Centers** 

### Automotive Engineering Research Center

The Automotive Engineering Research Center was established in 1992 as a cooperative venture between the government, the industrial community, and the university to encourage and assist automotive industries to overcome their technical needs and to adopt modern and more scientific methods by participating in bilateral research and designing projects. The Automotive Engineering Research Center, together with the School of Automotive Engineering, cooperates with main Iranian Automotive industries, including Iran Khodro Co., SAIPA Co., Pars-Khodro Co., Iran Khodro Diesel Co., Saipa Diesel Co., Zamyad, Megamotor Co. (Engine Mfg.), IDEM (Engine Mfg. under License of Benz Dymler), SAPCO (Main Part Supplier), Sazehgostar SAIPA(Main Part Supplier), SAIPA Yadak, and ISACO.

#### **Research Fellows:**

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**Research Centers** 

### **Cement Research Center**

The Cement Research Center (CRC) was established in 1996 at IUST as an interdisciplinary leading center for research and development in science and technology of cement material and production process and various related fields including special and new cements, durability of cement–based materials, process and energy optimization, and environmental aspects, etc.

The center identifies technical problems and requirements in the cement industry, designs and carries out research programs to provide the necessary knowledge and to develop new technologies.

In addition to easy access to different IUST research laboratories, the center benefits from two laboratories equipped with research and analytical facilities for chemical analysis and mineral processing. Besides the IUST central library and electronic search facilities, the specialized library of the center is also very beneficial to researchers. The followings are typical examples of research projects carried out in this centre:

- Natural pozzolan based-geopolymer cement.
- Developing low cost green cements based on supplementary cementing materials.
- Alkali-activated slag cement.
- Investigating the possibility of utilizing RFCC spent catalyst as a cement additive.
- Estimation of coating thickness in rotary cement kiln using shell temperatures.
- Investigating the possibility of utilizing pet-coke as an alternative fuel in a Portland cement production line.
- The center is also well recognized in bringing about valuable innovative research outcomes. The followings are typical examples of registered patents:
- Cementitious composite wall tile, 2007.
- Decoration of cement and concrete surfaces by staining technique, 2007.
- Low cost green cement, 2006.
- Composite cement, 2006.

- Fast set and very high early strength cement, 2006.
- Natural pozzolan-based geopolymer cement, 2005.
- Highly acid resistant geopolymer cement based on fly ash, 2003.



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**Research Centers** 

#### **Research Fellows:**

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**Research Centers** 

### **Electronic Research Center**

The Electronic Research Center was established in 1997, in order to initiate an appropriate scientific ground for the development of the electronic industry. An important characteristics of the center is its Molecular Beam Epitaxy equipment, clean room class 2000, and the supporting equipment for applied and fundamental research in the fields of microelectronics and semiconductors. Based on the evaluation made by the Ministry of Science, Research and Technology in 2007, the Electronic Research Center has been ranked the first between near 100 research centers and institutions nationwide.

#### Laboratories:

There are three specialized laboratories in the Center including the Semiconductor Laboratory, Circuit Design Laboratory, and Instrumentation, Measurement and Automation Laboratory. These laboratories are equipped with the instruments necessary for research in electronics and conducting student projects at Master and Ph.D. levels.

#### The Semiconductor Laboratory

The Semiconductor Laboratory, possessing the molecular beam epitaxy (MBE) equipment, provides the opportunity of offering important services in this field in the country. It provides:

 Growing GaAs layers with different thickness and impurities on wafers.

- Growing different layers of semiconductors, homogeneous and heterogeneous, for manufacturing of various electronic devices.
- Carrying out applied research for optimization of the electronic devices.
- Design and manufacturing of various detectors, lasers, diodes and transistors.

#### **Circuit Design Laboratory**

This laboratory consists of a general work area and several individual rooms for the faculty members. All students majoring in Electrical Engineering may carry out their research projects in this laboratory. The research topics include the design of novel circuits and systems which can either be built through a laboratory house or implemented on ASIC chips.

#### Instrumentation, Measurement and Automation Laboratory a. Instrumentation and Measurement Laboratory

The specialized measurement equipment and Faraday cage facilitates offering of various services in this laboratory, some of which are as follows:

- Measurement of different kinds of physical quantities.
- Design and manufacturing of various kinds of sensors needed for industries.
- Design of circuits and advanced electronic systems.
- Optimization and modification of instrumentation systems.



#### **Research Centers**

• Inverted engineering on the electronic equipment with external sources.

#### b. Automation and Control Laboratory

Undoubtedly, enhancing the quality of the goods, increasing production, canonization, and increasing the life of systems are not achieved without a reliable automatic control system. The Automation and Control Laboratory, in addition to undertaking fundamental projects, offers the following services:

- Converting manual operations.
- Instruction of advanced industrial control systems such as PLC and DCS.
- Analysis and design of various controllers needed in industry.
- Design and manufacturing of various software needed in industry.
- Design and manufacturing of office automation systems and project control.
- Research on mechatronics systems and mobile robots.

#### Intelligent Hydroponics Greenhouse

The researchers of the Electronic Research Center have also been working on a production system in an intelligent hydroponics greenhouse for producing high quality, premium strawberries. Hydroponics is a technology for growing plants in nutrient solutions (water containing fertilizers) with or without the use of an artificial medium to provide mechanical support. It is also highly productive, conservative of energy, water and land, and protective of the environment. Since regulating the aerial and root environment is a major concern in such agricultural systems, production takes place inside enclosures designed to control air and root temperatures, humidity, light density, water, plant nutrition, and adverse climate.

