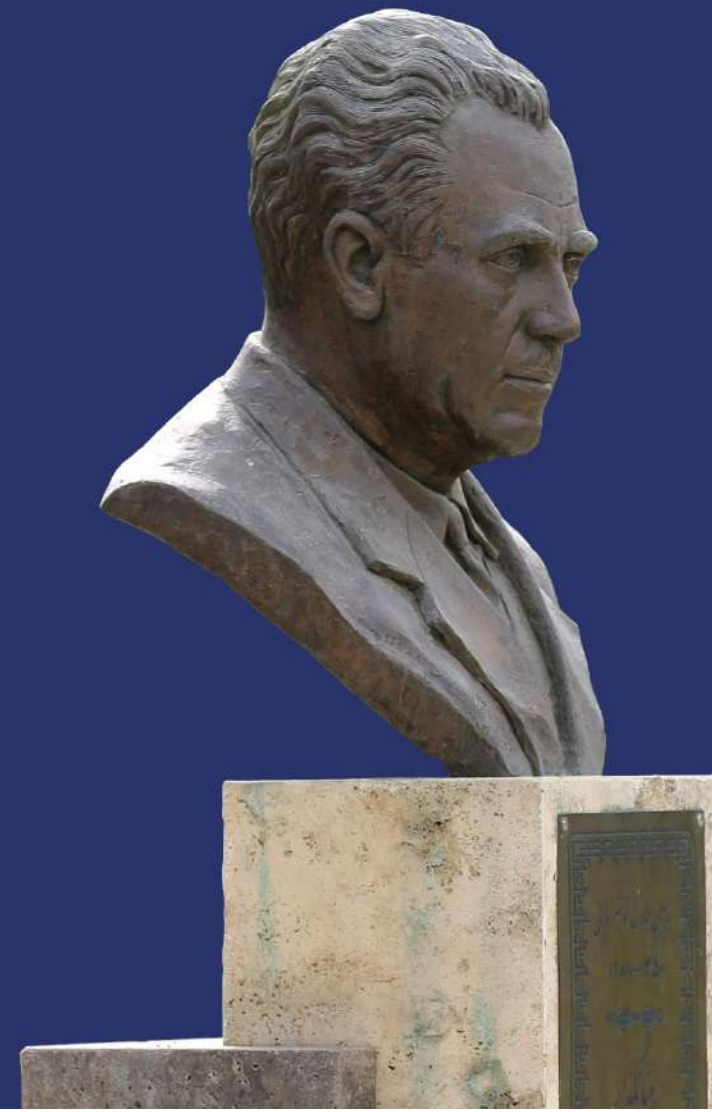


*Noshirvani transformed my life
and it can transform yours.*



Babol Noshirvani
University of Technology
(BNUT)



International Student Admissions



Email: international@nit.ac.ir

(Include: full name, student ID #, Affiliation, Describe your request)



Tel : +98 (11) 32 31 0 973



Fax: +98 (11) 32 33 42 01

Office Hours: Sat – Wed: 8 AM – 4 PM



Add: The Office of Scientific Collaboration & International Affairs, Babol Noshirvani University of Technology, Babol, Mazandaran, Iran.

Postal Coed: 47147-71167



Website: www.nit.ac.ir



Mazandaran

With more than 300 kilometers of Caspian Sea shoreline, thousands of hectares of dense forests, and more than 800 historical and cultural sites, Mazandaran is perhaps the most spectacular province of Iran. The province encompasses a vast number of natural and geographical assets, which include Mount Damavand (the highest mountain in Iran), numerous natural caves, ponds, springs, waterfalls, and forests.



The Mazandaran province has an area of 23756 square kilometers and is bound to the Caspian Sea at north, the Golestan province at east, the Guilan province at West, and Semnan, Tehran, and Alborz provinces at south. The province is geographically divided into two parts: the coastal plains and the mountainous areas. Unlike most of Iran, Mazandaran is watered by numerous rivers that run from the mountains to the sea. Mazandaran enjoys a moderate, subtropical climate with an average temperature of 25 °C in summer and about 8 °C in winter. Although snow may fall heavily in the mountains in winter, it rarely falls at sea level.



The Caspian Sea shores are major recreational sites for many visitors every day. The sea is also the habitat for a notable number of species, most importantly beluga sturgeon, from which the rarest and most expensive form of caviar is produced and is one of the most important exports of the region.

Due to its unique natural and geographical advantages, Mazandaran is one of the wealthiest and most densely populated regions of Iran and is home to more than 3 million people. The population of the province has been steadily growing during the last 50 years. Many of Mazandarani people work in rice farms and citrus fruit gardens. The proximity of Mazandaran to the capital city of Iran, the crossing of Iranian nationwide railroad system from Mazandaran, and having the sea border at north all make trading and travelling to or from Mazandaran very efficient.



Babol

Known as the Orange Blossom City, Babol is one of the major cities of the Mazandaran province in the north of Iran. The city is located between the northern slopes of the Alborz Mountains and southern coast of the Caspian Sea, 211 kilometers from Tehran, the capital city of Iran.

Babol was founded in the 16th century on the site of an ancient city referred to as Mamtir. Currently the region's chief commercial center as well as a major academic, medical, political, cultural, and agricultural hotspot, the Babol county is home to 532,000 people, from which more than 300,000 live in the city of Babol, and the rest live in the suburbs and nearby villages.

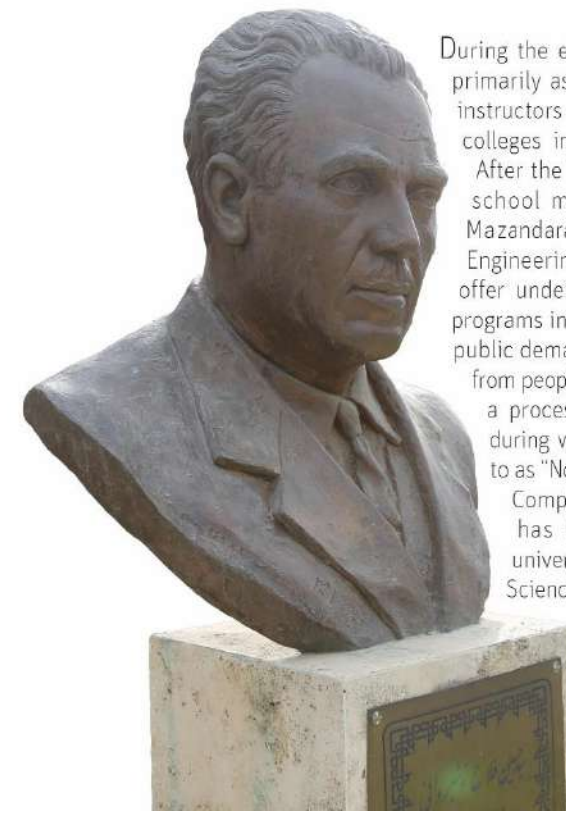
Babol enjoys a Mediterranean climate with an average annual temperature of 17 degrees, an average high temperature of 21, and an average low temperature of 12 degrees. The city has four rivers namely Babolroud, Sajero, Kellaroud and Aqaroud, which are popular tourist attractions. Babol is also known for its scenic nature and intact forests including those in Bobolkenar, Shiadeh, and Narenjlou.



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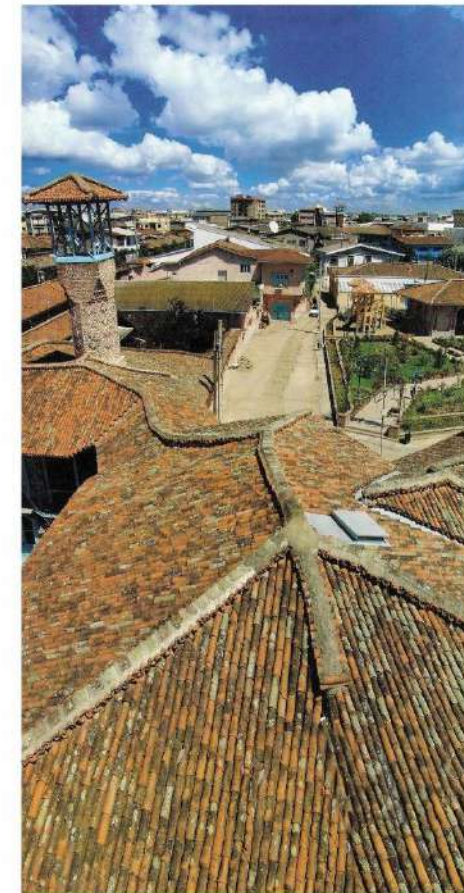
About Us

The Babol Noshirvani University of Technology, sometimes also referred to as Noshirvani Institute of Technology or NIT, is a public research university and institute of technology located in Babol, Mazandaran Province in the north of Iran. The school was founded in 1970 by the Iranian philanthropist, Seyed Hossein Fallah Noshirvani.



During the early years, the complex served primarily as a training center for technical instructors who would teach at community colleges in fields related to engineering.

After the Iranian Revolution in 1979, the school merged with the University of Mazandaran (UMZ) to become a College of Engineering and changed its curriculum to offer undergraduate and graduate degree programs in engineering. In 2005, following public demand and supported by donations from people of Babol, the institution started a process of independence from UMZ, during which it was temporarily referred to as "Noshirvani Technical and Education Complex". Since March 2008, BNUT has been an independent public university under the Iranian Ministry of Science, Research, and Technology.



Today, BNUT is home to nearly 200 faculty members and 6000 undergraduate and graduate students, and is organized into six following faculties, all of which emphasize on science and technology:

-  Basic Science
-  Chemical Engineering
-  Civil Engineering
-  Electrical and Computer Engineering
-  Materials and Industrial Engineering
-  Mechanical Engineering

These faculties are subdivided into 38 educational departments and offer undergraduate, master's, and PhD degree programs. The university is also the base for several interdisciplinary research centers that are among the top in the country, which focus on nanotechnology, fuel cells, renewable energy, sea-based energy, high-voltage substations, intelligent systems, and metal forming.



BNUT is an influential center for academic research in Iran, due to which it has been consistently ranked among the top schools in the country. According to Times Higher Education (THE) World University Rankings, BNUT has been ranked 1st among all Iranian universities for three consecutive years (2018, 2019 and 2020). THE has also ranked BNUT between 351st and 400th among world universities, 66th among the world's young universities, as well as 43rd among Asian universities. BNUT has also been ranked between 801st and 900th (2019) in the world according to Shanghai Academic Ranking of World Universities and 651st in the world by SCImago Institutions Rankings (2019).



Vision

At BNUT, we aim to pursue excellence, promote innovation and nurture creativity to overcome the primary challenges of our society and the world. Our vision is to be a leading university for professional education and applied research in Asia and in the world, committed to mutual enrichment of different cultures and intellectual traditions for human well-being. Our curricula are designed to promote knowledge creation, original discoveries and innovative thinking by integrating learning and research on all levels of our professional education.



Mission

BNUT, as the leading technological university in the North of Iran, has the primary mission of developing creative, skillful engineers and researchers who are committed to resolve the forthcoming challenges of the society in regional, national, and international levels. To accomplish this mission, BNUT will rely on advanced technologies, compliance with international standards, and collaboration with scientific and cultural centers worldwide.





President's Message

Welcome to Babol Noshirvani University of Technology (BNUT). We are a coeducational university uniquely located right at the heart of Babol, one of the most beautiful cities of Mazandaran Province in the central-northern Iran. Our university was established in 1970 by a great benevolent and honorable man and one of the greatest philanthropists of Iran, the Late Seyed Hossein Fallah Noshirvani. With six faculties, 13 special-focus research centers, and tens of research laboratories, our university is currently a leading institute of technology consistently ranked among the top in Iran.

We aim to pursue excellence, promote innovation, and nurture creativity to resolve the potential challenges of our society and the world and develop leaders in science and technology for many years to come. We have the vision of being a leading university for professional education in Asia, committed to mutual enrichment of different cultures and intellectual traditions for human well-being. Our curricula are designed to promote knowledge creation, original discovery, and innovative thinking by integrating learning and research in all levels of our professional education.

Our strategic plan for the future is focused on making a difference through Excellence in Research, Professional Education, and International Collaboration. Therefore, we are undertaking a set of action plans that further improves the academic excellence, international standing, and societal contributions of BNUT as a leading technical university renowned in the country and the world for its problem-based research and professional education.

At BNUT, we strive to nurture well-rounded graduates who are competent professionals, critical thinkers and lifelong learners capable of coping with a globalized work environment. Our approach to education is heavily influenced by the philosophy of "whole-person development", an educational philosophy which focuses particularly on the spiritual, intellectual, physical, social and aesthetic elements of education coupled with special attention paid to the emotional and career development aspects expected from a modern institute of higher education.

