



FACULTY OF ENGINEERING AND
ARCHITECTURE

BULLETIN

MAY 2023



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What you will read in this issue

News from Faculty

Actual Topics in Engineering
and Architecture

Academic and Scientific
Activities

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TAG



Happy

19 May

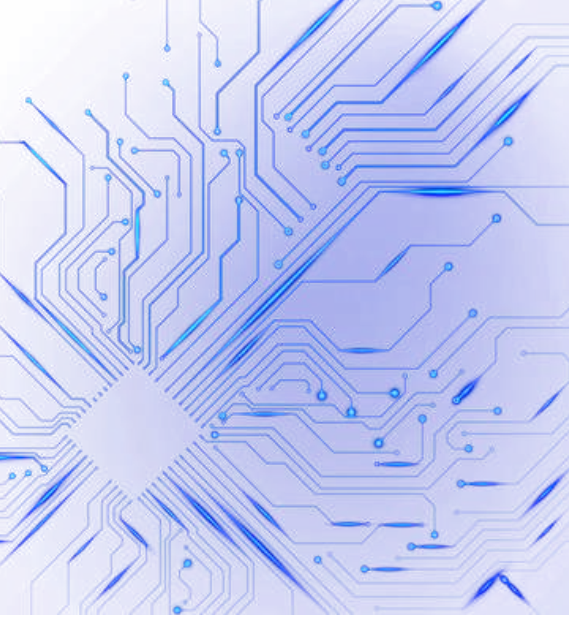
COMMOMERATION OF
ATATÜRK, YOUTH AND
SPORTS DAY



***NEWS FROM
THE FACULTY***

News From The Faculty

May 2023



Electrical and Electronics Engineering

Electrical and Electronics Engineering Laboratories were introduced at the promotional event held on May 18,19,23,24,25 and 26.

Industrial Engineering

Working at IGU Faculty of Engineering and Architecture, Department of Industrial Engineering, Assist Prof.Dr. Binnur Güröl, participated as a panelist speaker in the webinar of Istanbul Aydın University on Current Approaches in Management and Organization.



"Laboratory Introductions"

Working at IGU Faculty of Engineering and Architecture, Department of Industrial Engineering, Assist Prof. Dr. Didem Yılmaz, on May 11, 22 and 23; Res. Asst. Nurdan Tüysüz, on May 25; Assist Prof. Dr. Semanur Sarıçam on May 26 introduced our department laboratory and university to high school students.



Working at IGU Faculty of Engineering and Architecture, Department of Industrial Engineering, Assist Prof. Dr. Binnur Güröl, went to the University of Tetova in North Macedonia within the Scope of Erasmus Staff Mobility.

Assist Prof. Dr. Binnur Güröl is at a different university within the scope of the program she shared his opinion with us “I want everyone to have such an experience because I think of ERASMUS as a step towards becoming a global citizen.”

Working at IGU Faculty of Engineering and Architecture, Department of Industrial Engineering, Assist Prof.Dr. Didem Yılmaz’s birthday was celebrated.

We wish many healthy years



CIVIL ENGINEERING

Civil Engineering Thesis and Non-Thesis Master's Programs were opened within the Graduate School of Graduate Education.

Genç İnşaat Mühendisleri Kulübü

Seminer

**İNŞAATLARDA ULUSAL VE
ULUSLAR ARASI YAPIM SÜRECİ****KONUŞMACI****Muhammet Şamil Ramazanoğlu**
 **10 Mayıs, 2023**
Çarşamba

 **14.00- 15.30**

Within the scope of the seminar activities of our Young Civil Engineers Club, one of our graduate students Muhammet Şamil RAMAZANOĞLU made a seminar presentation titled "National and International Construction Process in Construction" and came together with our students and faculty members.

Department board meeting was held before the final exams of 2022-2023 Spring semester.