Climate control is multi input-multi output system and its control is difficult by means of classical techniques because of the nonlinearity of the system and invalid of the precise model. At the IUST Intelligent greenhouse, computerized algorithms such as fuzzy logic, neural networks and wavelet have been applied for modeling and control of the environment parameters by controlling actuators including, fan/pad, heating/cooling system, high pressure fog generator and side/ceiling windows.

#### **Research Fellows:**

Azhari, Seyed Javad, Associate Professor, Ph.D., University of Manchester Institute of Science and Technology (UMIST) (UK), 1990; Electronics Instrumentation, Low Voltage Circuits and Systems Design, Current- Mode Circuits and Systems Design. azhari@iust.ac.ir

Jalali, Ali- Akbar, Associate Professor, Ph.D., West Virginia University Morgantown (USA), 1994; Control & Information Technology (IT) and its Applications. ajalali@iust.ac.ir

Mirzakuchaki, Sattar, Associate Professor, Ph.D., University of Missouri, (USA), 1996; Design of Digital Circuits & Systems, Growth & Characterization of Semiconductor Materials, Solid-State Devices' Metrology. M\_kuchaki@iust.ac.ir Arab Khaburi, Davood, Assistant Professor, University of INPL Nancy (France), 1998; Motor Control, DSP, Control and Automation, Power Electronic. khaburi@iust.ac.ir

Mohades Kassai, Ahmad, Assistant Professor, Ph.D., University of Manchester Institute of Technology (UMIST) (UK), 1990; Semiconductors, Electronic Devices, Molecular Beam Epitaxy, Gallium Arsenide, Heterostructure Growth and Characterization. Kassai@iust.ac.ir

Mohammad Shahri, Alireza, Assistant Professor, University of Wollongong (Australia), 1998; Mechatronics, Mobile Robot and Instrumentation. Shahri@iust.ac.ir

Shahhoseini, Hadi Shahriar, Assistant Professor, Iran University of Science and Technology (Iran), 1999; Parallel Processing, Network Security, Processor & Digital Circuit Design.

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**Research Centers** 

### Green Research Center (Energy & Environment)

The Green Research Center (GRC) was established on the basis of the need for fundamental research in such scientific areas as renewable energy, energy-efficient technologies, energy conversions, energy management and environment. Established as a federal research and development facility in 1999, the GRC is administered by IUST. GRC is one of the leading pioneers of energy and environmental technologies in Iran. The Center is comprised of three research groups:

#### **Renewable Energy Group**

Undertakes research on the use of renewable energy sources and energy conservation technology. Because of their sustainable character, renewable energy technologies are capable of preserving resources, of ensuring security and diversity of energy supply, and providing energy services, virtually without any environmental impact. Therefore the research work of the group focuses on fuel cell, electrochemical systems, energy conversions, natural gas conversions, biodiesel (Fuels), and renewable energy resources.



#### **Energy Management Group**

The group assists industrial enterprises in implementing energy management systems, which integrate energy efficient planning, design and procurement with computerized process control based on collected energy data. The group services also include energy audits, which enable the clients to record the actual level of energy consumption, to point out areas with significant heat losses and to indicate potentials for improving energy efficiency. The group offers the services of experienced energy auditors and energy management specialists. The research fields include energy management, load management, restructured power system operation and control, The development of new approaches to improve power quality, and distributed power generations.

#### Integrated Energy Systems Group

The overall objective of Integrated Energy Systems Group is to better understand the nature of alternative future energy transitions, their implications for human well-being and the environment and how they might be shaped and directed by current and future decision makers. Given the interactions between energy and almost all economic and social activities, it is imperative to better understand the long-term implications of alternative energy policies, investments and technological developments now. The Integrated Energy Systems Group will contribute to addressing the challenges confronting the integrated energy system by conducting research in diferent areas including:

- coordinating an energy assessment that will evaluate the social, economic, environmental, security and other issues linked to energy to provide the technical and scientific basis needed to address the major energy challenges of the future.
- Advancement in the state-of-the-art in inclusion of technological change within energy models;
- Development of modeling energy infrastructure within energy models in order to assess alternative long-term investment strategies;
- Maintaining and expanding up-to-date, extensive,

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Research Centers

accessible databases on technologies and resources in order to support research on technology dynamics, grid evolution, and their incorporation in energy models;

- Developing new methods and modeling techniques for exploring alternative energy pathways of both systemsengineering and other modeling approaches;
- Promoting feasible paths to sustainable energy systems by developing new technologies and perspectives to overcome barriers to the widespread adoption of sustainable energy;
- Conducting original research to develop key technologies for sustainable energy systems and promoting the development of sensible, clean energy alternatives.

In order to fulfill its research activities, the Center enjoys the facilities available in three laboratories, namely: Fuel Cell Laboratory, Energy Management Laboratory, and Energy & Environment Laboratory.