BNUT's ability to move forward depends on the contributions of our dedicated community of faculty, staff, students, alumni and friends. We hope you will join us in our pursuit of excellence in research and professional education.



Javad Vaseghi Amiri

Facts and Figures

History



- Founded in 1970.
- A technical university offering a variety of engineering disciplines.
- Over 11 hectares of educational campus.



Basic Statistics:

- Main campus: Babol, Shariati Street.
- Number of Faculties: 6
- Educational Departments: 38
- Special-Focus research Centers: 3
- Research Laboratories: 45
- Educational Laboratories and Shops: +50

Full-Time Faculty & Staff (2020):



- Total Faculty: 190
- Professors: 23
- Associate Professors: 63
- Assistant Professors: 94
- Lecturers: 10
- Staff Members: 185



Enrolled Full-Time Students (2020):

- Total: 5032
- Ph.D. Students: 551
- Master's Students: 1698
- Bachelor's Students: 3783
- Capacity of University Dormitories in Babol: + 4000 residents



University Rankings:

- Times Higher Education (2020): 350 – 400 (ranked 1st in Iran)
- SCImago Institutions Rankings (2019): 651
- Shanghai Ranking (2019): 800 – 900
- University Ranking by Academic Performance URAP (2018-2019): 1005
- Webometrics Ranking (2018): 2278

International Affairs

Office of Scientific Collaboration and International Affairs (OSCIA)

The Office of Scientific Collaboration and International Affairs (OSCIA) is a key department of BNUT in charge of international relations, international education, and exchange programs. Working directly under the supervision of the BNUT Chancellor, OSCIA is the primary agency for following up the university's strategic plan, and acts as a point of contact between BNUT and the international academic community.



Contribution in Project funded by Erasmus+ Project Title: Fostering Internationalisation in AgRicultural Engineering in Iran and Russia [FARmER]





Our global partners:



Activities

- Developing, expanding and improving relations with BNUT's local and international counterparts to enhance education, research, and cultural exchange.
- Assisting the faculty members, research staff, and students with the tasks related to their foreign research visits and sabbatical leaves.
- Facilitating the process for visas, travel reimbursement, and admissions for BNUT faculty, staff, and students who take part in international conferences or short visits.
- Arranging visits, interviews, invited lectures, and academic exchange programs from scholars from international institutes of higher education and research centers.
- Assisting BNUT's departments with organizing international conferences, seminars, or workshops
- Organizing research visits and post-doctoral positions for Iranian students studying abroad
- Providing service on an individual basis, both to prospective international students and to international students studying at BNUT.



“Tomorrow belongs to those who prepare for it today. Our top-tier education is the passport to the future.”



Academic programs

Babol Noshirvani University of Technology functions as a unit, with its faculties, divisions, and departments serving one another. No single part is independent of the others. All faculties and departments offer courses at both the undergraduate and graduate levels. At the undergraduate level, high-school students who participate in the national university entrance exam can apply to continue their studies at bachelor's level at BNUT.

An undergraduate student at BNUT may choose a major field of study from more than 20 programs. To earn a bachelor's degree, students must complete 140 credit hours required by the university departments. Careful planning of electives permits design of a program of study around the student's particular interests and abilities.

The graduate programs at BNUT play a prominent role in the academic mission of the university. At the graduate level, faculties which offer graduate courses have developed graduate programs consistent with the highest national, international, and professional standards of the respective fields. BNUT has six faculties authorized to offer programs leading to master's and doctoral degrees:

-  Electrical and Computer Engineering
-  Civil Engineering
-  Mechanical Engineering
-  Chemical Engineering
-  Materials and Industrial Engineering
-  Basic Science





Our future growth relies on competitiveness and innovation, skills and productivity... and these in turn rely on the education of our people.



Faculty of Electrical and Computer Engineering

Introduction

Electrical and Computer Engineering concerns a variety of issues, such as computers, robots, cell phones, radars, navigation systems, power electronics, power systems and other kinds of electrical systems. The Electrical and Computer Engineering Faculty provides the best to prepare and educate each student to be a leader and problem-solver for industry, academia, or the general public.

Number of Faculty Members

Professors	Associate Professors	Assistant Professors	Lecturers
4	18	27	1

Students (as of Autumn 2020)

Undergraduate	Master's	Ph.D.
916	484	125



Website: <https://ece.nit.ac.ir/>

Email: cee@nit.ac.ir

Telephone number: +98 11 3233 9214

Fax number: +98 11 32310977

Address: Electrical and Computer Engineering Faculty,
Babol Noshirvani University of Technology,
Shariati Ave., Babol, Iran.
P.O. Box: 47148-71167



Undergraduate Program

The Electrical and Computer Engineering Faculty offers a comprehensive program for graduate degrees (B.Sc.) in electrical and computer engineering. All B.Sc. students must complete 140 units, which include a final research project equivalent to 3 units. This degree is for students who seek a broad education in the application of electrical and computer engineering to a variety of specific areas, including electronics, communications, control, power, bioelectronics and computer.



Graduate Program

The Electrical and Computer Engineering Faculty offers a comprehensive program for both graduate degrees (i.e., M.Sc. and Ph.D.) in the areas of electrical and computer engineering. All M.Sc. students must complete a minimum of 32 credit hours, which include a research project equivalent to 6 units as their M.Sc. thesis. Ph.D. students are required to complete a minimum of 12 credit hours beyond their M.Sc. degree. Ph.D. candidates must also pass a qualifying exam and submit a comprehensive Ph.D. thesis.



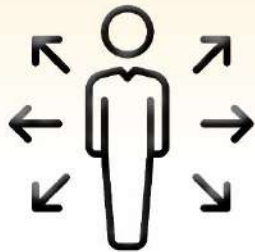
Graduate Research Areas

- Electronic Integrated Circuits
- Micro and Nano Electronic Devices
- Digital Electronic Systems
- Power Electronics and Electrical Machines
- Power Systems
- Telecommunication Systems
- Electromagnetic Fields and Waves
- Control Systems
- Bioelectronics
- Computer Software Engineering
- Computer Systems Architecture Engineering



Career Opportunities for Electrical and Computer Engineering

Electrical and Computer Engineering graduates have a wealth of promising jobs opportunities. Graduates can find jobs in most engineering industries which include Electronic industry, Electric drives industry, Marine industry and industry of generation, delivery and utilization of electric energy. With the technologies emerging every day, Electrical and Computer engineering is needed more and more in multidisciplinary fields like Chemical, Oil and Gas Industries.



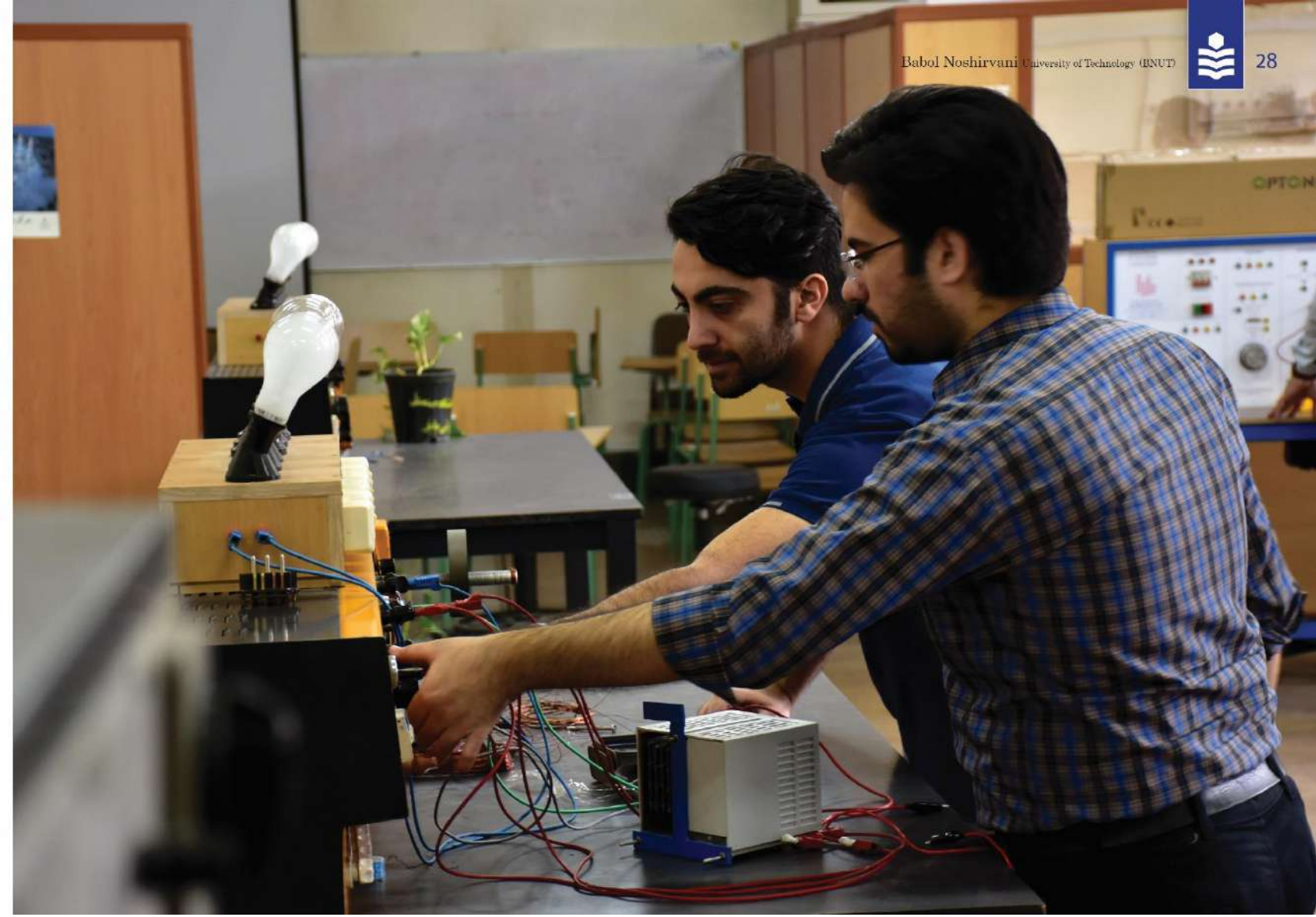
Research Labs

- Depending Computing Systems Research Lab
- Digital Signal Processing Research Lab
- Energy Conversion Research Lab
- High Voltage Research Lab
- High Voltage Substations Research Group
- Image Processing and Computer Vision Research Lab
- Intelligent System and Nano Devices Research Group
- Micro-Electronics Research Lab
- Power Electronics Research Lab
- Power System Engineering Research Lab
- Radar and Sonar Research Lab
- Robotic Research Lab



Special-Focus Research Groups

- Intelligent Systems and Nano Devices Research Group
- High Voltage Substations Research Group



Faculty of Civil Engineering

Introduction

Civil Engineering is one of the oldest and most important engineering disciplines. It is a versatile profession that aims to make the natural and built environment work together to improve the quality of human lives. As influential figures in every modern society, Civil Engineers are in charge of designing, constructing, and maintaining roads, buildings, bridges, dams, water supply systems, sewer networks, and more.

The Faculty of Civil Engineering of the Babol Noshirvani University of Technology offers B.Sc., M.Sc., and Ph.D. degrees in Civil Engineering. At any time, there are approximately 1000 civil engineering majors studying in the faculty of Civil Engineering, who are taught by our 40 faculty members.

Faculty Members

Professors	Associate Professors	Assistant Professors	Lecturers
6	9	20	5

Students (as of Autumn 2020)

Undergraduate	Master's	Ph.D.
689	352	105



 Website: <https://civil.nit.ac.ir/>
 Email: civildept@nit.ac.ir
 Tel/Fax number: +98 11 3233 1707

 Address:
 Faculty of Civil Engineering
 Babol Noshirvani University of Technology
 Shariati Ave., Babol, Iran
 Postal Code: 47148-71167





Undergraduate Programs

Faculty of Civil Engineering at Babol Noshirvani University of Technology offers undergraduate degree programs in three major fields: 1) Civil Engineering, which is the largest and the oldest program; 2) Surveying Engineering; 3) Architectural Engineering. To become area creative solvers of infrastructure challenges in the modern world, students of Civil Engineering take a diverse set of courses in structural design, geotechnical analysis, transportation systems, materials science, construction practices, environmental solutions, and water resources development. Architectural Engineering students seek to become experts in the technical aspects of architecture, including the structural integrity of buildings and the comfort and health of building occupants. On the other hand, students of Surveying Engineering are trained to develop and operate systems for collecting and analyzing spatial information about the land, the oceans, natural resources, and man-made features. Students in all three fields need to pass 140 credit hours, which typically takes 4 years, before graduation.