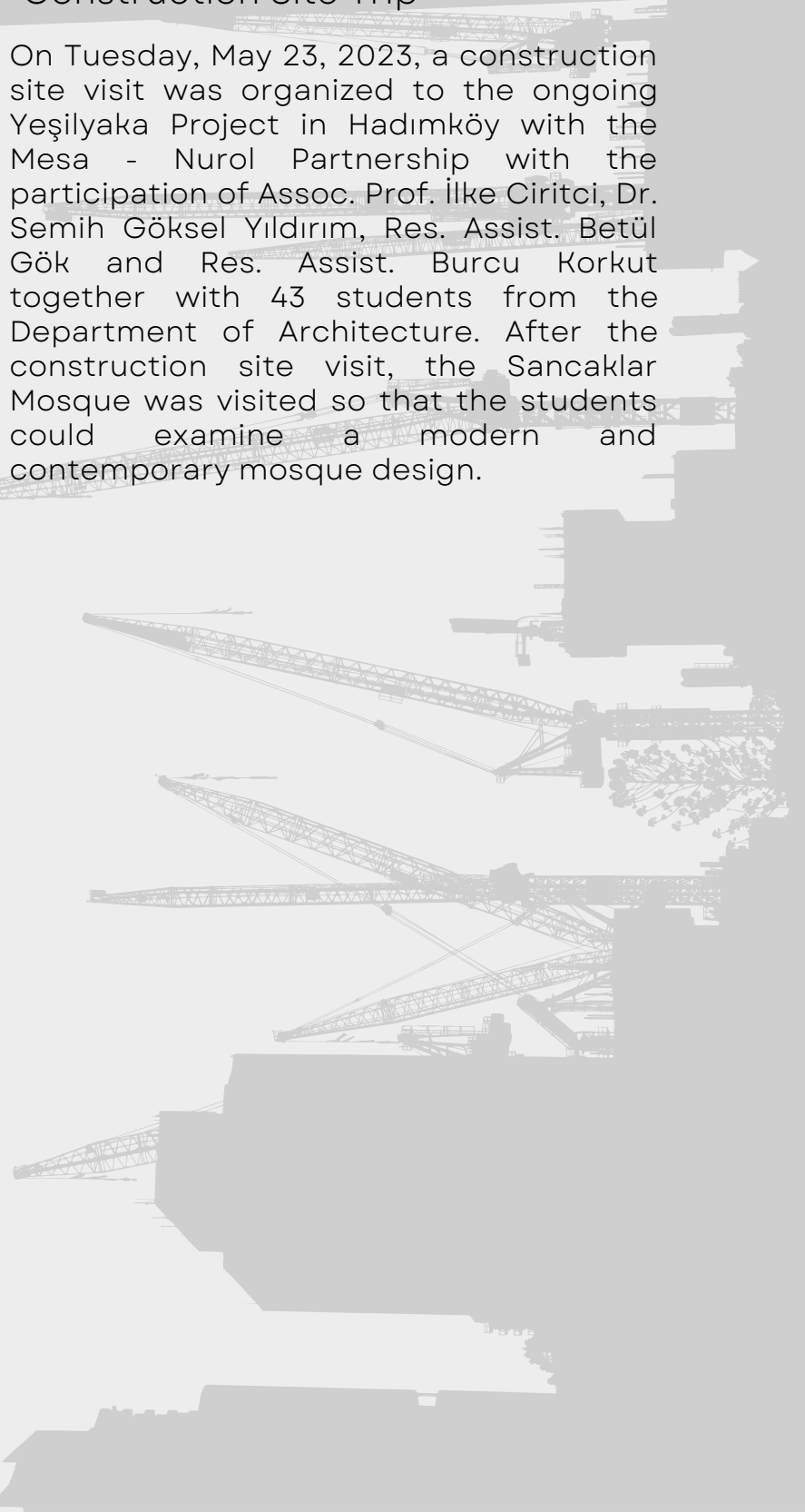
Dr. Wojciech Cel from Lublin University of Technology in Poland visited our department within the scope of Erasmus+ Teaching Mobility Program.



ARCHITECTURE

"Construction Site Trip"

On Tuesday, May 23, 2023, a construction site visit was organized to the ongoing Yeşilyaka Project in Hadımköy with the Mesa - Nurool Partnership with the participation of Assoc. Prof. İlke Ciritçi, Dr. Semih Göksel Yıldırım, Res. Assist. Betül Gök and Res. Assist. Burcu Korkut together with 43 students from the Department of Architecture. After the construction site visit, the Sancaklar Mosque was visited so that the students could examine a modern and contemporary mosque design.





Software Engineering

The 12th International Intelligent Manufacturing and Service Systems Symposium (IMSS'23), of which our university is a stakeholder, was held on May 26-27, 2023 at Sakarya University together with Sakarya University, Sakarya University of Applied Sciences, Hasan Kalyoncu University. In the opening ceremony, our dean, Prof. Dr. Necmettin MARAŞLI also gave a speech.

Our Head of Software Engineering Department, Dr. Serkan GÖNEN made a presentation on Cyber Security and Production as an invited speaker at the IMSS'23 conference.