#### **Research Fellows:**

Jadid, Shahram, Associate Professor, Ph.D., Indian Institute of Technology (India), 1993; Power Engineering, Power System, Power System Fault Diagnosis jadid@iust.ac.ir

Rowshanzamir, Sousan, Assistant Professor, Ph.D., Sharif University of Technology (Iran), 1998; Energy and Environment, Supercritical and Superheated Fluids, Nano technology. rowshanzamir@iust.ac.ir Kiani, Behdad, Assistant Professor, Ph.D., Tokyo University of Agriculture & Technology (Japan), 2004; Energy System, Environmentally compatible Strategies, System Dynamics. kiyani@iust.ac.ir

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**Research Centers** 

### Information Technology Research Center

Inaugurated in summer 2002, the IUST Information Technology Research Center aims at keeping abreast of the latest developments in IT and its contribution to the ever-growing computing environment of industry. The scope of research interests in the Center covers a range of activities such as developing software for designing and testing systems, modeling machines and controlling their qualities, image and speech processing systems. The Center also offers courses to familiarize IUST faculty members and the staff of other organizations with computer- based interactive learning and the potentials of IT and multimedia technology in education, industry and work places. The center has three research groups, focusing on Web Based Systems, Soft Computing and Real-Time Systems, and Image and Speech Processing Systems.

#### Laboratories

There are 2 well-equipped laboratories in the IT Research Center. The Web-based laboratory was established in 2001. The second laboratory, comprising a computerized network, its relevant servers, software and hardware, was equipped by the Ministry of Telecommunication and Information Technology.

#### **Research Fellows**

Akbari, Ahmad, Associate Professor, Ph.D., University of Rennes I (France), 1995; Hardware, Speech Recognition, Speech Enhancement, Computer Networks, Signal Processing. Akbari@iust.ac.ir

Fathi, Mahmoud, Associate Professor, Ph.D., UMIST (UK), 1991; Hardware, Vision, Image Processing, Networks. mahfathy@iust.ac.ir

Jahed Motlagh, Mohammad Reza, Associate Professor, Ph.D., University of Bradford (UK),1991; Hardware, Digital Control, Fuzzy & Chaos Theory, Robotics. jahedmr@ iust.ac.ir

Mozayani, Nasser, Assistant Professor, Ph.D., University of Rennes I (France), 1998; Hardware, Artificial Neural Networks, Pattern Recognition, IT Applications. mozayani@iust.ac.ir Rahmani, Adel, Assistant Professor, Ph.D., University of Tokushima (Japan), 1995; Software, Artificial Intelligence, Evolutionary Computing, Neural Nets. rahmani@iust.ac.ir

Sharifi, Mohsen, Associate Professor, Ph.D., the Victoria University of Manchester (UK), 1991; Software, Distributed System Software, Computer Security, Web Engineering. msharifi@iust.ac.ir

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**Research Centers** 

### Iran Aluminium Research Center

Iran Aluminium Research Center has been established in Iran University of Science and Technology in 1995. The goal of this center is to contribute in the promotion of science and technology in the Iranian industry community. This aim is being fulfilled by the best use of the existing facilities in all relative universities and research institutions together with a tight cooperation with the industry.

Iran Aluminium Research Center is active in carrying out researches and contracting research projects to develop aluminium science and technology. The Research Center also organizes national and international conferences, short courses and seminars, as well as Research and Development Centers with respect to the aluminuim industry.

Among the recent duties and achievements of the center are:

- Holding the first Iran Aluminium Industry Congress in Dec. 2004.
- Publishing aluminium scientific magazine (a national magazine that focuses on aluminium production and applications).
- Publishing a national aluminium weekly newspaper about alminium and its related news, including industry news, technological news and latest news about Tehran Metal Exchange (TME) and London Metal Exchange (LME).



#### **Research Fellows:**

Aboutalebi, Mohammad-Reza, Professor, Ph.D., McGill University (Canada), 1993; Extractive Metallurgy, Process Metallurgy, Physical Metallurgy, Coating. mrezab@iust.ac.ir Shabestari, Saeed G., Professor, Ph.D., McGill University (Canada), 1994; Casting, Solidification, Heat Treatment, Physical Metallurgy. shabestari@iust.ac.ir

Salehi, Mohammad- Taghi, Associate Professor, Ph.D., University of Manchester (UK), 1990; Design and Selection of Engineering Materials, Metals Forming, Heat Treatment, Mechanical Metallurgy. salehi@iust.ac.ir

Seyedein, Seyed Hossein, Associate Professor, Ph.D., McGill University (Canada), 1997; Extractive Metallurgy, Mathematical and Physical Modeling of Continuous Casting Processes, Modeling and Design of Near-Net Shaped Casting Process, SHS. sevedin@iust.ac.ir Soltanieh, Mansour, Associate Professor, Ph.D., University of Toronto (Canada), 1998; Extractive Metallurgy, Recovery of Metals, Extractive Metallurgy by Pyrometallurgy and Electro Metallurgy, Chemical Metallurgy. mansour soltanieh@iust.ac.ir

**Divandari**, Mehdi, Assistant Professor, Ph.D., University of Birmingham (UK), 2001; Casting, Production of Al- Alloys, Casting Technology, Mould and Die Design. divandari@iust.ac.ir

Goodarzi, Massoud, Assistant Professor, Ph.D., University of Toronto (Canada), 1997; Extractive Metallurgy, Plasma Processing of Materials, Mathematical and Physical Modeling of Metallurgical Processes, Welding. mgoodarzi@iust.ac.ir

Saghafian Larijani, Hassan, Assistant Professor, Ph.D., University of Sheffield (UK), 2002; Design and Selection of Engineering Materials, Casting, Physical Metallurgy, MMC. saghafian@iust.ac.ir

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**Research Centers** 

### Iran Composites Institute

Due to the importance of composites technology in the 21st century, Iran Composites Institute (ICI) was founded in 1999 at Iran University of Science and Technology in collaboration with the Technology Cooperation Office of Iran Presidency. Among the main goals of the Institute are conducting research and development on composite materials, design and construction of composite structures, undertaking graduate and postgraduate studies on composites, collaboration with Industry to solve relevant problems, and development of composites technology in the country.

