GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES

Physics

Computer Engineering

Biomedical Engineering

Mechanical Engineering

Mathematics

Biotechnology

Chemical Engineering

Industrial and Systems Engineering

Materials and Nanotechnology Engineering

Electrical and Electronics Engineering

Civil Engineering

Architecture

2018-2019
About Us

The mission of the Graduate School of Natural and Applied Sciences (GSNAS) at Yeditepe University is to foster students such that they become adept and recognized researchers in their fields of study. We are proud of the accomplishments of our alumni who occupy positions in prestigious institutions worldwide. It is also our strategic goal to plan and develop new graduate programs to promote interdisciplinary research. Our departments are equipped with the latest technology research laboratories. Our faculty members actively carry out externally funded research projects and industry sponsored projects. In addition, several of our graduate students obtain bursaries from University funds and some are funded through research projects. We wish all prospective graduate students success in their studies and note that we will be happy to welcome you at GSNAS programs.

MSc Programs

Architecture*
Biotechnology
Biomedical Engineering*
Chemical Engineering
Civil Engineering
Computer Engineering
Electrical and Electronics Engineering
Materials and Nanotechnology Engineering
Mathematics*
Mechanical Engineering
Physics
Pilotage (Non-thesis)
Industrial and Systems Engineering

* Also have non-thesis options.

PhD Programs

Biotechnology
Chemical Engineering
Computer Engineering
Electrical and Electronics Engineering
Mathematics
Mechanical Engineering
Physics
Industrial and Systems Engineering

Scholarships for PhD students

High tech research labs

Experienced faculty members
Facts and Figures

- More than 600 enrolled students
- More than 200 pending patent applications
- 37 research labs
- More than 400 courses
- More than 500 alumni
- 170 research projects were completed with a total budget of: **93,500,000 TL**
- 2200 m² lab area for research
- More than 200 pending patent applications
- 33 ongoing research projects
- 40 international patents
- 30 national patents
- 200 journal articles from thesis work were published in SCI-indexed peer-reviewed journals in the last 5 years.
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Interdisciplinary Research

Architecture (ARCH)
- Istanbul studies
- Ottoman architecture and urbanism
- Urban regeneration
- Housing policies
- Place identity
- Conservation of the architectural heritage
- Industrial heritage
- Walkability
- Micro structures
- Design methodologies

Computational Mechanics and Heat Transfer (ME)
- Computational fluid dynamics, turbulence modeling and large eddy simulation
- Computational aero-acoustics, noise prediction & reduction in turbomachinery
- Modeling of heat pump systems and dryers
- Design of condensers and heat exchangers
- Numerical magnetohydrodynamics

Biotechnology & Genetics (BTEC)
- Antimicrobial substance design
- Cancer biology, genetics and treatment
- Tissue engineering
- Stem cell production and differentiation
- Gene therapy
- Plant biotechnology
- Proteomic, metabolomic and pharmacogenomic studies
- Separation technologies
- Enzyme production and applications
- Food biotechnology
- Biothermodynamics
- Gut microbiology

Food Science and Technology (BTEC)
- Enzyme applications in food processing
- Encapsulation technology
- Processing of bioactive compounds
- Valorization of food industry waste
- Food lipids technology
- Applications of food hydrocolloids
- Food microbiology
- Rheology

Mathematics (MATH)
- Theory of algebraic numbers, automorphic forms, representation theory, group theory
- Topology and semi-groups, Low dimensional topology
- Geometric mechanics
- Global Analysis
- Partial Differential Equations
- Applicable analysis, phase transition, pattern formation
- Bayesian statistics

Computer and Software Engineering (CSE)
- Digital Systems Design, Implementation, Testing and Automation
- Reconfigurable Computing and Embedded Systems
- High Performance Computing and Performance Evaluation
- Software Engineering, Product Line Engineering
- Network Security and Optimization
- Cloud computing
- Image and audio processing
- Pervasive, location based and context-aware computing
- On-chip nanowatt-scale energy harvesting techniques in CMOS
- Wireless sensor networks
- Computer architecture

