



# FACULTY OF ENGINEERING AND NATURAL SCIENCES

ISU | ISTINYE  
UNIVERSITY  
ISTANBUL



# FROM A SIMPLE IDEA TO A LONG JOURNEY



A journey from a simple idea to an important and multi-layered product requires teams of analysis, design, and development to understand each other very well and working hard together. Academicians from different disciplines like biology, engineering, psychology should design and develop together by job sharing depending on the product's functions, qualities, and its relations with people. One of the features in following years is that technological products contain the intellectual factors too. Artificial intelligence and machine learning techniques have been evaluating analytically the interactive history of technological products and services with environment and people and so the interaction has been kept alive. The model established by the history proposes the behaviours appropriate for intellectual approach.



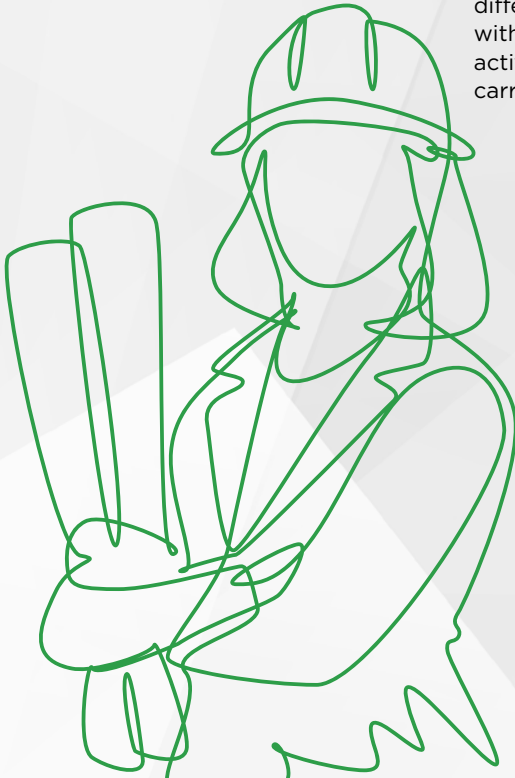
## Creative & Productive Engineering

Faculty of Engineering and Natural Sciences at Istinye University, which was designed to be a research and education centre that accelerates the changes in the world of technology and is the pioneer of new methods and methods to be developed and ideas to be produced in this field; aims to train “creative and productive” engineers and researchers.

Students who have a solid professional and scientific foundation and extensive engineering knowledge with the course curriculum that includes theoretical and current applications; gain expertise through intensive laboratory exercises. Our students, who have the opportunity to benefit from internship opportunities; gain a comprehensive understanding of the application and business aspects of engineering along with our project programs.

## Education without Borders

In the faculty which consists of departments that work in close cooperation in education and research and do not set boundaries between each other; horizontal and vertical communication processes are kept alive between the research, analysis and application phases of each design. In our faculty which brings creative and sustainable solutions to technological problems; it is aimed to provide the necessary learning and research environment for the training of creative, researcher, innovative engineers and scientists who have social responsibility and environmental awareness, attach importance to ethical values. The main mission of our faculty, which aims to transform R&D outputs into social and economic benefits; has been determined as producing benefit and difference in Turkey and its geography with the projects and entrepreneurship activities that our academicians will carry out jointly with entrepreneurs.



# DEPARTMENTS



## Computer Engineering (English)

The Department of Computer Engineering which equips our students about the processes that occur at every level of technology and are related to the automation of calculation; aims to train graduates who can design, manufacture and maintain related systems. The students, who have computer engineering profession qualifications that require serious knowledge and practical experience about hardware and software, also have the

opportunity to broaden their knowledge according to their tendencies by taking courses from closely related departments such as Software Engineering and Electrical and Electronics Engineering. For students who are interested, studies for the academy can also be done.