Graduate Programs

At BNUT, a variety of graduate degree programs are offered in both M.Sc. and Ph.D. levels. Graduate students of Civil Engineering may choose among the eight major fields of 1) Structural Engineering; 2) Earthquake Engineering; 3) Geotechnical Engineering; 4) Highway and Transportation Engineering; 5) Marine Structures Engineering; 6) Hydraulic Structures Engineering; 7) Environmental Engineering; and 8) Construction Management. A master's degree program is also offered in Photogrammetry for the graduates of Surveying Engineering.) Completing a master's degree program requires taking a minimum of 26 credit hours as well as completing a master's research thesis that is equivalent to 6 additional credit hours. Ph.D. students take 12 credit hours of courses as a minimum and complete a research thesis equivalent to 24 credit hours before they graduate. Our M.Sc. and Ph.D. programs typically take 2 and 4 years, respectively. Our forward-looking faculty members choose research topics for our highest quality graduate students not only to address the most pressing needs of the modern infrastructure in the national and global scales but also to develop future leaders who can creatively investigate and resolve the potential challenges of the society in the future.

Career Opportunities for Civil Engineers

Civil engineers are global leaders in building a better life for humankind. They have a variety of opportunities to work in the private sector at consulting or construction firms or for public organizations that are part of governments. Some civil engineers choose careers in design, construction, or teaching while others hold supervisory or administrative positions. Because of their diversified technical skills, many civil engineers have entrepreneurial opportunities.



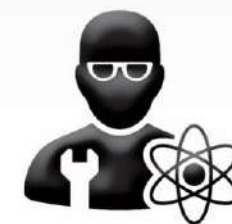
Research Labs

- Environmental Engineering Research Lab
- Soil Mechanics and Geotechnical Earthquake Engineering Research Lab
- Structural and Earthquake Engineering Research Lab
- Three Dimensional Laser Scanning System for Illumination of Fluid Flow (Air and Water) Research Lab



Teaching-Only Labs

- Soil Mechanics Lab
- Construction Materials Lab
- Geomatics Lab
- Land Surveying Lab
- Hydraulics Lab
- Concrete Technology Lab





Faculty of Mechanical Engineering

Introduction

The Mechanical Engineering Faculty of Babol Noshirvani University of Technology was established in 1973 with the undergraduate program. With over 40 years of activities and elaborated efforts in attraction of highly qualified faculty members and efficient students along with provision of proper infrastructure in line with educational and research facilities, the faculty has achieved a significant position in the country as well as the region. Presently the Mechanical Engineering Faculty provides many degree programs in a wide range of technology fields such as Applied Design, Energy Conversion, Manufacturing and Marine Engineering, in different levels of undergraduate and graduate programs.

Number of Faculty Members

Professors	Associate Professors	Assistant Professors	Instructor
7	14	11	2

Students (as of Autumn 2020)

Undergraduate	Master's	Ph.D.
649	264	97



Website: <https://mec.nit.ac.ir>

Email: mecdept@nit.ac.ir

Telephone number: +98 11 32334205

Fax number: +98 11 32312268

Address: Mechanical Engineering Faculty,
Babol Noshirvani University of technology, Shariati
Ave., Babol, Iran.
P.O. Box: 47148-71167



Undergraduate Program

The Mechanical Engineering faculty offers a comprehensive program to provide an excellent educational experience for students. Three different programs are delivered in Mechanical Engineering faculty, including Mechanical Engineering, Manufacturing Engineering and Naval Engineering. The curriculum of Mechanical Engineering program emphasizes on a rigorous application of mathematical and scientific approach to the solution of engineering problem and relevant mechanical system design. The B.Sc. of Mechanical engineering program is composed of 140 credit hours including theoretical and practical courses, internship and final research project. While 120 credits are mandatory for all undergraduate students, they are free to choose the remaining 20 credits based on selective courses in thermoscience, fluid mechanics, heat transfer, solid mechanics, dynamic and vibrations, control and mechatronics, manufacturing engineering and automotive engineering disciplines.



Graduate Program

The graduate program covers both M.Sc. and Ph.D. degrees. The master's students have to complete 32 credits hours including a research project of 6 credits as their final thesis, eight theoretical courses and a presentation seminar of 3 credits. 4 different programs are offered in master's level including Energy Conversion, Applied Design, Manufacturing and Naval Architecture. Mechanical Engineering school as one of the well-known scientific centers in Iran, offers Ph.D. programs in three comprehensive disciplines of Energy Conversion, Applied Design and Manufacturing. Ph.D. students are required to complete 12 credit hours beyond their M.Sc. degree. Ph.D. candidates must successfully pass a qualifying exam and submit a comprehensive Ph.D. dissertation.



Graduate Research Areas

- Applied Design
 - Solid Mechanics
 - Dynamics and Vibration
 - Control, Robotics and Mechatronics
- Energy Conversion
 - Thermal Science
 - Fluid Mechanics
 - Heat Transfer
 - Application of Numerical Methods in Engineering
- Manufacturing
 - Metal Forming
 - Computer Numerical Control
 - Hydraulics and Pneumatics
- Naval Architecture and Ship Structure



Research Labs

- Advanced Material Forming Research Lab
- Biomechanics Research Lab
- Control, Mechatronic and Aerospace Research Lab
- Hydrodynamics and Propulsion Research Lab
- Microfluidics and MEMs Research Lab
- Micro-Nanosystems and Applied Biophysics Research Lab
- PEM Fuel Cell Research Group
- Renewable Energy Systems and Nanofluid Applications in Heat Transfer Research Lab
- Robotics Research Lab
- Thermotronics Research Lab



Career Opportunities for Mechanical Engineering

Mechanical engineering is one of the broadest engineering fields. Mechanical Engineers work on different aspects of a system which operates based on material and energy. They design, develop tests and manufacture devices and machines ranging from precise medical instruments to automotive systems and power plants. The graduates of Mechanical Engineering can find a broad job market in energy, oil and gas, automotive, aerospace, marine systems, air conditioning, manufacturing, robotics and similar sectors. They can take role on different stages of value chain as a design engineer, test engineer, production engineer, technical services engineer or in management of engineering processes.





“Stay strong. Focus on the ultimate goal.”

Faculty of Chemical Engineering

Introduction

Chemical engineering concerns the design, simulation, scale-up, and finally, operation of chemical processes (i.e., oil and gas, separation, catalytic, biotechnology, nanotechnology), and also consideration and proposal of new technology-valuable materials.

The Chemical engineering Faculty provides the best to prepare and educate each student to be a leader and problem-solver for industry, academia, or the public sector.

Number of Faculty Members

Professors	Associate Professors	Assistant Professors	Lecturers
5	7	8	1

Students (as of Autumn 2020)

Undergraduate	Master's	Ph.D.
396	220	70



Website: <https://che.nit.ac.ir/>

Email: che@nit.ac.ir

Telephone number: +98 11 3233 4204

Fax number: +98 11 3236 7975

Address: Chemical Engineering Faculty,
Babol Noshirvani University of Technology,
Shariati Ave., Babol, Iran.
P.O. Box: 47148-71167

Undergraduate Program

The Chemical engineering faculty offers a comprehensive program for graduate degree (B.Sc.) in chemical engineering. All B.Sc. students must complete 140 credit hours, which include a final research project equivalent to 3 units. This degree is for students who seek a broad education in the application of chemical engineering to a variety of specific areas, including energy and the environment, nanotechnology, polymers and colloids, catalysis and reaction engineering, systems and process design, and biotechnology.



Graduate Program

The Chemical Engineering Faculty offers a comprehensive program for both graduate degrees (i.e., M.Sc. and Ph.D.) in progressive areas of chemical engineering. All M.Sc. students must complete a minimum of 32 credit hours, which include a research project equivalent to 6 units as their M.Sc. thesis. Ph.D. students are required to complete a minimum of 12 credit hours beyond their M.Sc. degree. Ph.D. candidates must also pass a qualifying exam and submit a comprehensive Ph.D. thesis.



Graduate Research Areas

- Separation Process Engineering
- Process Design Engineering
- Biochemical Engineering and Biotechnology
- Thermo-kinetics Catalyst and Reactor Design





Career Opportunities for Chemical Engineering

Chemical Engineers can use their knowledge and expertise in a widespread range of industrial plants. Wherever a chemical process is taking place on a large scale, a chemical engineer needs to be present to oversee the process. Design and development of such processes and plants are also parts of their duty. With the technologies emerging every day, Chemical Engineers are needed more and more in multidisciplinary fields like Biomedical Engineering and Nanotechnology.

Research Institute and Labs

- Advanced Membrane Technology Research Lab
- Biofuel and Renewable Energy Research Lab
- Biotechnology Research Lab
- Catalysis and Porous Nanomaterials Research Lab
- Enhanced Oil Recovery and Gas Processing Research Lab
- Environmental Biotechnology Research Lab
- Membrane and Membrane Processes Research Lab
- Nano-Environment Research Lab
- Nanotechnology Research Institute
- Polymer Research Lab
- Process Design Engineering Research Lab
- Separation Process Research Lab
- The Unit Operations in Chemical Engineering Research Lab



Faculty of Materials and Industrial Engineering

Introduction

Whether you are seeking an undergraduate, master's or Ph.D. degree, you'll find people, resources and opportunities in the Faculty of Materials & Industrial Engineering to make your education here the most rewarding experience of your life!

The Faculty of Materials & Industrial Engineering admits students in the following majors:

Number of Faculty Members

Professors	Associate Professors	Assistant Professors	Lecturers
1	6	9	0

Students (as of Autumn 2020)

Undergraduate	Master's	Ph.D.
379	149	22



Website: <https://mie.nit.ac.ir/>

Email: mie@nit.ac.ir

Telephone number: +98 11 3550 1800

Fax number: +98 11 3550 1802

Address: Faculty of Materials and Industrial Engineering,
Babol Noshirvani University of Technology,
Shariati Ave., Babol, Iran.

P.O. Box: 47148-71167

Department of Materials Engineering

The Materials Engineering Department was founded in 2011. Currently, the department has 8 academic members (5 associate professors and 3 assistant professors) and over 300 students. The department offers undergraduate and graduate degree programs leading to the degree of Bachelor of Science (B.Sc.) in Materials Engineering, the degrees of Master of Science (M.Sc.) in Identification and Selection of Materials, Nanotechnology Engineering-Nanomaterials, and Biomedical Engineering- Biomaterials and the degree of Ph.D. in Materials Engineering and Metallurgy. The students in the department follow essential program of core subjects in form of lectures and laboratory exercises on the relation between structures and properties of materials.



Department of Industrial Engineering

The Industrial Engineering (IE) Department is the home to three disciplines including Systems Optimization, Logistics and Supply Chain, and Healthcare Systems. The IE Department at the Babol Noshirvani University of Technology emphasizes excellence in education and research, while keeping in par with the growing technology. Due to favorable relative numbers of faculty and students, individual students receive personal attention. In our executive education programs, our distinguished faculty members share their experiences as thought leaders, researchers and practitioners to better prepare you to face and address the challenges of today and tomorrow. If you wanted to be an engineer, and also you are a people-oriented person, then you would want to consider being an Industrial Engineer, because industrial engineers are systems-integrators, interacting with all other types of engineers and non-engineers in diverse enterprises.