Electrical and Electronics Engineering (EE)
- Power management in integrated circuits
- High efficiency RF amplifier design
- RFID system components and their design
- Simulation-based design methodologies for CMOS linear integrated circuits
- Power system operation and control
- Active network synthesis
- Autonomous powering of integrated systems on chip
- Adaptive resource management for sensor/ communication networks
- Computer vision and embedded systems
- Emotional state estimation from psycho-physiological signals
- Plasma and parylene processing for sensor and micro technologies

Chemical Engineering
- Supercritical fluid technologies (ChE, BTEC)
- Modeling of reaction mechanisms and computational catalyst design (ChE)
- Asymmetric synthesis of bioactive heterocyclic compounds (ChE)
- Development of antimicrobial zeolites containing fragrance and polymer-zeolite composites (ChE)
- Investigation of selectivity trends in heterogeneous catalytic reaction (ChE)
- Modeling and simulation of multiphase and reacting systems (ChE)

Systems Engineering (SE)
- Post-disaster logistics planning
- Quality management system design in manufacturing
- Systems dynamics modelling and optimization in healthcare
- Development of fall detection systems for the elderly
- Design of estimated quality control charts
- Population dynamics
- Lean applications in manufacturing and service industries
- Interval methods in global optimization
- Modeling and optimization of transit systems
- Real-time optimization of continuous production lines
- Optimization of maritime, airline and airport operations
- Planning and operation of energy systems
Interdisciplinary Research

Applied Physics and Mechanics
- Temperature and dimensional metrology (P)
- Nonlinear optics and quantum dots (P)
- Nonlinear time series analysis in physical systems (P)
- Plasma torch and surface activation studies (P)
- Nonlinear dynamical systems and chaotic behavior (P)
- Vibrations in elastic media and instrumental harmonics (ME)
- Rotational dynamics of rigid bodies (P)

Biomechanics and Biomedical Technologies
- Ultra wideband microwave imaging of tissues with cancer in human body (EE)
- Findings of the etiology of multiple sclerosis (MS) disease and new methods of treatment (EE)
- Monte Carlo simulation and calculation of patient specific dosimetric approaches (P)
- Monte Carlo simulation of instruments in nuclear medicine (P)
- Biomechatronic systems utilizing live muscles as actuators (ME)
- Biomimetic analysis of walking locomotion and swimming characteristics of living organisms (ME)
- Parametric design, modeling and finite element analysis of bones, tissues and organs (ME)

Robotics and Mechatronics
- Mechatronic design of energy harvesting and vibration isolation in MEMS (ME)
- Research in robotics, smart systems, two- and four-legged walking machines (ME)
- Artificial intelligence, robotics and virtual reality (CE)
- Human Computer Interaction (CE)
- Robot-assisted rehabilitation and surgical systems (EE)
- Human-computer interfaces for surgical systems (EE)
- Wireless charging of electric vehicles (EE)

Materials Science and Applications
- Electrochemical corrosion, its prevention and modeling (ChE)
- Polymers and polymer composites, structure-property relationships (ChE)
- Fracture mechanics based failure and thermal fatigue analysis of structures (ME)
- Mechanics of composite and piezoelectric materials and shape-memory alloys (ME)
- Vacuum thin film coating of metal, polymer and glass surfaces (ChE)
- Biopolymer production and modification (BTEC)
- Antimicrobial packaging materials (BTEC)
- Reinforcement corrosion (CE)

Civil Engineering (CE)
- Experimental soil mechanics
- Concrete technology
- Durability of concrete
- Evaluation of structures in distress
- Structural design codes and standards
- Infrastructure Engineering
- Coastal structures, design and hydrodynamics
- Offshore hydrodynamics
- Construction management
- Construction safety
- Geotechnical earthquake engineering & soil liquefaction

Nanotechnology
- Magnetic nanoparticle design for drug delivery applications (ChE)
- Magnetic nanoparticle-polymer nanocomposites as smart materials (ChE)
- Nano metrology (P)
- Investigation of quantum dots in solid and liquid substrates
- Data storage in nd crystals (P)
- Bionanotechnology applications (BTEC)