## Electrical and Electronics Engineering (English)

Electrical and Electronics Engineering which is the indispensable basis of informatics, robotics and technologies; aims to train engineers who will solve the complex problems of modern life in the most appropriate way by using resources efficiently. Our students who learn by experience with research and applications in accordance with the latest state of the technique; grow up as individuals who know how to access information, believe in continuous improvement, can renew themselves for life, and have analytical and critical thinking skills. Our students who will complete their education in the theoretical and practical course curriculum in a wide range of subjects with the engineering degree they will obtain; will be able to find jobs in a wide spectrum ranging from integrated circuit design to embedded systems, from wired and wireless communication systems to medical measurement systems.

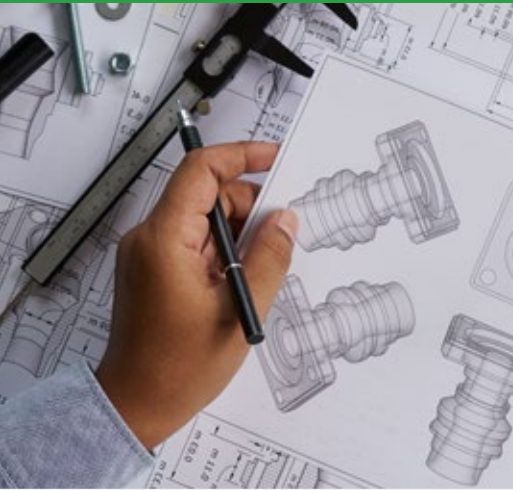
## Industrial Engineering (English)

In today's world, where concepts such as smart factories, Industry 4.0, digital twin, and cyber-physical systems come to the fore and digital transformation is gaining momentum in many sectors; our department aims to provide our students with the necessary theoretical and practical skills to model integrated systems in different fields such as production, transportation, logistics and health to perfect their output, to redesign these systems and make them more effective. We train students to provide computational infrastructure so they can become strong 'Technical Manager' candidates who can perform important functions such as making sense of the data obtained from different systems and processes and generating business intelligence from these data. Graduates of our department which is of interest because it includes components from other engineering fields, has a wide range of work and is a "bridge" engineering between management and the field; can specialize in areas such as business development, production planning, financial engineering and supply chain management.



## Civil Engineering (English)

Our department which aims to train civil engineers who can create safe and healthy living environments for the society, have environmental awareness, focus on sustainable development, and contribute to the construction of cities that increase the quality of life not only in Turkey but all over the world; trains graduates with the "digital" skills necessary for the future of the industry. Our students who will complete their education in the theoretical and practical course curriculum in a wide range of subjects, will be able to gain the competencies to sign successful engineering projects in the national and international arena with the support of their digital skills and intensive English education.



## **Mechanical Engineering** (English)

Our department which aims to train experts who solve the problems that arise in systems by applying mathematical and physics methods to design mechanical systems; was established to serve research and teaching related to advanced robotic control systems, device design, measurement and cyber-physical systems. Our department develops innovative, entrepreneurial and research projects by working in close cooperation with other departments; focuses on today's technology and engineering; and adopts an educational vision that will create benefit and difference in Turkey and its nearby geography with its modern mechanical engineering student laboratories and centres that allow R&D studies; thus trains graduates who have gained professional competencies.

## **Software Engineering** (Turkish/English)

Department of Software Engineering which is that is taught both in English and Turkish at two separated departments, aims to train experts who will design and develop all hardware-independent software projects from a game with a complex graphic structure to internet browsers. Our departments that add platform-independent, open-access and open-source software development methods to their curriculum in all aspects; were designed to carry out education, research and development studies. In order for software engineers to easily learn a new programming tool or platform, they must have learned both persistent theory and popular practices. Our department which has expert academic staff that teaches our students both the theory and application of programming, raises graduates who are ready for the profession.

## **Mathematics** (English)

Our department which aims to educate graduates who adopt the mathematical approach to daily events and analytical thinking skills are the most important competencies that mathematics education brings to the person, has 2 main missions to carry out studies on mathematical methods related to artificial intelligence and to contribute to our country by conducting mathematical studies on cyber security. Our students who will be able to pursue an academic career by doing a master's and doctorate in the field of mathematics, can be a teacher, employed in many fields such as software engineering, banking, sales-marketing, risk management, R&D, finance sector and IT expertise by taking further education.