Research Labs

- Metallography Research Lab
- Metal Solidification Research Lab
- Non-Destructive Testing Research Lab
- Optimization Research Lab
- Simulation Research Lab

Career Opportunities for Materials Engineers

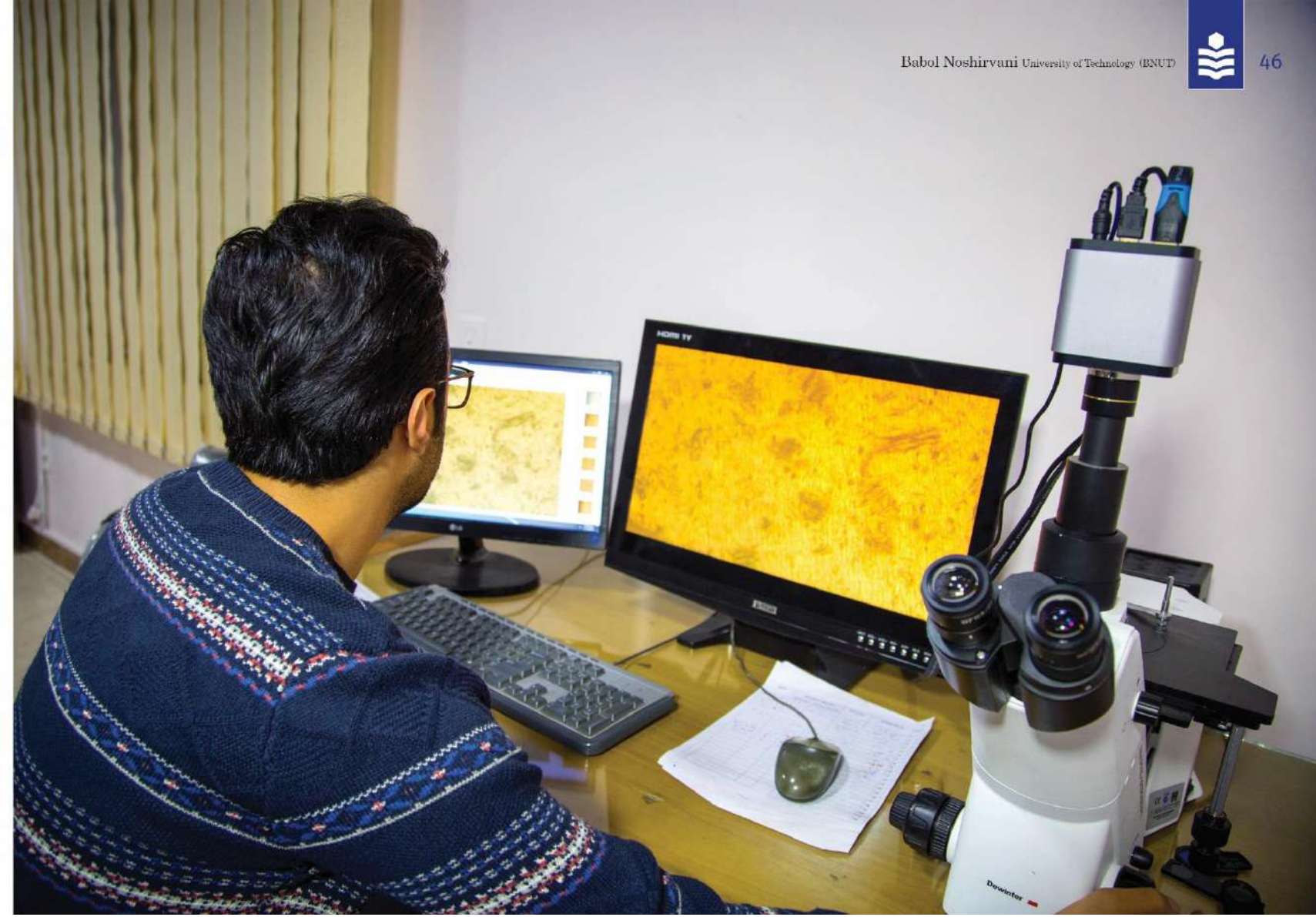
Research and development firms will increasingly employ materials engineers as they explore new uses for materials technology in consumer products, industrial processes, and medicine. Nowadays, materials engineers' expertise is crucial in helping biomedical engineers develop new materials for medical implants. Developments in the field of nanotechnology and in the use of biomedical materials, high-performance textiles, composites and sustainable materials, are also creating more job opportunities. Materials science and engineering graduates are employed in a range of sectors, including:

- aerospace
- pharmaceuticals
- automotive
- manufacturing
- oil and gas
- telecommunications.

Career Opportunities for Industrial Engineering

Industrial engineering is commonly defined as the integration of machines, staff, production materials, money, and scientific methods. While many current industrial engineers still deal with these areas, the scope of their work has become more general. Today's industrial engineers work in many more settings than just factories; in recent years, fields like energy and IT have become particularly reliant on the skills of industrial engineers. These flexible professionals may also be employed in:

- Transportation
- Food processing
- Hospitals and other health-care operations
- Banking
- Local, regional and national governments





*“We Are Always
Looking for
Motivated Students”*

Faculty of Basic Science Introduction

The Faculty of Basic Science offers undergraduate degree programs in mathematics and physics, master's degree programs in mathematics, physics and chemistry and Ph.D. programs in mathematics and physics. We have multidisciplinary research groups with close connections to partners from universities and industry to deepen and broaden knowledge in research and education. Our faculty is committed to imparting knowledge in pure sciences, which not only forms the foundation for further academic pursuits in science and technology but also acts as the foundation for students to pursue a career in research and higher-level teaching.

Number of Faculty Members

Professors	Associate Professors	Assistant Professors	Lecturers
0	9	18	0

Students (as of Autumn 2020)

Undergraduate	Master's	Ph.D.
244	136	4



Website: <https://bs.nit.ac.ir/>

Email: bs@nit.ac.ir

Telephone number: +98 11 3233 4203

Fax number: +98 11 3233 4203

Address: Basic Science Faculty,
Babol Noshirvani University of Technology,
Shariati Ave., Babol, Iran.

P.O. Box: 47148-71167

Undergraduate Program

The Basic Science Faculty offers a comprehensive program for the undergraduate degree (B.Sc.) in Mathematics & applications and Physics of engineering. All B.Sc. students must complete 140 credit hours, which include a final research project equivalent to 3 units.



Graduate Program

The Basic Science Faculty offers a comprehensive program for Master degrees (M.Sc.) in progressive areas of Pure and Applied Mathematics, Optics, Plasma physics, Elementary particle physics, Analytical and Organic chemistry. All M.Sc. students must complete a minimum of 32 credit hours, which include a research project equivalent to 6 units as their M.Sc. thesis.



Graduate Research Areas

- Department of Mathematics:

Analysis, Algebra, Graph Theory, Differential Geometry and Topology, Numerical Analysis, Operation Research, and Statistics

- Department of Physics:

Neurophysics, Condensed matter, Gravitational, Quantum Mechanics, and Atomic and Molecular Physics

- Department of Chemistry:

Electrochemistry, Synthesis of Organic Compounds, Green Chemistry, Physical and Quantum Chemistry, Chemometrics, Surface Chemistry, Polymer Chemistry, Reaction Kinetics, Theoretical Chemistry, Natural Products, and Material Science



Career Opportunities for Basic Science

We have close working relationships with many industrial and professional employers, which will prepare us for a career within the science field and beyond.



Research Labs

- Analytical and Organic Chemistry Research Lab
- Biophotonics Research Lab
- Neurophysics Research Lab



Pardis Campus

Pardis campus of BNUT is a sub-division faculty that admit graduate (M.Sc & Ph.D) students with the same curriculum. Pardis campus is committed to significantly increasing research-based graduate studies at the university.

Number of Faculty Members

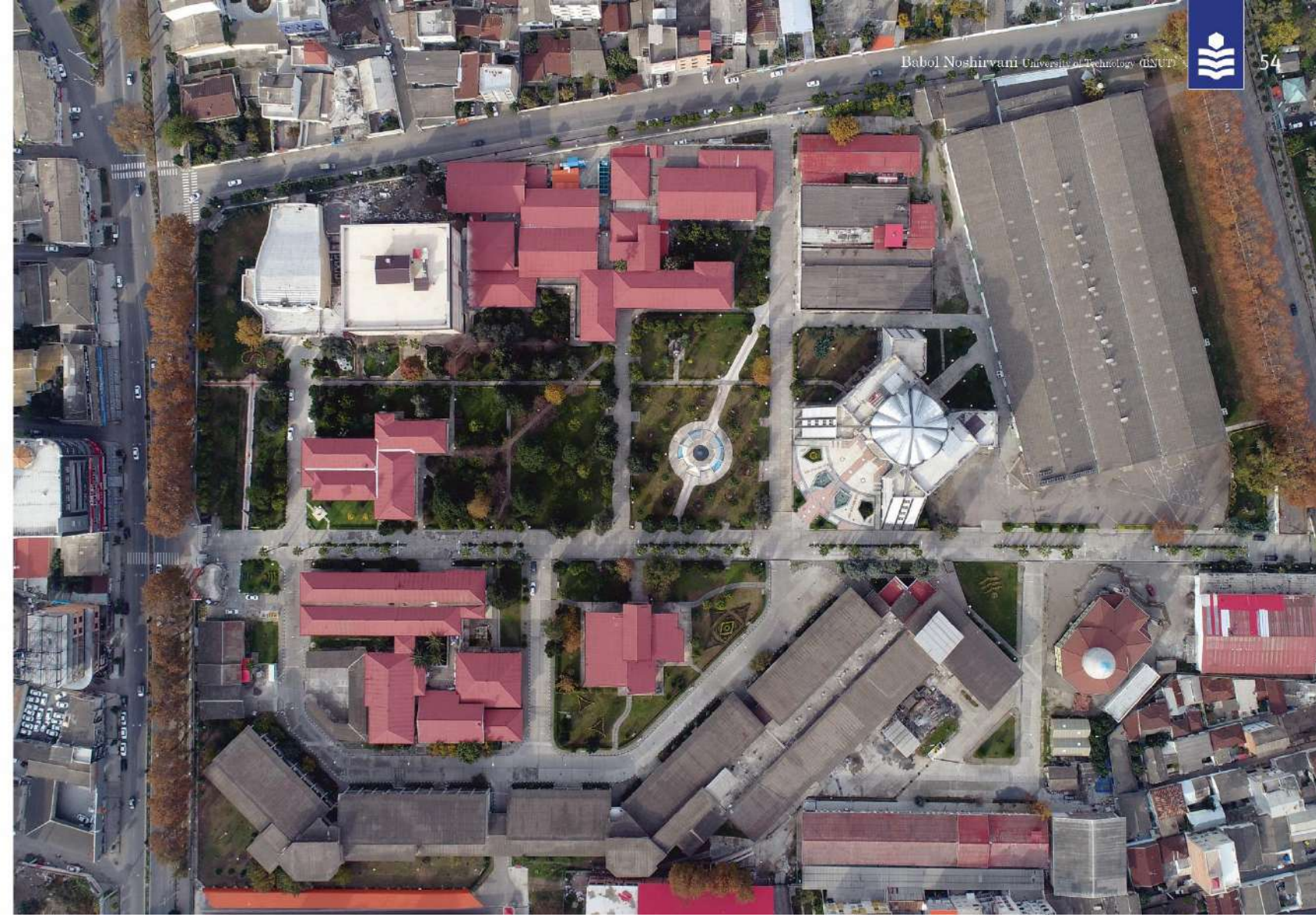
Professors	Associate Professors	Assistant Professors	Lecturers
0	9	19	1

Students (as of Autumn 2020)

Master's	Ph.D.
93	129



-  Website: pardis.nit.ac.ir
-  Email: pardis@nit.ac.ir
-  Telephone number: +98 11 3550 1074
-  Fax number: +98 11 3233 4201
-  Address: Pardis Campus,
Babol Noshirvani University of Technology,
Shariati Ave., Babol, Iran.
P.O. Box: 47148-71167



Research



*Electrical and Computer Engineering
Research Labs*



Dependable Computing Systems Research Lab.

Mission:

1. Digital Fault-Tolerant Systems
2. Dependable Storage Systems
3. Reliable and Secure Computing
4. Cryptographic Systems
5. Safety- or Mission-Critical Embedded Systems



No. of Graduate Students: 0



Achievements:

1. Multiple-Fault-Tolerant Adders
2. Reliable SSD-based Storage Systems
3. Fault-Tolerant Routing Algorithms for On-Chip Networks



Equipment:

1. PCs for hardware synthesis and simulation
2. Network equipment



Contact info:

Phone Number: +98 (11) 35501422
 Fax: +98 (11) 32339214
 Email: dcsrl@nit.ac.ir



Digital Signal Processing Research Lab.

Mission:

1. Signal processing
2. Speech processing
3. Image processing
4. Biomedical signal processing



No. of Graduate Students: 25



Achievements:

1. MRI denoising
2. EEG denoising
3. Speech denoising



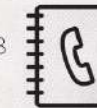
Equipment:

1. EEG registration
2. Computer



Contact info:

Phone number: +98 (11) 35501458
 Fax: +98 (11) 32339214
 Email: dspl@nit.ac.ir



Energy Conversion Research Lab.