#### **Educational Capabilities**

The lack of a center for education of composites has caused the Institute to offer educational courses in this field. In fact, the criteria for selection of such course topics are the needs of the composite industry. Accordingly the following modules are offered by the Institute:

- Acquaintance with manufacturing procedures of polymer matrix composites (theoretical).
- Manufacturing of polymer composites by hand lay up method.
- Training for material selection for polymer composites, micromechanics and material characterization.
- Design of composite structures.
- Manufacturing of composite molds.
- Experimental characterization of composite materials.

The Institute is well equipped with technical tools, necessary for supporting research activities, including different type of furnaces, mechanical testing machines, vacuum pumps and compressors. Some facilities available at the Institute are various types of fibers (glass, carbon, and kevlar), various types of polymer resins, a high temperature curing furnace, an oven



**Research Centers** 

(3x2x2m<sup>3</sup>), a vacuum pump, an air compressor, various types of tools for hand lay-up, and RTM.

#### **Research at ICI**

The research interest of the Institue include:

- Research and Development in Composite Materials and Structures
- Design of Polymer Matrix Composites
- Manufacturing of Polymeric Composites
- Mechanical Characterization of Composites

Only in the course of the short age after establishment of the Institute, fruitful research findings have been achieved, resulting in a number of registered patents as following:

- A fixture for determining the mechanical property degradation of polymer composites in bending loading condition under stress corrosion.
- Replacement of the lead grid in lead-acid battery with carbon/vinyl ester resin.
- Design and manufacturing of a electrically conductive and chemically resistant polymer composite.
- Design and manufacturing of a fixture for measurement of specific surface and volume resistance.
- Reinforcement of Concrete using Composite Materials.
- Measurement of Residual stresses in Composite Materials.
- Design and Manufacturing of Composite Flat Spring.
- Polyethylene composite manufacturing with hydroxyl apatite reinforcement to replace in bone.
- Manufacturing of orthopedic polyethylene/Three Calcium Phosphate (TCP).
- Reinforcement of metallic plates with composites.
- Internal reinforcement of concrete by composite wastage.
- Drop weight impact test machine for composites.
- Weaving glass fiber.
- Manufacturing of a polymer concrete by using glass fiber and industrial sand.
- Design and manufacturing of a fixture for measuring surface and volume resistivity.

#### The Composites Bulletin

Iran Composites Institute has started to publish the "Composites Bulletin" quarterly since spring 2001. This Bulletin presents the most recent news and developments on composites and is published to make managers of industries, researchers and designers acquainted with composites technology and its applications in various industries.

#### **Research Fellows**

A number of professors in Mechanics of Composite Materials, Ceramic Matrix Composites, Polymer Matrix Composites, Mechanical Engineering and Material Science are working on various research projects at the ICI. There are also B.Sc. and M.Sc. students and research fellows doing research or theses projects in the center. The full- time research fellows at the ICI are:

Shokrieh, Mahmood Mehrdad, Professor, Ph.D., McGill University (Canada), 1996; Mechanics of Composite Materials, Fatigue of Composite Materials, Finite Element Analysis. shokrieh@iust.ac.ir

Khavandi, Alireza, Associate Professor, Ph.D., INSA (France), 1996, Polymers, Advanced Materials, Composites. khavandi@iust.ac.ir

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Mirhabibi, Alireza,

Ceramics, Composites.

ar mirhabibi@iust.ac.ir

Assistant Professor, Ph.D.,

University of Leeds (UK), 1990;



**Research Centers** 

### Technology Incubator of IUST

Technology Incubator of IUST (TII) identifies technology-based concepts and businesses at early stages of development and provides an environment to speed up their growth. TII not only supports knowledge-based units, but also supplies the requirements for the R&D section of firms and companies. Generally,TII can help units to:

- develop a viable business plan based on knowledge of the market,
- achieve effective business management capability, and
- develop technology to market stage.

#### Head:

Jahed Motlagh, Mohammad Reza, Associate Professor, Ph.D., University of Bradford (UK), 1991; Hardware, Digital Control, Fuzzy & Chaos Theory, Robotics. jahedmr@ iust.ac.ir





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**Research Centers** 

### Transportation Research Center

The Department of Transportation and Pavement Engineering at the School of Civil Engineering of IUST as the pioneer in this field has established Transportation Research Center (TRC) to conduct research projects. This Center benefits from experienced professors and sharp students of Iran University of Science and Technology. The main goal of this center is to conduct research projects with a focus on achieving empirical outcomes of interest to the transportation industry.