## **Molecular Biology and Genetics** (English)

Our department which aims to train scientists who will support the development of humanity with their studies, has a theoretical and applied training curriculum prepared in line with the professional qualifications required by the sector. Our department trains professionals who specialize in the basic subjects of biology, molecular biology and genetics; such as DNA and RNA which are hereditary materials in living things, end product proteins obtained through gene expression, interactions between these molecules, living organisms and their structure, function and functions; It raises graduates who will make a difference with their studies in a wide variety of fields such as omics, cancer and aging, diagnosis and treatment of genetic and epigenetic features.



## Chemistry (English)

In our department, which has a theoretical and applied education curriculum prepared in line with professional qualifications; it is aimed to train chemists who use technology by taking into account international scientific standards and who are equipped to work in all stages of the chemical industry. Our students who will be encouraged to think focused on producing projects for national and regional problems throughout their education life, will participate in factory technical tours to see the applicability of the education they receive and to get to

know the sector. Chemists, the occupational group most needed by industrialized countries; are employed in industrial areas such as petroleum products, chemicals, pharmaceuticals, polymers, paint, food, paper, plastic, cleaning materials, cosmetics, textiles, gas, machinery and mines.

## Bioinformatics and Genetics (English)

Our faculty which has adopted the importance of combining the power of genetic knowledge by examining the impact of today's technology on environmental factors, aims to train professionals who have gained the skills to enable the use of "big data" that shape our age in different fields and who can identify current biological problems in the most accurate way. In our training content prepared by our expert academic staff and supported by laboratory applications; current topics such as cancer treatment and diagnosis studies, drug resistance and drug design/discovery studies, structural biology applications, evolutionary studies, artificial intelligence and application of decision algorithms to biological processes are included.



## Biomedical Engineering (English)

By bringing engineering solutions to the problems in the field of health, our department which adopts an interdisciplinary approach focused on producing common technologies with medicine, health sciences, basic sciences and other engineering fields; aims to train biomedical engineers who have assimilated the research culture, developed problem-solving skills and gained the necessary skills to apply these skills, can uniquely position themselves in both academia and industry. Our department which was built with the support of the MLP Care Health group that includes our university, and has an application-oriented curriculum; has course content in many fields such as Biomedical Instrumentation, Medical Imaging, Biomedical Signal Processing, Biomaterials, and Biomechanics.



## LABORATORIES AT FAC- ULTY OF ENGINEERING AND NATURAL SCIENCES

Laboratories at Faculty of Engineering and Natural Sciences in Istinye University are science and research places that live 24 hours a day, where projects will turn into products. In the laboratories of our faculty, which are equipped with the most modern equipment and experimental setups; a university environment is designed where all engineering department students and faculty members can work together. They consist of joint education and research laboratories whose main application areas are Electronics, Communication, Control Systems and Robotics.

### Physics Laboratory

Physics Laboratory is where the first practicing classes are taught at the faculty. Students are provided with opportunities for understanding physics which contributes daily life thanks to its engineering approaches, by performing experiments safely.

### Digital Systems Laboratory

Digital Systems Laboratory is used in undergraduate education for the applications of courses such as embedded systems, logic circuits, programmable digital systems and digital electronics. In the laboratory infrastructure, in addition to the development boards of microprocessors and FPGA development boards which are widely used in the field; equipment such as oscilloscope, signal generator, power supply and prototyping materials are offered to our students.



### Electronics Laboratory

It is a laboratory where equipment such as oscilloscope, signal generator, power supply and prototyping materials are offered to the use of undergraduate students at Electrical and Electronics Engineering in order to carry out experimental applications of courses such as electrical circuits and electronics. Studies carried out in this laboratory contributes to learning the working principles of integrated circuits with circuit design and measurement using basic semiconductor circuit elements. In addition, the necessary infrastructure for the applications of communication theory courses is available in our laboratory.