Mission:

1. Design and Prototyping of Electrical Machines & Drives
2. Modeling and Analysis of Electrical Machines & Drives
3. Design and Prototyping of Electromagnetic Energy Conversion Systems
4. Power Electronics Converters
5. Energy Storage Systems
6. Electric Vehicles



No. of Graduate Students: 26

Achievements:

1. Design & Implementation of a Double Stator Flux Switching Motor
2. Design & Implementation of a Combined Vector Control and DTC Method for Synchronous Reluctance Motor Drive
3. Design & Implementation of a high-speed Reluctance Synchronous Motor
4. Design & Implementation of a High efficiency PM Synchronous Motor



Equipment:

- | | |
|-------------------------------------|---------------------------------|
| 1. Electric Machine Drive System | 6. Electric Machines |
| 2. Digital Oscilloscopes | 7. Power Processors |
| 3. RLC Meters | 8. Variable Loads |
| 4. Digital Millimeters | 9. DC and AC Power Supplies |
| 5. Digital Signal Processors (DSPs) | 10. Voltage and Current Sensors |



Contact info:

Phone number: +98 (11) 35501465
 Fax: +98 (11) 32339214
 Email: ecrl@nit.ac.ir



High Voltage Research Lab.

Mission:

Studies on high voltage equipments (insulators, power cables, power transformers, surge arresters and ...)



No. of Graduate Students: 12

Achievements:

1. Research project in insulators
2. Research project in power cables
3. Research project in surge arresters



Equipment:

1. Ac high voltage generation and measurement systems
2. Dc high voltage generation and measurement systems
3. Impulse high voltage generation
4. Oscilloscope
5. Leakage current system



Contact info:

Phone number: +98 (11) 35501473
 Fax: +98 (11) 32339214
 Email: hvrl@nit.ac.ir



High Voltage Substations Research Group.

Mission:

1. Power System Control and Security
2. Power System Equipment Monitoring
3. Power Transformers Performance Improvement and Optimization
4. Transmission and Sub-transmission network loss reduction and load management
5. Expansion planning of Electric Power Transmission and Sub-transmission Systems



No. of Graduate Students: 22



Achievements:

1. Research project in regional power plant co.
2. Research project in regional electric companies
3. Research project in regional industries



Equipment:

1. PCs (personal computers)
2. Printer
3. Scanner



Contact info:

Home page: <https://hvsubs.nit.ac.ir>
 Phone number: +98 (11) 35501410
 Fax: +98 (11) 32339214
 Email: hvsubs@nit.ac.ir



Image Processing and Computer Vision Research Lab.

Mission:

1. Compressive Sensing
2. Image Fusion
3. Image Super Resolution
4. Visual Sensor Networks
5. Manifold Learning



No. of Graduate Students: 40



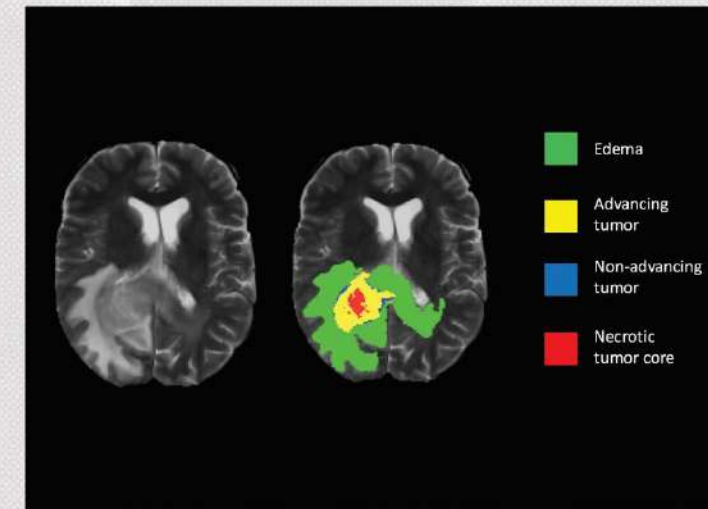
Achievements:

1. CNNs hard voting for multi-focus image fusion
2. Ensemble of CNNs for Multi-Focus Image
3. Image/Video Compressive Sensing Recovery
4. Compressive Sensing Image Restoration



Equipment:

1. Computers with Enhanced Graphic Cards
2. Digital Video Cameras
3. Video Wireless Sensors



Contact info:

Phone number: +98 (11) 35501412
 Fax: +98 (11) 32339214
 Email: ipcvgl@nit.ac.ir



Intelligent System and Nano Devices Research Group.

Mission:

1. Complex Order Fractional Order Controller
2. Chaotic Systems
3. SCDES (Supervisory Control of Discrete Event Systems)
4. BoiMEMs and RFMEMs devices
5. Optoelectronic Nano-devices
6. Organic Solar cells



No. of Graduate Students: 47



Achievements:

1. Two Chapters in Books
2. A Paper with more than 800 citations.
3. Invention of High Sensitivity MEMS Capacitive Microphone



Equipment:

- | | |
|----------------------------------|-------------------------|
| 1. DAS (Data Acquisition System) | 7. Oxygen Plasma system |
| 2. Digital Oscilloscopes | 8. Mask Aligner |
| 3. RLC Meters | 9. Optical Microscope |
| 4. Digital Multi-Meters | |
| 5. Electric Motor and Drives | |
| 6. RF-Sputtering | |



Contact info:

Phone number: +98 (11) 35501451
 Fax: +98 (11) 32339214
 Email: isndrg@nit.ac.ir



Micro-Electronics Research Lab.

Mission:

1. Oscillators
2. PLL s
3. Transceiver RF front-end
4. Analog to Digital converters
5. Communication theory and applications



No. of Graduate Students: 35



Achievements:

- 1- New closed-form phase noise model for oscillators
- 2- Design of Ultra-Fast locking PLL
- 3- Design of Direct sequence spread spectrum transceiver



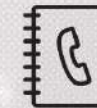
Equipment:

1. Digital processing module including FPGA, General purpose processors, A/D and D/A converter for implementing radar, baseband communication, software defined radio, etc.
2. A high-performance server supporting the below software:
 - Cadence
 - Sonnet
 - Matlab
 - ADS
 - Hspice



Contact info:

Phone number: +98 (11) 35501480
 Fax: +98 (11) 32339214
 Email: mel@nit.ac.ir



Power Electronics Research Lab.

Mission:

1. High Frequency DC-DC Converters
2. Multi-level Inverters
3. Pulsed Power Inverters
4. Renewable Energy
5. Multi-Level Multi-Port Converters



No. of Graduate Students: 33



Achievements:

1. Design & Implementation of a Multi-Level Multi-Port Dc-Dc Converter.
2. Design & Implementation of a High-Power Factor LED driver.
3. Design & Implementation of a Voltage Multiplier Topology for Pulsed Power Supply.



Equipment:

- | | |
|-------------------------------------|---------------------------------|
| 1. Power Analyzers | 7. AVR Microcontrollers |
| 2. Digital Oscilloscopes | 8. Power Processors |
| 3. RLC Meters | 9. Variable Loads |
| 4. Digital Multimeters | 10. Power Supplies |
| 5. Digital Signal Processors (DSPs) | 11. Voltage and Current Sensors |
| 6. Electric Motor Drives | 12. Gate Drivers |



Contact info:

Phone number: +98 (11) 35501461
 Fax: +98 (11) 32339214
 Email: perl@nit.ac.ir



Power System Engineering Research Lab.

Mission:

1. Power System Dynamics
2. Power System Transients
3. Distributed Generation Impacts on Power System
4. Micro-Grids Operation and Control
5. Smart Grids and Smart Micro-Grids



No. of Graduate Students: 15



Achievements:

1. Research project in regional power plant
2. Research project in regional electric company
3. Research project in regional industries



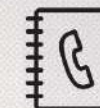
Equipment:

1. PCs (personal computers)
2. Printer
3. Scanner



Contact info:

Phone number: +98 (11) 35501482
 Fax: +98 (11) 32339214
 Email: pserl@nit.ac.ir



Radar and Sonar Research Lab.

Mission:

1. Radar and Sonar systems
2. Electromagnetism
3. Antenna Systems
4. Microwave Systems
5. Wireless Sensor Networks



No. of Graduate Students: 25



Achievements:

1. RCS, IR, Optic and Acoustic Stealth Vessels Design, 2010.
2. Design and Implementation a UHF Plasma Antennas, 2012.
3. Calibration X-Band Active Phased Array Radars, 2013.
4. Design and Implementation a Buoyant Antenna System for Submarine, 2014.
5. Acoustic Signatures Data Extraction, 2012



Equipment:

1. Sweep Function Generator 40MHz
2. Microwave Signal Generator 10Hz-20GHz
3. Spectrum Analyze 9KHz-22GHz
4. 9.4GHz Antenna test setup



Contact info:

<http://member.nit.ac.ir/home.php?sp=388008>
 Phone number: +98 (11) 35501462
 Fax: +98 (11) 32339214
 Email: rsrl@nit.ac.ir



Robotic Research Lab.

Mission:

1. Robotics
2. Signal & Device Control
3. Telecontrol
4. Signal Processing
5. Signal Detection



No. of Graduate Students: 3



Achievements:

1. Master-slave manipulator matched with hand movements
2. Surface conversion to touch screen
3. Design and manufacturing of a jammer...



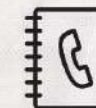
Equipment:

1. LEGO MINDSTORMS EV3 Robot Kit
2. Signal Generator
3. Oscilloscope
4. Raspberry Pi 3
5. Arduino uno



Contact info:

Phone number: +98 (11) 32303026
 Fax: +98 (11) 32339214
 Email: rrl@nit.ac.ir



Civil Engineering Research Labs



Environmental Engineering Research Lab.

Mission:

1. Water and wastewater
2. Microbiology
3. Soil
4. Petroleum Hydrocarbons
5. Desalination



No. of Graduate Students: 35



Achievements:

1. Microbial Desalination Cell
2. Synthesis of many Nanocatalyst
3. Biogas Production From sludge and solid waste degradation



Equipment:

1. GC with Flame Ionization Detector (Gc-FID)
2. Biochemical Oxygen Demand Analysis (BOD)
3. Chemical Oxygen Demand Analysis (COD)
4. UV Vis Spectrophotometer
5. Portable Equipmbe:
 - a. Dissolved Oxygen Analyzer
 - b. Conductivity Meter (EC Meters)
 - c. pH Meter
 - d. Turbidity Meter
6. Centerfuse



Contact info:

<https://www.nit.ac.ir>
 Phone number: +98 (11) 32331707,
 Fax: +98 (11) 32331707



Soil Mechanics and Geotechnical Earthquake Engineering Research Lab.

Mission:

1. Soil Improvement
2. Environmental Geotechnics
3. Geotechnical Earthquake Engineering
4. Geosynthetics technology
5. Static analysis of shallow and embedded foundations, pile groups and piled-rafts foundations



No. of Graduate Students: 13



Achievements:

1. Energy-based evaluation of liquefaction of fiber-reinforced sand using cyclic triaxial testing - Soil Dynamics and Earthquake Engineering - 2017
2. Stabilization of Clayey Soil using Lignosulfonate - Transportation Geotechnics - 2017
3. Physical modeling of behaviors of cast-in-place concrete piled raft compared to free-standing pile group in sand - Journal of Rock Mechanics and Geotechnical Engineering - 2018



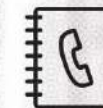
Equipment:

1. Equipment for determination of physical properties and classification of soils
2. Hydraulic conductivity test apparatus
3. Unconfined compression test apparatuses
4. Direct Shear test apparatus
5. Direct Large Shear box test apparatus
6. Consolidation test apparatuses (Manual and Automatic)
7. Triaxial test apparatuses (10kN)
8. Cyclic triaxial test apparatus (12kN)



Contact info:

<https://nit.ac.ir/~/Index.aspx?page=form&lang=1&sub=15&tempname=civil&code=6119&referrer=link>
 Tel: +981135501563
 Email: soillab@nit.ac.ir



Structural and Earthquake Engineering Research Lab.

Mission:

1. Structural Health Monitoring
2. Concrete-Filled Steel Composites
3. Structural Performance of Deteriorated Concrete Elements
4. Prestressed concrete
5. Behavior of Structural Elements at Elevated Temperatures
6. Innovative construction materials
7. Use of recycled/waste materials as construction materials



No. of Graduate Students: 15

Achievements:

1. Identification of different failure modes for concrete-filled steel composites
2. Development of numerical models for structural health monitoring of 3D space structures
3. Development of new mixtures for engineered cementitious composites
4. Identification of effects of Alkali-Silicate Reactions on Concrete Pavements



Equipment:

1. 120-square-meters strong floor
2. 40-ton Universal Testing Machine
3. 60-ton Universal Testing Machine
4. TML TMR 211 Datalogger
5. TML TDS 150 Datalogger
6. Variety of Enerpac hydraulic rams (capacity: up to 100 tons)
7. Variety of Instruments (Load cells and LVDTs)
8. Concrete batching and mixing equipment
9. 2400-Litre Large-Scale Electric Furnace for Elevated Temperature Testing.
10. Overhead Crane with the capacity of 10 tons.