#### **Research Fellows:**

Afandizadeh Zargari, Shahriyar, Associate Professor, Ph.D., Carleton University (Canada), 1996; Transportation and Pavement Engineering, Transportation Modeling, Traffic Engineering, Road and Railway Engineering. zargari@iust.ac.ir

Shahi, Jalil, Associate Professor, Ph.D., Bradford University (UK), 1977; Transportation and Pavement Engineering, Traffic Engineering, Traffic Safety, Public Transportation Planning. Jalil@iust.ac.ir

#### Shariat, Afshin,

Assistant Professor,Ph.D., Iran University of Science and Technology (IUST):2001, Transportation and Pavement Engineering, Transportation Engineering and Planning, Traffic Engineering, Urban Transit. shariat@iust.ac.ir

Sheykholeslami, Abdolreza, Assistant Professor, Ph.D., Iran University of Science and Technology (Iran), 2007; Road Safety, Traffic and Highway Engineering, Marine Transportation, Transportation Planning. sheikh@iust.ac.ir

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# Off-Campus Branches

Arak Branch

Behshahr Branch

**Off-Campus Branches** 

### **IUST Arak Branch**

IUST Arak Branch was founded in 1992. Located in the center of the city of Arak, was established to provide training for skilled personnel and reinforce a close relation between Arak industrial pole and the IUST, dealing with the research necessities of local industries.

Its graduates have shown remarkable success, either as industry employees or as student pursuing their postgraduate studies in recognized universities. This newly established faculty has had an important role in research activities in the area and excellent cooperation with local industries and government. IUST Arak Branch transfers the experiences of the industries into classrooms by making some cooperation contracts with main industries in the area.

All faculty members are committed to higher educational and research standards. Presently, 700 students are studying in five fields of engineering at the B.Sc. level. More than 500 students have been graduated from this Branch.

The library maintains a collection of 14000 volumes of books and 110 titles of journals. The university computer center is giving the services to the students and the faculty members using the local network assisting the process of expanding the science and accelerating the training, research and official



activities. The information center of Arak Branch is giving 24 hour services to the users as one of the best information networks in the area and the city.

Most noteworthy educational/research achievements of the IUST Arak Branch within the past four years include:

- Publication of 25 journal papers in highly accredited engineering journals at national and international levels.
- Presentation of more than 200 conference papers in scientific and engineering gatherings.
- Authorship and translation of 6 titles of books in the field of Technical & Engineering.
- Recipient of selected inventor of the country in 2007.
- Recipient of selected researcher of the province in years of 2006 and 2007.
- Recipient of 3 patents.
- 28 industrial project contracts with the Municipality and Jahad Keshavarzi.

**Arak** city, the center of Markazi province, is located 250 Km from Tehran and is one of the principal industrial sites of Iran, a home for a variety of heavy industries in particular metal and industrial machines, like:

Mechine Sazi Arak (MSA) and AZAR AB factories (for production of heavy machines such as Boilers and the Engines chemicals), Wagon Pars (train manufacturing), Iranian Alumium Company, Avangan (for pylons of lines high voltage), HEPCO (heavy machines of construction of road), Petrochemical factories and oil refineries, Navard Aluminum Manufacturing Group, Iran Combine Manufacturing Company, and Arak Oil Refinery Company.

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#### **Departments**

- Mechanical Engineering Manufacturing HVAC System
- Geodesy and Geomatic Engineering
- Mining Engineering Exploration
- Electrical Engineering
   Power

#### **Off-Campus Branches**

#### **Research Focus**

- Machining and Metal Industries
- Mining Exploration
- GIS
- Image and Speech Processing
- Optimization in Energy Usage
- Geodynamics
- Earthquake
- Mineral Processing
- Metal Forming
- HVAC System
- Vibration

#### **Research Centers**

- Machining and Metal Industries Research Center
- GIS and RS Lab.
- Mining Exploration Research Center

#### **Faculty Members**

#### Assistant Professors

Ahmadi, Abolfazl, Ph.D., University of Sheffield (UK), 2005; Mechanical Engineering, Thermal Fluid Systems, CFD(Computational Fluids Systems), HVAC Systems a\_ahmadi@iust.ac.ir

Deilami Azodi, Hamed, Ph.D., Tarbiat Modares University (Iran), 2008; Mechanical Engineering, Sheet Metal Forming, Hydroforming, Formability, Plasticity, Metal Forming Process, Die Design. h.d.azodi@ iustarak.ac.ir

Hosseinnejad, Mohamad Reza, Ph.D., China University of Geosciences (China), 1998; Mining Engineering, GIS & RS, Earthquake, Precious Stones. hnejad@iust.ac.ir

Ghadimi, Fereidoon, Ph.D., Tarbiat Moallem University (Iran), 2000; Mining Engineering, Geology, Hydrogeology, Sedimentlogy. ghadimi@iustarak.ac.ir Jalali, Hassan, Ph.D., Iran University of Science and Technology (Iran), 2007; Mechanical Engineering, Structural Dynamics, Experimental and Analytical Vibration Analysis, Mechanical Systems Modelling and Identification. jalali@iust.ac.ir

Mirzaeian, Vahid Reza, Ph.D., UMIST (UK), 2003; Science, Computer Assisted Language Learning, Computational Linguistics, Natural Language Processing Mirzaeian@iust.ac.ir