## Telecommunication Laboratory

The communication laboratory provides the experimental environment necessary for the applications of wired and wireless communication courses to our undergraduate students. It is aimed that our students reinforce the theoretical knowledge they have acquired through experimental studies that they carry out using the infrastructure of our laboratory.

## Control and Robotics Laboratory

In our laboratory designed for experimental applications of courses related to control systems and robotics, it is aimed that the undergraduate students learn the relevant subjects by applying the experimental applications of the control theory courses required for the design of unmanned systems which is one of the most popular topics of today.

## Civil Engineering Structural Design Laboratory

The Structural Design Laboratory aims to enable the students at Civil Engineering to better understand the behaviour and design of different structural systems under static and dynamic (earthquake) loads. In this context students are expected to analyse, design, physically fabricate and test scaled-down models of certain building types. Students aim to design and produce the most structurally efficient (high structural strength and cost-effective) structural system by working in groups on the projects assigned to them such as buildings, towers and bridges. Cost effectiveness is achieved by using the least amount of material possible. For this reason, groups are expected to produce lightweight structural models that meet the strength and displacement criteria determined at the beginning of the design process.

## Materials and Measuring Techniques Laboratory

This is one of the basic laboratories of the Mechanical Engineering and it is actively used during the courses titled Statics, Introduction to Mechanical Engineering, Materials Science for Engineers, Resistance, and Machine Elements 1-2 all along the undergraduate education.

## Production Systems Laboratory

Production Systems Laboratory is one of the basic laboratories of engineering departments and it is often used by the Departments of Industrial Engineering and of Mechanical Engineering. In the laboratory, it is aimed that our students experience real-time flexible production processes and systems through a computer-integrated model production line and 3D production simulation software.







## Biomedical Instrumentation Laboratory

In our laboratory which allows the creation of test setups for obtaining biopotentials and physiological parameters, it is aimed to gain the ability to analyse useful data obtained from signals. Measures related to Electroencephalography, electromyography, electrocardiography, pulse, respiration, galvanic skin response, electrooculogram, reaction time to a stimulus, respiratory volume and capacities, bio-feedback, blood pressure are taken in this laboratory.

## Advanced Projects Laboratory

This laboratory provides academicians with required infrastructure to keep their researches. There are special rooms for each faculty member. Students perform their practice and research activities together with academicians within this laboratory.

## UNIX 1 and UNIX 2 Laboratories

UNIX 1 Laboratory contains 60 pieces of iMac computers within itself. It is used for developing licensed independent software and the operation of the courses which require various applications. UNIX 2 Laboratory contains Ubuntu which is one of the Linux operating systems and 45 pieces of laptops with latest configuration.

## PC 1 and PC 2 Laboratories

There are 116 pieces of computers with Windows operating system in total in PC Laboratories. It is used for some introductory courses like Computer Literacy taught in the Faculty of Engineering while it is available for general usage of the university.

## Artificial Intelligence Laboratory

Artificial Intelligence Laboratory conducts the basic and operational researches and the educational activities on machine learning, deep learning, machine vision, and big data. It focuses on a wide range of different implementations from medicine to defence industry because of its multidisciplinary structure.

## Modelling, Optimization and Simulation Laboratory

Optimization and Simulation Laboratory is used for the courses in curriculum and it hosts the research and projects activities on mathematical optimization, dynamic programming, real time systems simulation, predictive data analytics, calculative methods, and financial engineering. In this context, contributing the solutions of the real emergent problems in the areas such as production, transportation, health, and finance is intended.



# Qualifications and Skills of Graduates



To realize projects that will turn into social and economic benefits.



To have the qualifications to support the development of science with their studies.



To be able to make innovative productions by following professional developments.



To think creatively and critically in solving problems.



To be able to evaluate the interaction of technological product and service systems with the environment and people.



To have knowledge that will guide our age in data science and artificial intelligence.