Contact info:

<https://strlab.nit.ac.ir/>
Tel: +98 11 3550 1574
Email: hhousefpour@nit.ac.ir



Three-Dimensional Laser Scanning System for Illumination of fluid flow (air and water) Research Lab.

Mission:

1. Wastewater discharge laboratory study using 3D laser-induced Fluorescent system,
2. Planar laser-induced fluorescence for Turbulent flow simulation
3. Marine deep intake laboratory simulation and modeling
4. Smoke and air flow 2D and 3D simulation and modeling
5. Green building and indoor airflow simulation
6. Two-dimensional Particle Image Velocimetry



No. of Graduate Students: 6

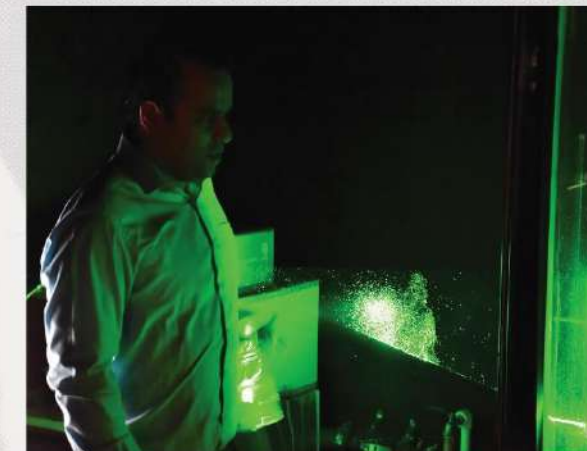
Achievements:

1. Publishing several papers in the prestigious journal
2. Writing a chapter for sustainable desalination handbook, Elsevier, 2018
3. Developing experiments for 4 Master thesis



Equipment:

1. Greenlight Laser
2. CCD high-speed Camera
3. Oscillating Mirrors
4. The Fluorescent dye injection system
5. Smoke generator
6. Controlling software
7. Visual processing software



Contact info:

<https://www.nit.ac.ir/index.aspx?tempname=civil2&lang=2&sub=44>
Email: Oabessi@nit.ac.ir
Tel: +989111146756



*Mechanical Engineering
Research Labs*

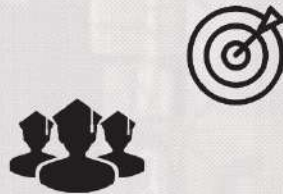


Advanced Material Forming Research Lab.

Mission:

hydroforming, sheet metal forming, deep drawing, incremental forming, super-plastic forming

No. of Graduate Students: 65



Achievements:

1. AM Strickland prize, IMechE, UK, 2008
2. More than 200 journal papers
3. International collaboration with universities



Equipment:

- 1- A 600 kN DMG (Dension & Mayes Group) universal testing machine
- 2- SFGCO Electromagnetic Forming Machine
- 3- ND:YAG (PMT4297) 400 W Laser Machine
- 4- SFGCO Electroplastic Machine



Contact info:

Tel: +98 (11) 32334205 (Tel)
Tel: +98 (11) 32312268 (Fax)
bakhshi@nit.ac.ir
Email: hamidgorji@nit.ac.ir
Email: s-nourouzi@nit.ac.ir



Biomechanics Research Lab.

Mission:

1. Rehabilitation Technologies
2. Musculoskeletal Modeling & Simulation
3. Bone Scaffold Engineering
4. Medical Patient Lift Technologies
5. Orthopedic Biomechanics



No. of Graduate Students: 7



Achievements:

1. Implementing a stiffness controlled transtibial prosthesis, A. M. Goudarzi, M. Fazeli (Fig 1)
2. Implementing an active knee orthosis constrained by coil spring A.M. Goudarzi, R.Sameri (Fig 2)
3. Implementing an actuated series elastic knee orthosis, A.M. Goudarzi, R. Babaei(Fig 3)
4. Implementing a compliant joint Knee Foot Orthosis, A.M. Goudarzi, Y. Onagh (Fig 4)



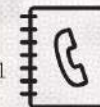
Equipment:

1. Biomechanical modeling software
2. Computers with data acquisition, control, and data analysis capabilities
3. Equipment for Exoskeleton Prototyping



Contact info:

Tel: (+98 11) 32332071



Control, Mechatronic and Aerospace Research Lab.

Mission:

1. Design and fabrication of quadcopter
2. Design and fabrication of balloon for forest monitoring
3. Design and fabrication of BLDC electric motor for aerospace applications
4. Design, fabrication and development of CNC machines.
5. Design and built long range fixed wing UAVs



No. of Graduate Students: 14



Achievements:

1. Multirotor autopilot design.
2. Design and built 3d printer and PCB CNC machines.
3. Micro Aerial Vehicles development .



Equipment:

- 1- 3d printer
- 2- Programmable power supply
- 3- Autopilot systems
- 3- Development boards(Arduino)
- 4- 100 w Co2 laser system



Contact info:

fathi@nit.ac.ir
Email: mehردادr123@gmail.com



Hydrodynamics and Propulsion Research Lab.

Mission:

1. Sea-based energies
2. High-speed boats
3. Marine propulsion
4. Internal combustion Engines
5. Water distribution systems



No. of Graduate Students: 14



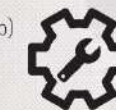
Achievements:

1. Lab-on-chip (LOC) for CTC cell separation from whole blood
2. Microchannel design and fabrication
3. Design of clean-room



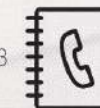
Equipment:

1. Wave Tank (3×3×11 m)
2. Towing tank (3×3×35 m)
3. Free Surface Water Tunnel (0.45×0.3 m and 7 m/s)
4. Internal Combustion Engines Research Laboratory (<100 Hp)
5. Low Speed Wind Tunnel (0.4×0.4 m and 10 m/s)
6. Electrical Power Measurements Facility
7. Manufacturing Workshop



Contact info:

<https://darya.nit.ac.ir/>
Phone number: +98(11)35501393
Email: darya@nit.ac.ir



Microfluidics and MEMs Research Lab.

Mission:

1. Cell/Particle Separation (Acoustophoresis, Dielectrophoresis (DEP), Inertial and elasto-inertial Microfluidics)
2. Electrothermal
3. Water desalination
4. Fabrication and photolithography
5. Numerical Simulations and applications



No. of Graduate Students: 9



Achievements:

1. Lab-on-chip (LOC) for CTC cell separation from whole blood
2. Microchannel design and fabrication
3. Design of clean-room



Equipment:

1. AC Function generator to generate different types of electrical waveforms over a wide range of frequencies.
2. Microscope and high-speed camera to visualization, this high-speed microfluidic camera is a color camera embedding the last Basler technologies to give high resolution images with high frame rate (750 fps).
3. Hot plate to bake SU-8 photoresists for the fabrication of microfluidic mold.
4. Spin coater that is used in the photolithography of a microfluidic mold to coat a photoresist layer (such as SU-8) on a substrate.
5. UV exposure that is used in micro-fabrication to expose a layer of photoresist.
6. Mask aligner for aligning the photo mask on substrate.
7. Syringe pump to fluid injection in microfluidic systems.
8. Load cell to accurate measure very small Mass
9. MicroPipette to transfer small amounts (<1 ml) of liquids



Contact info:

<http://www.microfluidicseng.ir/>
Phone number: +98 (11) 35501320
Email: aramiar@nit.ac.ir



Micro- Nanosystems & Applied Biophysics Research Lab.

Mission:

1. Micro- Nanofluidics
2. BioMedical Engineering
3. BioMEMS & NEMS
4. Applied Biophysics
5. Micro-Nano Energy Systems



No. of Graduate Students: 4



Achievements:

1. Micro-Nanofluidic systems used for separation of different particles and cells
2. Separation, Isolation and Manipulation of gamete cells
3. Applying micro- nanoscale technologies in cancer studies



Equipment:

1. 3D Printer
2. High-speed camera
3. Microfluidic Systems
4. Particle Imaging Velocimetry (PIV) System
5. Optical Microscopes
6. RF & Acoustic Waves Systems



Contact info:

Tel: +981135501355
Email: miansari.83m@gmail.com



PEM Fuel Cell Research Group

Mission:

1. PEM fuel cell
2. Electrolyzer
3. Membrane Humidifier
4. Seam Welding for Bipolar plate
5. Enhancement on GDL for PEM Fuel cell
6. Vibration of Fuel cell for aerial application
7. Onboard Hydrogen Generation
8. Combine Heat and Power by PEM fuel cell



No. of Graduate Students: 19



Achievements:

1. Different Test station for different application
2. Micro Seam Welding apparatus
3. Onboard Hydrogen generation apparatus



Equipment:

1. Different types of electronic load with different capacities
2. PEM fuel cell test station
3. 3D printer
4. Micro Seam welding equipment
5. Brushless DC motor test station
6. Vibration test equipment
7. EIS Biologic



Contact info:

<https://pemfc.nit.ac.ir/>
Tel: +989113130015
Email: shakeri@nit.ac.ir



Renewable Energy Systems and Nanofluid Applications in Heat Transfer Research Lab.

Mission:

- 1- Renewable energy systems
- 2- Solar energy systems
- 3- Nanofluid
- 4- Computational Fluid Dynamic
- 5- Energy storage systems



No. of Graduate Students: 9



Achievements:

1. Heat transfer of nanoparticles employing innovative turbulator considering entropy generation, International Journal of Heat and Mass Transfer 136 (2019) 1233-1240
2. Application of Neural Network for estimation of heat transfer treatment of Al₂O₃- H₂O nanofluid through a channel, Computer Methods in Applied Mechanics and Engineering, 344 (2019) 1-12
3. Investigation of second law and hydrothermal behavior of nanofluid through a tube using passive methods, Journal of Molecular Liquids 269 (2018) 407-416



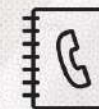
Equipment:

1. Parabolic solar collector
2. Flat-plate solar collector
3. Solarimeter
4. Flow meter
5. The software that is being used in lab:
 - a. ANSYS FLUENT
 - b. Fortran programming language
 - c. Solidworks
 - d. SolTrace



Contact info:

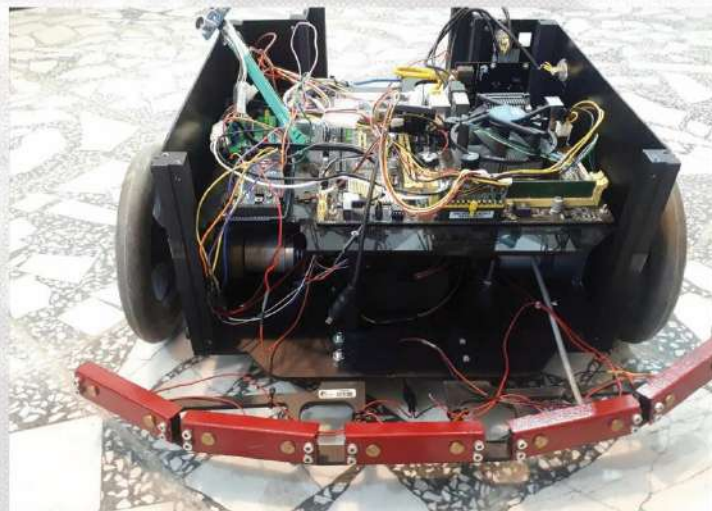
<https://www.nit.ac.ir>
Tel: +989113968030
Email: mohsen.sheikholeslami@nit.ac.ir



Robotics Research Lab.

Mission:

1. Trajectory tracking and control of a wheeled robots
2. Dynamic analysis and control of a cable robots
3. Design and workspace analysis of 6 DOF cable robots
4. Dynamic modeling and control of 6 DOF cable robots
5. Analysis of cable interference in cable robots



No. of Graduate Students: 3



Equipment:

1. Puma robots
2. Mobile walking robot
3. Cable robot



Contact info:

nit.ac.ir
Tel: 011-32334205
Email: mohammadi@nit.ac.ir
Email: mhghasemi@nit.ac.ir



Thermotronics Research Lab.

Mission:

1. Mechatronics
2. Automotive Mechatronics
3. Thermotronics (Modeling and control of Thermo fluidic systems)
4. Control of gas turbines
5. Modeling and control of internal combustion engines



No. of Graduate Students: 4



Achievements:

1. Design and development of a mini turbocharged jet engine
2. Development of the antilock brake system (ABS) HIL simulation test bench
3. Development of internal combustion engine dynamic test cell



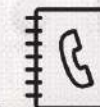
Equipment:

1. Antilock brake system (ABS) HIL simulation test bench
2. One-cylinder gasoline engine test bench
3. Mini turbojet test bench
4. Oscilloscope, function generator, DC supply and bench multimeter
5. USB DAQ
6. PCI DAQ
7. Automation simulation bench



Contact info:

Thermotronics lab., BNUT, Shariati Ave., Babol-Iran
Tel: +98 (11) 35501348
Email: nikzadfar@nit.ac.ir





“Our ambitious faculty members are outstanding researchers, enthusiastic teachers, and awesome friends for you.”