Bilgisayar Mühendisliği Arş. Gör. Mehmet Ali BARIŞKAN İMSS'23 konferansında "Detection of Cyber Attacks Targeting Autonomous Vehicles Using Machine Learning" isimli makalesini sunmuştur.



OUR SAD LOSS

Prof. Dr. Mehmet Rifat Hulusi ÇELEBİ, lecturer and former head of the Department of Architecture, Faculty of Engineering and Architecture, Istanbul Gelişim University has passed away. As Istanbul Gelişim University, we would like to express our condolences to his family, relatives, the entire community of architects and the university community.

RÉSUMÉ

Prof.Dr.Mehmet Rifat Hulusi Çelebi completed his primary education at Yeşilköy Primary School and his secondary education at Haydarpaşa High School. In 1967, he graduated from Yıldız Technical University, Department of Architecture and in 1968 he received the title of "Master Architect" from Yıldız Technical University.

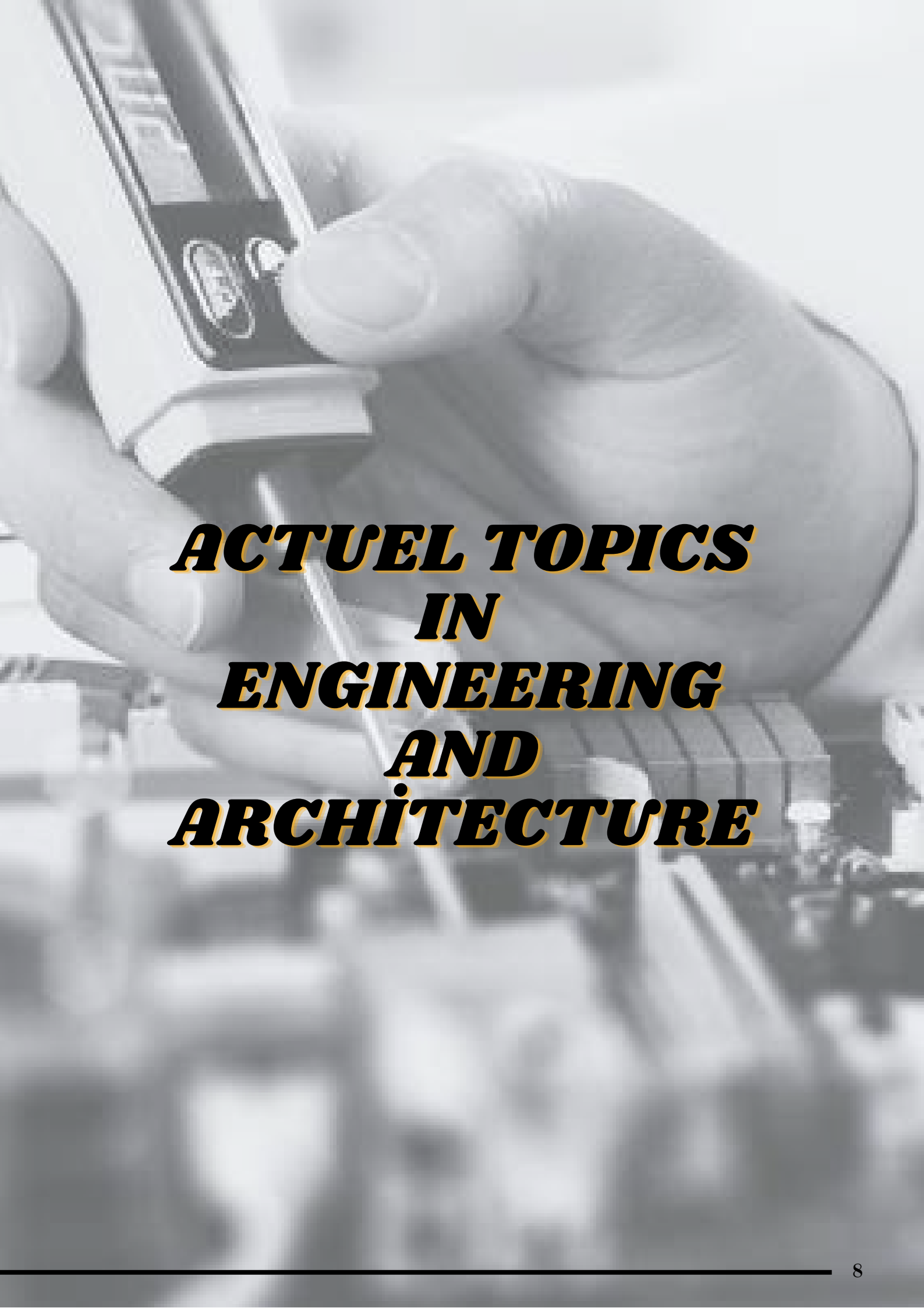
ÇELEBİ started his academic career at Yıldız Technical University and became a Professor in 1987. Until 2000, he held continuous administrative positions at the same university and served as the Head of Department, Division, and Vice Dean.

