

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 Ph.D. 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



graduate studies and research activities.

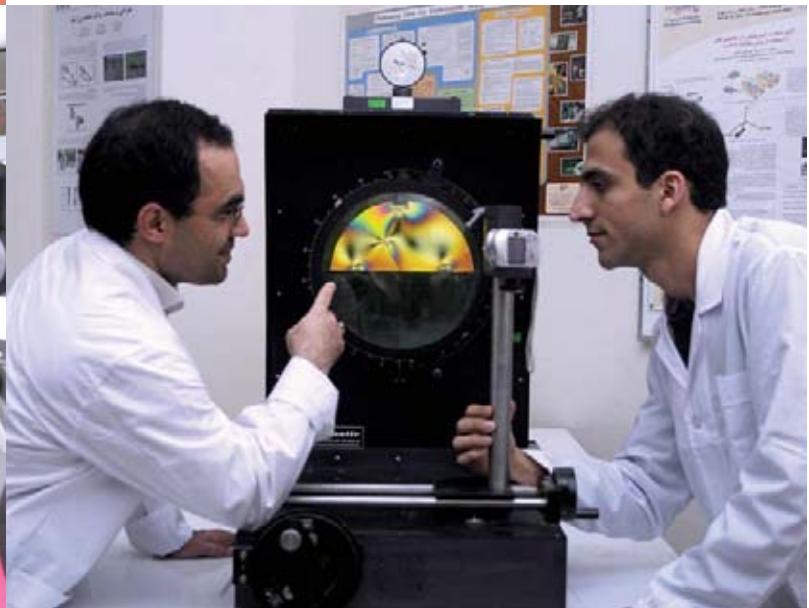
The School of Mechanical Engineering has a long and shining history of research at national and international levels. Most noteworthy achievements of research activities within the past four years include but are not limited to the following:

- 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



Programs and Degrees

B.Sc.	M.Sc.	Ph.D.
<i>Mechanical Engineering</i>	<i>Applied Design</i> <ul style="list-style-type: none"> ● <i>Solid Mechanics</i> ● <i>Dynamics and Control</i> 	<i>Mechanical Engineering</i>
	<i>Energy Conversion</i> <ul style="list-style-type: none"> ● <i>Thermal Science</i> ● <i>Fluid Dynamics</i> ● <i>Energy Systems</i> 	
	<i>Manufacturing</i> <ul style="list-style-type: none"> ● <i>Metal Forming</i> ● <i>Mechatronics</i> ● <i>Manufacturing Systems</i> 	
	<i>Aerospace</i> <ul style="list-style-type: none"> ● <i>Aerodynamics</i> ● <i>Propulsions</i> ● <i>Structural Design</i> 	
	<i>Biomechanics</i>	

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
- Metal Forming Simulation Laboratory
- Computer Aided Engineering Center





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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.



Departments

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

Programs and Degrees

<i>B.Sc.</i>	<i>M.Sc.</i>	<i>Ph.D.</i>
<i>Industrial Metallurgy</i>	<i>Ceramics Engineering</i>	<i>Materials Engineering</i>
<i>Extractive Metallurgy</i>	<i>Materials Design and Selection</i>	
<i>Ceramics Engineering</i>	<i>Bio- Materials Engineering</i>	
	<i>Casting</i>	
	<i>Materials Engineering</i>	

Research Focus

- 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





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



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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, futsal, 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:

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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	



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**

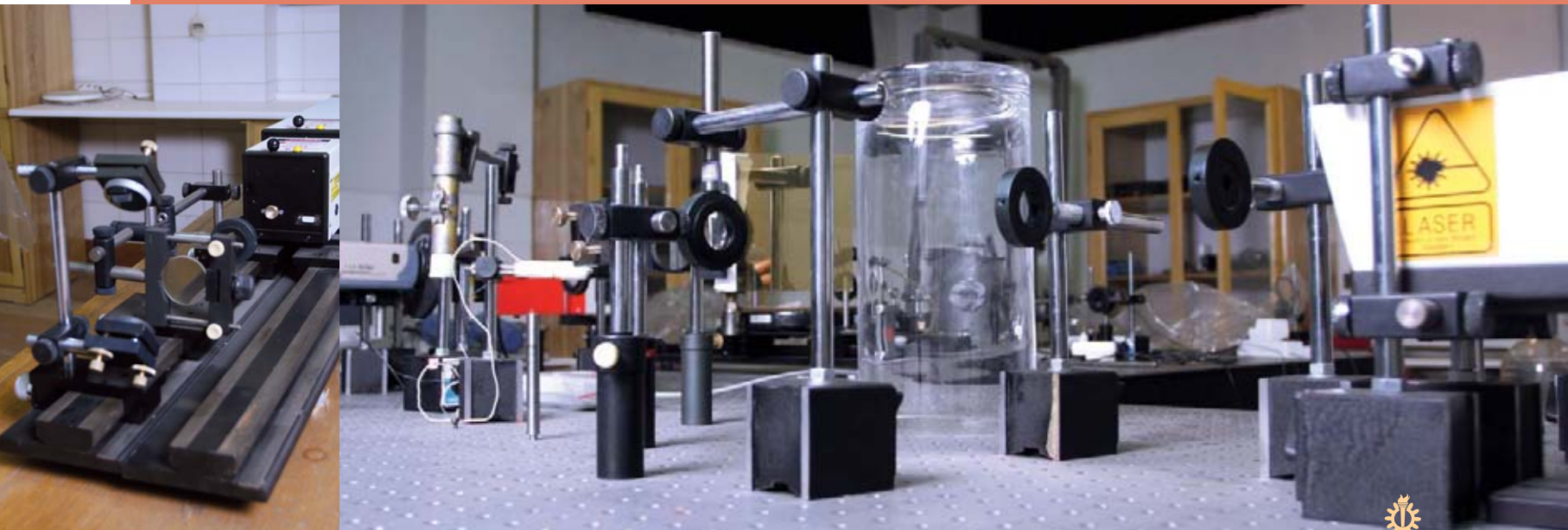
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School of Railway Engineering

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

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

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





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Part



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
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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