Gaining interdisciplinary thinking and research skills.



To take part in R&D projects carried out on national and international platforms.



To have experience in the application and business aspects of engineering.



To internalize the principles of sustainability.



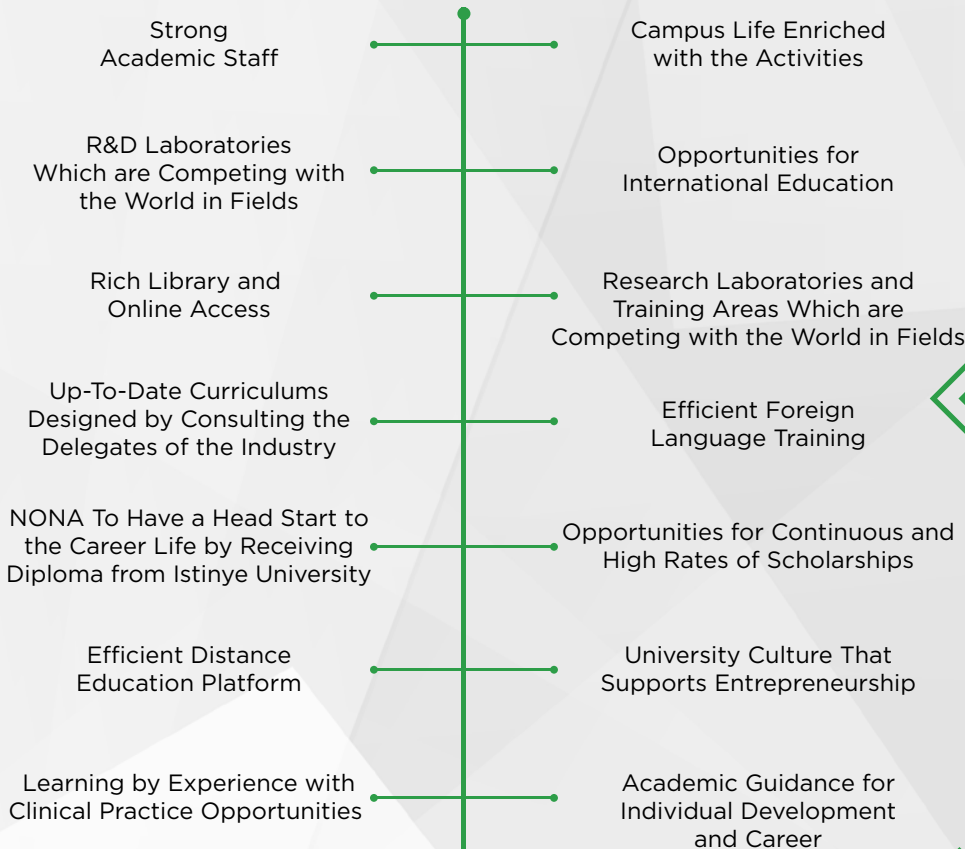
To have the theoretical and practical infrastructure to reach leading positions in the field.



To respect human rights and universal professional ethical principles.

# PRIVILEGES OF BEING A MEMBER OF

# ISTINYE



2 CAMPUSES | 16 R&D LABORATORIES  
90 LABORATORIES

11947  
STUDENTS

54  
ASSOCIATE  
PROFESSORS

77,000  
Square Meters of Indoor Space

619  
ACADEMICS

246  
ACADEMICS WITH  
DOCTORAL  
DEGREE

135  
Academics with  
Professorial Degree

A Congress Centre

603 Activities

2 UNIVERSITY  
HOSPITALS

14,335 Square Meters of  
Outdoor Space

108 ERASMUS  
EXCHANGES

33 TÜBİTAK PROJECTS

82 STUDENT  
CLUBS

2 VOCATIONAL  
SCHOOLS

30 PROGRAMS

9 FACULTIES | 51 DEPARTMENTS

3 INSTITUTES | 23 POSTGRADUATE PROGRAMS

istinye.edu.tr | 0850 283 60 00