In 2005, he participated in the establishment of the Faculty of Art and Design at a foundation university. He served as the Dean of the Faculty as well as the Head of the Department of Architecture. In addition to undertaking administrative duties in different universities, he continued to leave important works in the academic field.

Our lecturer, who joined the Istanbul Gelisim University family 5 years ago, also served as the Head of the Department of Architecture for 3 years continuously and until the end of his life, he was continuing his support with his important contributions as a valuable faculty member in the academic staff of our university.

With more than 55 years of professional life, more than 50 years of academic life, he has trained thousands of young people, as a giant sycamore who has done his profession with great love and devotion, he has many articles, awards from various architectural competitions, many buildings and applications that he has designed throughout his professional life. Yapı Bilgisi book is a resource for the Structural Sciences course, one of the most important courses of the Architecture curriculum.

He will always be with us with his precious works and of course with his countless students and will continue to shed light on the profession of architecture. Our condolences to his two daughters Fulya Çelebi and Funda Çelebi, who are architects, and his esteemed wife Zuhal Çelebi, as well as to all his family, loved ones and the academic staff of our University.



***ACTUEL TOPICS
IN
ENGINEERING
AND
ARCHITECTURE***

**We are sharing the second part of the "We Discover the Magazine Aspects Hidden Inside the World of Machine Learning!" series that we started in our previous issue.
Prepared by: Research Assist. Mehmet Ali BARIŞKAN**



The magazine aspects of the world of machine learning and artificial intelligence attract the attention of students and young people and provide the necessary motivation for them to achieve success in these fields. Artificial intelligence and machine learning, which exert their influence in every aspect of life by pushing the boundaries of technology and science, stand out as an important force that will shape the world of the future.

ARTIFICIAL INTELLIGENCE AND SPORTS:

Artificial intelligence is also showing its effect in the world of sports. Artificial intelligence applications that analyze training programs, performance of athletes and injury risks contribute to the development of athletes in a faster and safer way. In addition, thanks to the technological referee applications carried out in sports events, fairer and more accurate decisions can be made.

ARTIFICIAL INTELLIGENCE AND ENVIRONMENT:

Artificial intelligence is also involved in environmental and nature protection studies. Artificial intelligence technologies, especially used for the prevention, monitoring and control of forest fires and natural disasters, increase the effectiveness of environmental protection studies. This situation enables especially young people and students to be more sensitive about environmental awareness.

ARTIFICIAL INTELLIGENCE AND MEDICINE:

Artificial intelligence and machine learning are also contributing to important developments in the medical world. Artificial intelligence algorithms, especially used in the development of diagnosis and treatment methods, support important studies that increase the quality of life of patients and provide early diagnosis of diseases.

ARTIFICIAL INTELLIGENCE AND TOYS:

Artificial intelligence is also causing great changes in the toy industry. Smart toys, especially developed for children, contribute to the intelligence development of children with their fun and educational features. Such toys increase the interest of young people and students in artificial intelligence and machine learning from an early age.

ARTIFICIAL INTELLIGENCE AND ENTREPRENEURSHIP:

Artificial intelligence and machine learning are also making an impact in the world of entrepreneurship. Especially in technology-based initiatives, projects that offer more innovative and effective solutions using artificial intelligence applications are emerging. These developments inspire young people and students to develop their own entrepreneurial ideas.