Renewable Energy and Environmental Technologies
- Recovery and reuse of solid wastes (ChE)
- Green manufacturing technologies and alternative renewable energy (ChE)
- Thermodynamic analysis, energy and exergy efficiency of the biological & industrial processes. (ME,BTEC)
- Planning and operation of energy systems (SE)
- Smart grids and renewable energy (EE)
- Recycling architecture (A)
- Sustainable design (A)
- Extreme environment design (A)
- Green manufacturing technologies (ChE, BTEC)
- Energy and exergy efficiency of the biological and industrial processes (BTEC)
- Sustainable usage of dredged soils (CE)
- Hydroelectric power plants (CE)
- Wind energy, assessment and utilization (CE)
- Ocean energy conversion systems (CE)

Program Codes:
- ARCH: Architecture
- BME: Biomedical Engineering
- BTEC: Biotechnology
- CE: Civil Engineering
- ChE: Chemical Engineering
- CSE: Computer Engineering
- EE: Electrical and Electronics Engineering
- ISE: Industrial and Systems Engineering
- MATH: Mathematics
- ME: Mechanical Engineering
- MSN: Materials and Nanotechnology Engineering
- P: Physics
# Industrial Collaborations

**Our students are the employees of:**

- Amazon
- Arçelik
- AREL Üniversitesi
- Arkas Holding-Bimar
- Asya Katılım Bankası
- Alarko-Carrier
- BD Bioscience
- B/S/H/ Ev Aletleri
- BP Türkiye
- Dalgakıran
- Dialog Semiconductor
- Eczacibaşı Holding
- ENOVAS Mühendislik
- Ericsson
- FORD
- GE-Aviation
- Google
- Huawei
- Innova Bili im Çözümleri
- Intel
- IBM Türkiye
- Kibar Holding
- KORDSA GLOBAL
- Marmatek Mühendislik
- Medipol Hastanesi
- M GROS
- MILSYS
- NETA
- Nokia
- Otokoc Otomotiv
- RADKAL Medikal
- SAP
- Siemens
- TOFA
- Tron Elektronik Sistemler
- TSE
- TÜB TAK (UME, MAM, Enerji Enst.)
- Türk Telekom
- Unilever
- Unitest Kalibrasyon
- Valupa Danışmanlık
- Vestel Savunma
- V KO
- Yeditepe Üniversitesi Hastanesi
- YPU Yapı Proje

**We develop processes and products with:**

- AROMSA
- AVIS (Association of Voluntary Italian Blood Donors) Italy
- Elmak Otomasyon
- KoçSistem
- Loomis Güvenlik
- Maxim Mikroelektronik
- Migros
- NETA
- TEI
- Tekno Kauçuk
- TEGMOS
- TÜB TAK UME
- UYD Grup
- VESTEL
- Yeditepe Üniversitesi Hastanesi

**We provide consulting services for:**

- Anatolia Tani Teknik
- ARÇEL K
- Em-glass Cam Makinaları
- Eti Soda
- Erdo mu Parfüm
- F GES
- KoçSistem
- M GROS
- MİİSOFT
- MollImage
- NETA
- TOFA
- TÜB TAK UME
- VESTEL
Our Alumni

Our alumni are...

...pursuing their academic careers as faculty members, post-docs and Ph.D. students in prestigious universities in Turkey and worldwide:

Delft University, Eindhoven University of Technology, California University, Ohio State University, McGill University, University of Maryland, Northeastern University, University of Twente, Carnegie Mellon University, University College London, Würzburg University, Stevens Institute of Technology, Texas Tech University, Drexel University, Copenhagen University, University of Massachusetts, Bogaziçi University, Sabancı University, Avrasya University, Istanbul Commerce University, Doğuş University, Maltepe University, Beykent University, Yaşar University

...working as professionals in reputable companies and research centers in Turkey and worldwide:

Intel Corporation (Rochester), Cypress Semiconductor (Lynnwood), L’Oreal (USA), Dialog Semiconductor, Mikroelektronik, Mercedes Benz, Bosch-Siemens, Turkcell, Huawei, Akbank, KoçSistem, Arvem, Limasoft, TAI, TEI, THY Tecnic, Ford, GE Gebze, Dalgakıran, Arçelik, Anadolu Isuzu, Airron, ABB, Valeo, Hewlett-Packard, Tekno Kauçuk, Organik Kimya, EVYAP, Bureau Veritas, TÜB TAK UME, TÜB TAK MAM