*Chemical Engineering
Research Labs*



Advanced Membrane Technology Research Lab.

Mission:

1. Membrane for water and wastewater treatment (MD, UF, NF)
2. Membrane for gas separation process (membrane contactor)
3. Membrane for fuel cell application
4. Modification of polymers for fabrication of membrane
5. Combination of membrane technology with other technologies (such as adsorption)
6. Fabrication of various hollow fiber and flat sheet membranes



No. of Graduate Students: 9



Achievements:

1. Membrane distillation system for production of high purity water
2. Treatment of different wastewaters such as oily water, whey etc.
3. Fabrication of different hollow fiber membranes for various applications



Equipment:

- | | |
|-----------------------------------|---|
| 1. Electrospinning machine | 9. Multimeter (pH, TDS, conductivity) |
| 2. Contact angle measurement | 10. Water heater/cooler |
| 3. GC | 11. Oven |
| 4. Spectrophotometer | 12. Vacuum oven |
| 5. UF membrane test system | 13. Furnace |
| 6. Membrane contactor test system | 14. Mixer |
| 7. Membrane distillation system | 15. Common lab equipments such as hood, bain-marie, heater-stirrer etc. |
| 8. NF membrane test system | |



Contact info:

Tel.: 0098 912 526 5739

Email: ghr_bakeri@yahoo.com; bakeri@nit.ac.ir



Biofuel and Renewable Energy Research Lab.

Mission:

1. Microbial fuel cell
2. Biosensor
3. Tissue engineering
4. Biological synthesis of nanomaterials
5. Production of biosurfactants



No. of Graduate Students: 25



Achievements:

1. Construction of various microbial and sedimentary fuel cell
2. Construction of new electrodes, including composite and polymer electrodes
3. Construction of different biosensors



Equipment:

- | | |
|--|--|
| 1. Potentiostat / galvanometer (Ivium) | 13. Laboratorial fume hood |
| 2. Digital weigh indicator | 14. Biological fume hood |
| 3. Rotary evaporator | 15. Autoclave |
| 4. Centrifuge | 16. Germinator |
| 5. Refrigerator centrifuge | 17. Oven |
| 6. pH meter | 18. Potentiostat / galvanometer (SAMA) |
| 7. Shaker Incubator | 19. Circulator |
| 8. Incubator | 20. Digital data logger |
| 9. Spectrophotometer | |
| 10. Microscope | |
| 11. Ultrasonic cleaner | |
| 12. COD meter | |

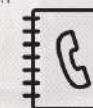


Contact info:

Biofuel & Renewable Energy Research Center,
Faculty of Chemical Engineering, Babol-
Noshirvani University of Technology, Babol, Iran

Web page : BFC.nit.ac.ir

Email: rahimnejad@nit.ac.ir



Biotechnology Research Lab.

Mission:

1. Environmental biotechnology
2. Microbial fuel cell
3. Fermentation process
4. Biological sensors
5. Food and drug technology



No. of Graduate Students: 24



Achievements:

1. Membrane casting machine
2. Upflow anaerobic bioreactor
3. Quadratic chamber desalination Fuel Cell



Equipment:

1. HPLC
2. GC
3. Potentiostat
4. Membrane casting machine
5. Ultrasonic
6. Rotary evaporator
7. Microwave
8. UV-Vis spectroscopy
9. Subcritical Water extraction



Contact info:

Biotechnology Research Lab., Shaariati st. Babol Noshirvani
University of Technology, Babol, Iran.
Tel: +981132310975
Email: najafpour@nit.ac.ir



Catalysis and Porous Nanomaterials Research Lab.

Mission:

1. Catalysis
2. Kinetics and reactor design
3. Hydrogen production and purification
4. Methanol to olefins
5. Isomerization
6. Biodiesel
7. Molecularly imprinted polymers



No. of Graduate Students: 20



Achievements:

1. Steam reforming of alcohols in microchannel reactors
2. Catalytic conversion of methanol to hydrocarbons over mesoporous ZSM-5 and SAPO-34 zeolites
3. Fast and selective separation of heavy metal ions using magnetic ion-imprinted polymers



Equipment:

- | | |
|---------------------------|-------------------------------|
| 1. Cata test | 12. Double distillation water |
| 2. Gas chromatograph (GC) | 13. Mixer |
| 3. Viscometer | 14. Vacuum oven |
| 4. Calcination furnace | 15. Pump |
| 5. Ultrasonic | 16. UV analyzer |
| 6. Universal centrifuge | 17. Air compressor |
| 7. Microwave | 18. Stirrer |
| 8. Oven | 19. Circulator pump |
| 9. Sieve shaker | |
| 10. pH meter | |
| 11. Rotary evaporator | |



Contact info:

Email: taghizadeh@nit.ac.ir



Enhanced Oil Recovery & Gas Processing Research Lab.

Mission:

1. Enhanced oil recovery
2. IFT and wettability measurement
3. Super critical fluid extraction
4. Gas separation and processing
5. Membrane separation technology



No. of Graduate Students: 16



Achievements:

- 1- Synthesis and performance evaluation of membranes for gas separation
- 2- IFT analysis for different application
- 3- Enhanced oil recovery process
- 4- Filtration and desalination processes
- 5- Pinch/Exergy analysis of process



Equipment:

- | | |
|--|------------------------------|
| 1. Core-Flood setup | 8. Dead-End filtration setup |
| 2. High pressure IFT | 9. Oven |
| 3. Low pressure IFT | 10. Stirrer |
| 4. Contact angle setup | |
| 5. Porosity meter | |
| 6. Supercritical setup | |
| 7. Constant volume/varying pressure gas permeation setup | |



Contact info:

<https://www.nit.ac.ir>

Phone number: +98 (11) 32331707, Fax:

Tel: +98 (11) 32331707

Email: abedini@nit.ac.ir,

Email: m.lashkarbolooki@nit.ac.ir



Environmental Biotechnology Research Lab.

Mission:

1. Biological wastewater treatment
2. Making Nano emulsion for food industry
3. Making Nano particle for drug delivery industry
4. Making Nano particle as antibacterial function
5. Air pollution treatment



No. of Graduate Students: 10



Achievements:

1. Clove oil nanoemulsion as an effective antibacterial agent: Taguchi optimization method, Desalination and Water Treatment
2. Treatment of a low-strength bilge water of Caspian Sea ships by HUASB technique, Ecological Engineering journal
3. Treatment of paper-recycling wastewater by electrocoagulation using aluminum and iron electrodes, Journal of Environmental Health Science and Engineering
4. A comparative study of the anaerobic baffled reactor and an integrated anaerobic baffled reactor and microbial electrolysis cell for treatment of petrochemical wastewater, Biochemical Engineering Journal



Equipment:

- | | |
|------------------------------------|---------------|
| 1. Ultrasonic homogenizer – UP 400 | 6. Autoclave |
| 2. Spectrophotometer | 7. Centrifuge |
| 3. Shaker | 8. Oven |
| 4. Biological hood | 9. Furnace |
| 5. Chemical hood | |



Contact info:

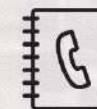
Babol Noshirvani university of technology
Internal Tel. Nr.:1612 & 1503

Tel: 011-355011503

Tel: 011-35501612

Tel: 09113120630

Email: m.hosseini@nit.ac.ir



Membrane and Membrane Processes Research Lab.

Mission:

- 1-Membrane distillation
- 2-Membrane bio-reactor
- 3- Gas separation
- 4- Waste water treatment
- 5- Forward Osmosis



No. of Graduate Students: 10



Achievements:

- 1-Synthesis of novel membranes for gas separation
- 2-Fabrication of new types of membrane for FO
- 3- Design of hybrid FO-MBR process
- 4- Synthesis of super-hydrophobic membranes for desalination



Equipment:

1. Micro centrifuge
2. Gas chromatography
3. Electrospinning apparatus
4. UV- spectrophotometer
5. BOD and COD reactor
6. Oven/furnace
7. Gas membrane separation set-up
8. Vacuum pump
9. pH/conductivity meter



Contact info:

<https://www.nit.ac.ir>

www.armembranelab.com

Email: ahmadrahimpour@nit.ac.ir



Nano-Environment Research Lab.

Mission:

1. Filtration by membrane (adsorptive membrane; membrane distillation, thin film composite membrane; dynamic membrane; ultrafiltration membrane)
2. Water desalination and purification
3. Wastewater treatment.
4. Advanced oxidation and photo-catalysis reaction
5. Atomistic simulation by density functional theory



No. of Graduate Students: 5



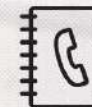
Achievements:

1. Chromium removal from tannery wastewater by Dynamic membrane.
2. Design and fabrication of units for landfill leachate (anjilci babol)
3. Co- digestion of septage and domestic wastewater by membrane bio-reactor



Contact info:

Email: majidpeyravi@nit.ac.ir



Nanotechnology Research Institute

Mission:

1. New nanoparticles wait to release drugs, target infection
2. Water softening, water and wastewater treatment
3. Synthesis and evaluation of different kinds of membrane as well as operation of membrane process
4. Fabrication of nano-biosensors for different gas and liquid detection
5. Nanocalculation by mathematical methods such as Density Functional Theory



No. of Graduate Students: 10



Achievements:

1. Fabrication and modulation of nanofiltration membrane in bench scale.
2. Full scale landfill leachate treatment (Kisar of Sari and Anjilci of Babol)
3. Design and Fabrication of gasifier in bench scale.



Contact info:

Babol Noshirvani university of technology
 Tell: +981132320342
 Email: nano@nit.ac.ir



Polymer Research Lab.

Mission:

1. The production of polymer dyes with very good anti-corrosion properties.
2. Synthesis of conductive polymers such as polyaniline, polypyrrole, polythiophene, polyacrylonitrile, polystyrene, polyvinyl acetate, polyhydantoin and poly dopamine by chemical, electrochemical and colloidal methods.
3. Structural and electrochemical, photocatalytic and photochemical properties of Nanocomposites.
4. Application of different nanocomposites in the removal of gram-positive and gram-negative bacteria.
5. Study of the loading, toxicity, absorption and release of polymer nanocarticles



No. of Graduate Students: 8



Achievements:

1. Application of polyrhodanine modified multi-walled carbon nanotubes for high efficiency removal of pb(II) from aqueous solution
2. Synthesis and characterization of polymer-based magnetic nanocomposite with uniformly distributed hematite nanoparticles on the Surface of polystyrene aromatic compound
3. Antibacterial surface modified of novel nanocomposite sulfonated polyethersulfone/polyrhodanine membrane



Equipment:

- | | |
|-------------------------|---------------------------------|
| 1. Digital scale 4 zero | 9. Furnace |
| 2. Digital scale 3 zero | 10. Autoclave |
| 3. Magnetic stirrer | 11. Sterilized autoclaves |
| 4. PH meter | 12. Vacuum pump |
| 5. Shaker | 13. Pervasive pump |
| 6. Ultrasonic | 14. Reactor under visible light |
| 7. Centrifuge machine | 15. Spectrophotometry |
| 8. Oven | 16. Optical microscope |



Contact info:

Tel: +98 (11) 35501640
 Email: m.ghorbani@nit.ac.ir

Process Design Engineering Research Lab.

Mission:

1. Wastewater treatment
2. Drug delivery
3. Extraction
4. Nanofluid heat transfer
5. Fuel desulfurization



No. of Graduate Students: 12



Achievements:

1. Synthesis of bio-magnetic adsorbent.
2. Synthesis of nan-cellulose and evaluation of its application.
3. Heavy metal removal from aqueous solution by pectin.
4. Drug delivery by MOF.
5. Synthesis of zein based carrier for piperine delivery.



Equipment:

1. Oven
2. Ultrasonic cleaner
3. pH Meter
4. Furnace
5. Soxhlet
6. Vacuum pump
7. Digital weight indicator
8. Centrifuge
9. Magnetic stirrer



Contact info:

<https://www.nit.ac.ir>
 Tel: (+98)113550-1622
 Email: m.nikzad@nit.ac.ir
 Email: shabaniyan@nit.ac.ir



Separation Process Research Lab.