Narimani, Ramin, Ph.D., University of New South Wales (Australia), 1997; Mechanical Engineering, Metal Cutting and Machining, Parts and Machine Manufacturing. Narimani@iust.ac.ir

Najafi, Mohsen, Ph.D. Moscow State University (Russia), 2004; Electrical Engineering, Communication-Image and Speech Processing, Physical and Mathematical Model in Signal Processing, Biometric. nadjafi@iustarak.ac.ir

**Off-Campus Branches** 

Salami, Abolfazl, Ph.D., Iran University of Science and Technology (Iran), 2005; Electrical Engineering, Power System Operation, Energy Management, Power System Modelling and Simulation. a\_salami@iustarak.ac.ir

#### Instructors

Ahmadi, Reza, M.Sc., Isfahan University of Technology (Iran), 2000; Mining Engineering, Ore Deposit Evaluation, Geophysical Exploration (Geoelectrical Methods), Geostatistics. r\_ahmadi@iustarak.ac.ir

**Eivazy,** Hooshang, M.Sc., K.N. Toosi University of Technology (Iran), 2003; Geodesy and Geomatics Engineering, DB Developing, Mathematics in GIS, Software Plug in. h-eyvazi@iustarak.ac.ir

Fatehi, Hossein, M.Sc., Iran University of Science and Technology (Iran), 1990; Geodesy and Geomatics Engineering, Architecture. hfatehi@iust.ac.ir Karbasi Ravari, Mahin, M.Sc., University of New South Wales (Australia), 1993; Geodesy and Geomatics Engineering, Numerical Modelling of Geotechnical Problems, Application of GIS and Neural Networks in Geotechnical Problems, Experimental Modeling of the Behaviour of Soil. ravari@iustarak.ac.ir

Hajati, Abdolmotaleb, M.Sc., Tarbiat Modares University(Iran), 2002; Mining Engineering-Mineral Processing, Ore Grinding, Concentration, Flotation, Modeling Leaching and environment. am\_hajati@iustarak.ac.ir

Moradi, Amir Reza, M.Sc., K. N. University of Technology (Iran), 2001; Geodesy and Geomatics Engineering, Wavelet Analysis, Geodynamics & Microgeodesy, Road Surveying. A\_moradi@iustarak.ac.ir

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**Off-Campus Branches** 

### **IUST Behshahr Branch**

Behshahr Branch of IUST was founded in 1996 in the northwestern city of Behshahr along the southern coast of the Caspian Sea and the Gulf of Miyankaleh, an internationally known biological treasure and sanctuary for endangered migratory birds.

Presently, 910 students are studying in B.Sc. programs in three fields of study. Regarding the facilities and potentials, the University authorities are planning to develop and introduce new courses so as to diversify its contribution to the development of local industries and research centers. The main library serves the students as well as faculty members with more than 6600 volumes of books, journals, student project reports, etc.

The educational and research activities of the Behshahr Branch within the four past years include but are not limited to:

- Publication of 12 journal papers in highly accredited engineering journals at national and international levels.
- Presentation of 47 conference papers in scientific and engineering gatherings.

#### **Departments**

- Computer Engineering
- Industrial Engineering
- Mathematics

#### **Programs and Degrees**

#### B.Sc.

Computer Engineering (Software)

Industrial Engineering (Industrial Production)

Applied Mathematics

#### Laboratories and Workshops:

- Electric, Electronic and Logic Circuits Laboratory
- Computer Architecture Laboratory
- Microprocessors Laboratory
- Accurate Measurement Laboratory
- Chemistry Laboratory
- Physics Laboratory
- Welding Workshop
- Machine Tools Workshop



**Off-Campus Branches** 

#### **Faculty Members**

#### Associate Professors

Mosavi, Mohammad Reza, Ph.D., Iran University of Science and Technology (Iran), 2004; Computer Engineering, Artificial Intelligent Systems, Digital Signal Processing. m mosavi@iust.ac.ir

#### Assistant Professors

Ghorbani, Maryam, Ph.D., Iran University of Science and Technology (Iran), 2002; Mathematics, Groups Theory. m\_ghorbani@iust.ac.ir

#### Sarmasti Emami,

Mohammad Reza, Ph.D., University of Sistan & Baluchestan (Iran), 2006; Corrosion Phenomenon, Health and Safety Industrial, Heat Pipes Theory and Applications m\_r\_emami@iust.ac.ir Talebi-Rostami, Ali Asghar, Ph.D., Iran University of Science and Technology (Iran), 2006; Mathematics, Groups Theory. a\_talebi@iust.ac.ir

#### Instructors

**Nikazad**, Toraj, M.Sc., Iran University of Science and Technology (Iran), 1996; Mathematics, Wavelet. tnikazad@iust.ac.ir

Nikzad, Mohammad Bagher, M.Sc., University of Tehran (Iran), 1994; Physical Education. mnikzad@iust.ac.ir

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## Education at UST

- Types of Study Programs
- Grading System
- Admission
- Academics Degrees
- Academic Calendar

Education at IUST

### Types of Study Programs

Iran University of Science and Technology provides different programs such as daytime and evening programs. Daytime programs are conducted during the daytime and most of the students are studying in this type of program free of charge. In evening programs, students are charged tuition for their studies. However, the curriculum for day and evening courses are the same. The E-Learning Center also provides distance learning by offering electronic courses. All degrees have the approval from the Ministry of Science, Research and Technology.

### **Grading System**

Iranian higher education, is based upon a 20-point grading system, the evaluation of which is as following:

- From 17 to 20: Excellent (equivalent to A)
- From 14 to 16.99: Good (equivalent to B)
- From 12 to 13.99: Acceptable (equivalent to C)
- From 10 to 11.99: Pass (equivalent to D)
- Below 10: Fail (equivalent to F)

The minimum average acceptable for graduation in the B.Sc./ B.A. and M.Sc./M.A. levels are respectively 12 and 14. Both M.Sc./M.A. and Ph.D. programs have two components, coursework and research. The minimum average for coursework component in Ph.D. programme is 16.



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Education at IUST

### **Admission**

The admission to B.Sc./ B.A. programs takes place through the General Board Exam held annually by the Ministry of Science, Research and Technology. Applicants for M.Sc./M.A. programs also sit a separate nationwide entrance exam. For a Ph.D. degree, however, IUST holds its specific exam and interview to evaluate the candidates.

**Foreign students** can apply for all master courses offered by IUST Schools and Departments. The applicants must hold (at the time of registration) at least a bachelor degree in Science, Architecture or Engineering in the relevant fields from a recognized university. The successful international applicants must attend a Persian Language Course, prior to the commencement of the main programs. Information about the course, location, period and further details will be given to the applicants upon the admission announcement.

The tuition fee for all master programs is \$5300 a year for

academic year 2009-10. There are a limited number of residential halls for international students at competing prices. Further information and the application forms can be obtained from Office of International and Scientific Cooperation

### **Academic Degrees**

The degree programs offered at IUST are as follows:

- The Bachelors degree: a four-year degree program requiring 130-142 credits.
- The Masters degree: a two-year degree program, usually requiring 32 credits after a bachelors degree, including a dissertation.
- The Ph.D. degree: a 3-4 year degree after completion of a masters program, requiring 36 credits including a dissertation.



Education at IUST

#### An overview of the programs, degrees and the number of enrolments in the academic year 2008-2009 is shown bellow:

Schools/ Departments	Programs	B.Sc.	M.Sc.	Ph.D.	
School of Architecture and	Architecture: Housing Architecture	\$		\$	
Environmental Design	Housing Architecture		\$		
	Sustainable Architecture		*		
	Technological Architecture		*		
	Cultural Building Architecture		\$		
	······································				
	Conservation and Restoration of Historic Buildings and				
	Cities		*		
	Urban Design		\$		
	Urban Planning		\$		
	Industrial Design	\$	\$		
School of Automotive Engineering	Power Train	1	۲۲		
	Chassis Systems		····· ፡፡ ታዩ		
	Body and Structure		······ · ····························		
	Automotive Engineering		₩		
School of Chemical Engineering		sk	*		
	Process Modeling, Simulation & Control		₩	₩	
	Mineral Processing Advanced Membrane Processes		₩ 	₩	
				*	
	Thermodynamics			*	
	Reaction Engineering				
	Biotechnology		\$	-	
	Chemical Engineering	*			
Department of Chemistry	Analytical Chemistry		\$		
	Inorganic Chemistry		\$	\$	
	Organic Chemistry		\$		
	Physical Chemistry		*	ф	
School of Civil Engineering	Structural Engineering		*	\$	
	Earthquake Engineering		\$	\$	
	Earthquake Engineering Construction Engineering. Management		\$	\$	
				\$	
	Geotechnical Engineering Highway Engineering. and Transportation		*		
	Transportation Planning		\$	\$	
	Water Resources Engineering			\$	
	Hydraulic Structures		ŭ	T	
	Environmental Engineering		T		
	Marine Structures				
	Civil Engineering				



Education at IUST

School/ Department	Programs	B.Sc.	M.Sc.	Ph.D
School of Computer Engineering	Software Engineering Artificial Intelligence Computer Architecture Information Technology	\$	** ** **	* *
	Hardware	<i>ф</i>		
School of Electrical Engineering	Communication Systems Power Systems Electronics Control Systems Biomedical Engineering	4 4 4 4	\$ \$ \$ \$ \$	* * * *
School of Industrial Engineering	Industrial Engineering System and Productivity Management Social & Economic Systems Engineering Electronic Commerce Executive Management Industrial Production System Analysis and Planning Industrial Technology	\$ \$ \$	* * * * *	* * *
School of Mathematics	Pure Mathematics Applied Mathematics Statistics	* *	* * *	\$ \$
School of Mechanical Engineering	Mechanical Engineering.	\$		\$
	Applied Design Solid Mechanics Dynamics and Control		# #	
	Energy Conversion			
	Thermal Science		华 ·····	
	<ul> <li>Fluid Dynamics</li> <li>Energy Systems</li> </ul>		₩ \$	
	Manufacturing Metal Forming			
	Metal Forming     Mechatronics		·····*	
	Manufacturing Systems		ф.	
	Aerospace		·····	
	Aerodynamics     Dranulaiana		华 "	
	<ul> <li>Propulsions</li> <li>Structural Design</li> </ul>		₩ \$	
	Biomechanics		<b></b>	