Mission:

1. Hydrogen purification and CO₂ capture
2. Pervaporation and liquid separation
3. Membrane technology and membrane bio-reactor
4. Nano-porous materials
5. Fuel-cell



No. of Graduate Students: 12



Achievements:

1. Hydrogen purification and CO₂ capture using MOFs
2. Industrial wastewater treatment using membrane bio-reactor and nano-porous materials
3. Fabrication of high-quality activated carbon driven from agricultural wastes



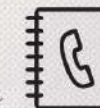
Equipment:

1. Uv-Vis Spectrophotometer
2. Oven Shaker Incubator
3. Horizontal Electric Furnace
4. Ultrasonic
5. Centrifuge
6. pH Meter
7. Dissolved Oxygen Analyzer



Contact info:

<http://www.nit.ac.ir>
 Tel: +98(11)32331664
 Email: aa.ghoreyshi.nit.ac.ir



The Unit Operations in Chemical Engineering Research Lab.

Mission:

1. Drying
2. Gas absorption
3. Ultrasonic applications
4. Extraction
5. Determination of thermodynamic properties



No. of Graduate Students: 4



Achievements:

1. Production of different simple and hybrid dryers such as fixed bed and fluidized bed convective-infrared-microwave dryers
2. Experimental study, modeling and determination of optimum conditions for drying process of important agricultural crops in the Northern part of Iran such as rice, citrus fruits, kiwi, tomato and so on.
3. Inventing an instrument for determination of sound velocity in liquids and experimental set-ups for ultrasonic extraction



Equipment:

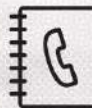
1. Spectrophotometer
2. Infrared drying
3. Gas solubility measuring device
4. Ultrasonic
5. Universal Centrifuge
6. Microwave
7. Oven
8. Moisture Analyzer
9. Water Bath
10. Microwave, infrared assisted fluidized bed mixed dryer
11. Convective, infrared assisted microwave mixed dryer
12. Tray dryer
13. Sieve shaker
14. Freeze dryer
15. PH meter
16. Rotary dryer
17. Distillation tower
18. Gas absorption & desorption unit
19. Cooling tower
20. Hot wire anemometer
21. Infrared psychrometer
22. Solid-liquid extractor



Contact info:

Phone number: +98 (11) 32332071 - 01135501666

Email: k-movaghar@nit.ac.ir



Materials and Industrial Engineering Research Labs



Metallography Research Lab.

Mission:

1. Evaluation of microstructure and microhardness of rolled metals



No. of Graduate Students: 35



Achievements:

1. Revealing the microstructure of aluminum alloys by new etchants



Equipment:

1. Optical Microscope OPLEUGER
2. Optical Microscope DEWINTER
3. Stereo Zoom Microscope DEWINTER
4. Microhardness KOOPA
5. Grinder/Polisher Machine BUEHLER



Contact info:

<https://www.nit.ac.ir>
Tel: +98 (11) 35501807
Fax: +98 (11) 35501802
Email: jamaati@nit.ac.ir



Metal Solidification Research Lab.

Mission:

1. Design and evaluation of heat resistant, wear resistant and high-performance alloy
2. Simulation of metallic material solidification in casting condition
3. Design and evaluation wear resistant metallic material such as: Steel, Cast Iron alloy and Aluminum.
4. Casting and solidification of iron and steel and aluminum alloy.
5. Heat treatment of steel and cast iron alloys



No. of Graduate Students: 6



Achievements:

1. Improvement of wear resistant characteristics of inlet and outlet diaphragms for ball mill.
2. Evaluation of microstructure and wear properties of dual-phase steel alloy.
3. Design and optimization of squeeze casting condition on microstructure and wear resistant characteristics of Al-Si alloy



Non-Destructive Testing Research Lab.

Mission:

1. Nondestructive evaluation of microstructure and hardness of steel and cast iron alloy
2. Nondestructive Evaluation of magnetic and electrical characteristics of metallic material
3. Detection of surface and internal defect such as crack and corrosion.
4. Design and evaluation life residual of metallic parts during work.
5. Detection thickness of the hardened layer and destructive phases.



No. of Graduate Students: 4



Achievements:

1. Nondestructive quality control of carbonitrided parts by eddy current
2. Nondestructive evaluation of steel profile's quality in production line
3. Microstructure and magnetic characterization of wear resistant steel by eddy current method



Optimization Research Lab.

Mission:

1. Optimization algorithms
2. Applied soft computing
3. Neural networks
4. Supply chain coordination
5. Designing applied mathematical models in:
 - a) Transportation
 - b) Energy
 - c) Supply chain management
 - d) IT-based business process reengineering
 - e) Production planning and scheduling



No. of Graduate Students: 20

Achievements:

1. Designing a supply chain network for municipal solid waste management
2. Designing a mathematical model for dental tourism supply chain management
3. Developing a solution approach for orienteering problem with sequence dependent scores



Equipment:

1. 10 computers with 2.4 GHz CPU and 4 GB of RAM
2. Optimization software: Lingo; GAMS; CPLEX
3. Other software: Minitab; MATLAB; Arena



Contact info:

Tel: +98 (11) 35501838
Email: e.asadi@nit.ac.ir



Simulation Research Lab.

Mission:

1. Simulation of discrete-event systems
2. Agent-based simulation
3. Monte Carlo simulation
4. Modeling and simulation of dynamic systems
5. Simulation based optimization



No. of Graduate Students: 10



Achievements:

1. Simulation-Optimization of the integrated production and distribution planning problem in the green closed loop supply chain
2. Agent based simulation of a supply chain with NetLogo
3. Modeling and simulation of a production line with Arena: FAZA company



Equipment:

1. 3 computers with 2.4 GHz CPU and 4 GB of RAM
2. Simulation and optimization softwares: Excel; Arena; NetLogo; Sigma; AnyLogic; MATLAB; GAMS; CPLEX,



Contact info:

<https://www.nit.ac.ir>
Tel: +98 (11) 35501819
Email: s_emami@nit.ac.ir





*Basic Science
Research Labs*

Analytical and Organic Chemistry Research Lab.

Mission:

1. Green Chemistry
2. Synthesis of Organic and Inorganic Compounds
3. Molecularly Imprinted Polymers (MIP)
4. Synthesis and Applications of Homogeneous and Heterogeneous Catalysts
5. Metal-Organic Frameworks (MOF) synthesis and applications
6. Fuel cell
7. Electrochemical Nano-Sensors
8. Chemometrics
9. Drug Delivery via Porous Materials
10. Computational and Theoretical Chemistry



No. of Graduate Students: 26



Achievements:

1. Synthesis of Various Nano-Materials and their applications
2. Synthesis of Potential Pharmaceutical Compounds



Equipment:

1. UV-Vis Spectrophotometer
2. Portable pH meter
3. Centrifuge Refrigerated Benchtop
4. Ultrasonic Probe
5. Potentiostat-Galvanostat
6. Digital Melting Point Apparatus
7. Rotary-Evaporator



Contact info:

<https://www.nit.ac.ir>
Email: Bs@nit.ac.ir
Tel: +98 (11) 35501733



Biophotonics Research Lab.

Mission:

1. Photodynamic Inactivation
2. Magnetic nanoparticles
3. Gold Nanostructures
4. Magnetic Therapy and Diagnostics
5. Transdermal drug delivery



No. of Graduate Students: 10



Achievements:

1. A novel method for identification of dental caries
2. Synthesis of several nanoparticles
3. Novel magnetic nano contrast agent for



Equipment:

1. Invert Fluorescence microscope
2. Optical Table
3. Oscilloscope
4. PH meter
5. Scale
6. Digital Oscilloscope
7. Vacuum pump
8. Incubator
9. Centrifuge
10. Ben Mary



Contact info:

<https://www.nit.ac.ir>
Email: kariminezhad@nit.ac.ir
Tel: +98 (11) 32332071



Neurophysics Research Lab.

Mission:

1. QEEG and Numerical Evaluation of Brain Disorders
2. Computational Neuroscience
3. Brain Stimulation
4. Theoretical Neuroscience
5. Aerosol, Nanoparticles and Neurotoxicity
6. NeuroTechnology



No. of Graduate Students: 11

Achievements:

1. Helping physicians to diagnose brain disorders including ADHD, Stuttering, MS, and Addiction
2. Helping physicians to evaluate treatment effectiveness
3. Designing and manufacturing Tremorgram for MS patients
4. Manufacturing a simple EMG device



Equipment:

1. 19 Channels Electroencephalography, Brain Master, USA
2. Neurofeedback, Brain Master, USA
3. 32 Channels Electroencephalography, with ECG, Neurofeedback, EMG, and ERP, Science Beam, Iran
4. tDCS, ActivaDose II, USA



Contact info:

<https://www.nit.ac.ir/index.aspx?tempname=FarsiNeuroPhysics&lang=1&sub=66>
 Tel: +98-11-3550-1710
 Email: neurophysics.laboratory@gmail.com



Central Library

The Information Center and Central Library (ICCL) was established in 1970 at BNUT. The aim of this library is to collect, organize, and provide access to scientific information and information sources needed to promote education and research.

The objective of this Library is to provide the researchers with direct access to the latest scientific information and resources. Therefore, the following main tasks are considered for the Information Center and Central Library:

- Collecting library materials, including print, non-print, and electronic materials
- Performing technical services (cataloguing, organizing and indexing) all sources of the libraries at the BNUT
- Guiding and training the users for retrieving and using information resources



Student Life at BNUT

The Babol Noshirvani University of Technology (BNUT) is pleased to provide students with a lot of opportunities for a vibrant student life with a variety of options for sport and recreation, cultural exchange, and much more.

Home to students from various regions of Iran, the university organizes events to celebrate occasions such as Nowruz and Yalda, with significant student participation. In these occasions, the students will get to learn about the Iranian culture and interact with students from different backgrounds. BNUT also hosts a number of student competitions every year, most notably the robotics competition, RoboNIT, which attracts significant participation from Iranian and International teams. Students at BNUT actively contribute to organizing scientific and cultural events through the Scientific and Cultural Student Associations within each faculty.

The University Sports Center provides facilities for students who would like to exercise individually or in teams. Also, on BNUT campus are the University Health Center and the Student Counseling Center, which are ready to offer help and support should the students need assistance.

BNUT provides student housing in dormitories to a limited number of international students every year. However, affordable apartments are available for rent within walking distance from the BNUT campus in one of the best neighborhoods of Babol. Our students also have access to food with student rates at the BNUT dining hall, which is very inexpensive due to subsidies paid by BNUT.

Each semester, BNUT students will have the opportunity to visit many attractions in Mazandaran and beyond through the university-organized sightseeing tours. Other than the events organized by BNUT, whenever they wish, our students enjoy a relaxing weekend at some of the most spectacular Mazandaran attractions that are within a couple of hours of driving from the BNUT campus.



Admission

Why Choose BNUT?

The Babol Noshirvani University of Technology has been consistently ranked among the top in Iran and in the region. Receiving the top-tier education and involvement in world-class, cutting-edge research with real-world applications that is conducted at BNUT will make you stand out among your peers as a person ready to face the challenges of the society for many years to come. Here are a few more points that make BNUT a special choice for you:

1- Exceptional faculty

BNUT is an excellent choice for you if you want to enjoy the instruction and mentorship of unique faculty. Our ambitious faculty members, many of whom young and at the beginning of their careers, are outstanding researchers, enthusiastic teachers, and awesome friends for you. Their interest and expertise in pioneering applied research will always give you an opportunity for getting prepared for real-life projects while resolving the most-challenging problems of the society.

2- The province of Mazandaran

The Mazandaran province, where BNUT is located, is one of the most spectacular regions of Iran. With more than 300 kilometers of Caspian Sea shorelines, thousands of hectares of dense forests, and more than 800 historical and cultural sites, Mazandaran attracts more than 15 million tourists every year. You can visit many of these attractions through a 30-minute drive from the BNUT campus. Tired of studying hard or just looking for ways to refresh? You will have hundreds of options for relaxing and enjoying your time!



3- Affordable tuition and living expenses

The high-quality education that you receive at BNUT comes at no significant cost to you, because of the vision at BNUT as a young university to expand its international scope. While BNUT is located at one of the nicest neighborhoods of Babol, you can find first-rate student housing at very affordable rates within the walking distance from BNUT campus.



4- Nice city, close to the Iranian capital city

Babol, together with its suburbs, is home to a population of more than 500,000 people. While one of the most vibrant cities in the north of Iran, it has not lost its safety and calm and unites the best characteristics of large cities with those of small towns. You can enjoy a relaxed student life far from the air pollution and terrible traffic jams while having access to whatever you may need. Looking for more? Tehran, the capital city of Iran, is just a 4-hour drive away whenever needed.





Babol Noshirvani
University of Technology
(BNUT)

February 2020