Education at IUST

Schools/ Departments	Programs	B.Sc.	M.Sc.	Ph.D.
School of Metallurgy and Materials	Materials Eng.		4	\$
Engineering	Materials Design and Selection			
5 5	Bio- Materials Eng.		<b>#</b>	
	Casting		<i>‡</i>	
	Ceramics Eng.	*	<b>#</b>	
	Industrial Metallurgy	\$		
	Extractive Metallurgy	*		
School of Physics	Atomic and Molecular Physics	*	<b>‡</b>	
-	Solid State Physics	\$		
	Photonics			
	Physics			\$
School of Railway Engineering	Railway Transportation Eng.	*	*	
	Railway Rolling Stock Eng.	\$		
	Railway Track & Structures Eng.	\$	<b>‡</b>	
	Electric Railways Eng.		\$	
	Railway Safety Eng.		<i>‡</i>	
	Railway Control and Signaling		*	
Department of Foreign Languages	Teaching English as a Foreign Language (M.A.)		4	
Arak Branch	Mechanical Eng. (Manufacturing)	*		
	Mechanical Eng. (HVAC Systems)	\$		
	Geodesy and Geometrics Eng.	*		
	Electrical Eng. (Power)	*		
	Mining Eng. (Exploration)	\$		
Behshahr Branch	Computer Eng. (Software)	\$		
	Industrial Eng. (Industrial Production)	\$		
	Applied Mathematics	\$		

### **Academic Calendar**

An academic year consists of two semesters. Each semester is comprised of 16 weeks. The IUST academic calendar is scheduled as follows:

Academic Calendar	First Semester	Second Semester	
Registration	6-10 September	24-28 January	
Start of the Semester	13 September	31 January	
Dates of Adding and Dropping a Course	20-24 September	7-11 February	
End of the Semester	31 December	9 June	
Laboratory and Workshop Exam Dates	3-5 January	12-16 June	
Final Exam Dates	10-21 January	19-30 June	

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# **IUST Map**

#### **IUST Map**

### **IUST Map**

- 1. Greenhouse
- 2. Imam Khomeini Cultural Complex
- 3. Department of Foreign Languages
- 4. Applied Physics Institute School of Mathematics
- 5. Exhibition Center
- 6. School of Physics
- 7. Department of Islamic Studies
- 8. Basic Sciences Lecture Rooms
- 9. School of Computer Engineering
- 10. Public Relations Office
- Office of Scientific and International Cooperation
- Faculty Member Movement Center
- 11. Main Entrance
- 12. Masjid Al Shohada (Mosque)
- 13. Welfare Office
- 14.Bank Mellat
- 15. Bank Mellat Entrance
- 16. Outdoor Amphitheatre
- 17. Security Office
- 18. Martyr Monument
- 19. Shahid Bahrami Amphitheatre
- 20.15th Khordad Building (Supreme Leader, Representative Office – Vice Chancellor for Student and

Cultural Affairs) 21. Vice Chancellor for Academic Affairs

22. Presidency Building (Presidential Office- Vice

- Chancellor for Finance & Administration)
- 23.Central Library
- 24. Satellite Research Center 25. Health Center
- 26.Warehouse
- 27. Student Restaurant (Male)
- 28.Cafeteria
- 29. Faculty Members Restaurant
- Student Restaurant (Female)
- 30.Book Store
- Publications
   31. Shaahed and Isargar Office
   32. Architecture Workshops
- 33. Civil Engineering IT Center 34. School of Architecture
- School of Civil Engineering
- School of Industrial Engineering
- School of Mechanical Engineering
- 35. Entrance (South)
- 36. School of Architecture (Old
- Building) 37.Development Projects and
- Services 38.Modeling Workshop
- 39. Machinary Mechanics
- Workshop
- 40. Electric Workshop
- 41.Construction Workshop
- 42. Welding Workshop
- 43. Machinery Workshop
- 44.Casting Workshop45.Architecture Decoration
- Workshop
- Publication
- Machining Workshop
- 46.HVAC Laboratory
- 47. Thermal Machines Workshop

48. School of Electrical Engineering (Old Building) 49. Laboratory Complex 50. Antenna Testing Laboratory 51. High Voltage Laboratory 52. Hydraulic and Geotechniques Building 53. Electrical Research Center (Jihad) 54. Environment Laboratory 55. Solar House 56. School of Industrial Engineering 57. School of Electrical Engineering 58. Indoor Swimming Pool (under construction) 59. Central Warehouse 60. Football Court 61. Tennis Court 62. Ladies Sport Saloon

- 63. Malekloo Sports Saloon
- 64. Kindergarten
- 65. Heat Treatment Laboratory
- 66. Electronic Research Center
- 67. Vice Chancellor for Research and Technology
- Automotive Research Center
- 68. School of Railway Engineering
- 69. School of Electrical Engineering
- Department of Chemistry
- School of Chemical Engineering
- School of Materials and Metallurgy Engineering
- 70. Cement Research Center
- 71. Green Research Center
- 72. School of Automotive
- Engineering
- 73. Entrance (Stadium)
- 74.Bakery

75. Museum
76. Student Affairs
77. Football Stadium
78. Physical Training Department
79. Entrance (Male Dormitory)
80. Khatam Dormitory
81. Dormitory Office
82. Female Dormitory
83. Entrance (Female Dormitory)
84. Male Dormitory
85. Dormitory Restaurant
86. Family Dormitory

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