Some News in the World of Science
Prepared by: Assist.Prof.Dr. Mustafa NURİ



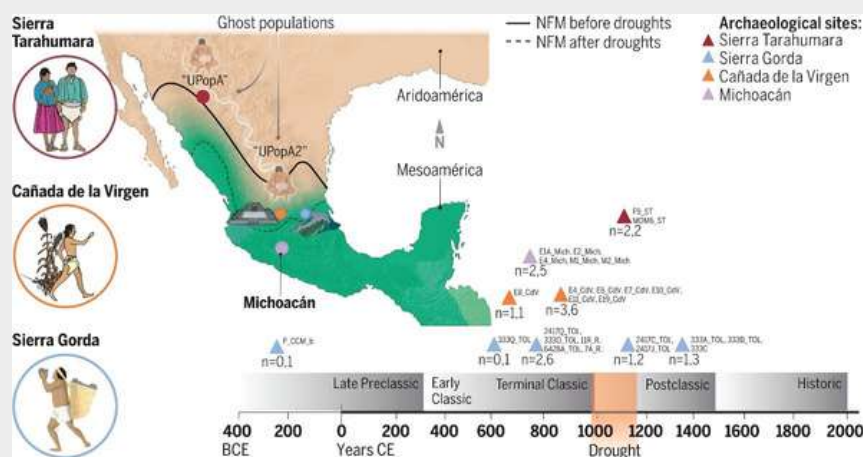
Superconductivity in Room Temperature

One of the leading roles in the recent advancement of technology is the spectacular progress in superconducting materials. Superconductors are defined as materials with zero electrical resistance. In order to achieve this property, the material must be cooled below a critical temperature. For example, this value is 4.2 Kelvin for solid mercury. On the other hand, researchers in many parts of the world are working on various theories and material production methods to obtain superconductivity at higher temperatures. Accordingly, Warren Pickett, professor of Physics and Astronomy at the University of California, Davis, presented a guiding study for superconductivity at higher temperatures (200 – 260 K) by discussing the current theories and materials design procedures in an article published in Reviews of Modern Physics.

Can Climate Change Cause Demographic Changes?

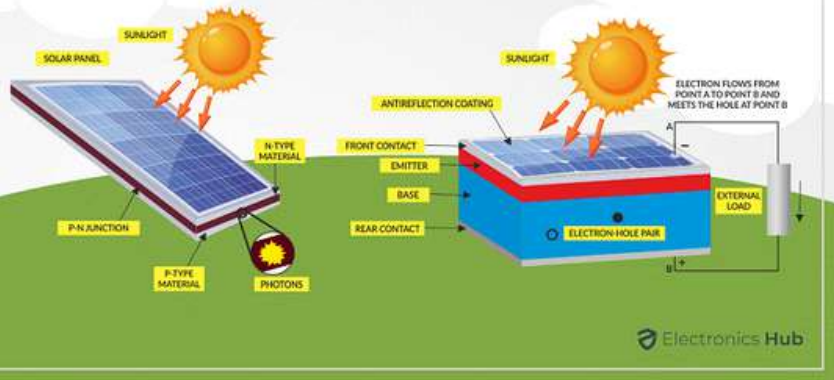
In an article published in the journal Science in May, Viridiana Villa-Islas from the International Human Genome Laboratory of the University of Mexico and her colleagues presented the results of their research on the change in the demographic structure of the region due to climate change (drought) that took place in the Americas 1100 to 900 years ago.

Using DNA samples as well as archaeological evidence, the researchers underlined that people in the region did not leave their areas despite severe droughts. It is thought that the mining-based economy is effective in this regard.



Is It Possible to Produce More Efficient Solar Panels?

WORKING OF SOLAR PANELS



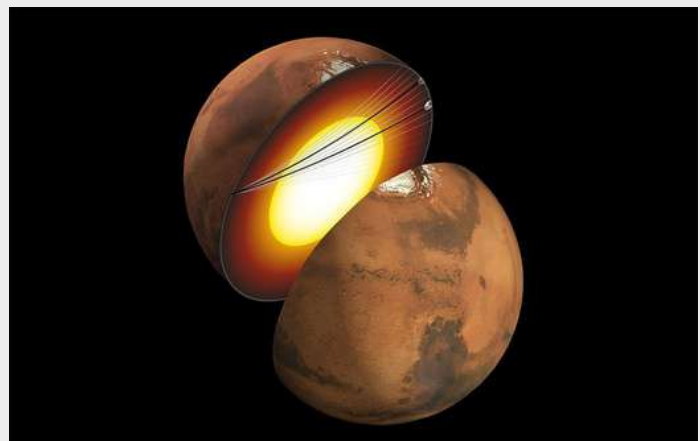
Despite the high potential of solar energy among renewable energy sources, due to technological constraints, it could not find the necessary place in our energy basket. The sun emits energy around it through massless particles called photons (it also emits other energy-carrying particles, but they are not the subject of this article). The solar panels which are used to convert

this energy into electrical energy, operate at an efficiency between 15% and 22%. Additionally, the problems in the use of the obtained energy at different times and regions together with the storage limitations make the use of this source more inefficient. Accordingly, in the article published by Wang and colleagues in the journal Energy and Environmental Science, a new method is introduced to convert incoming sunlight energy into electrical energy more efficiently. In this way, the main reason for inefficiency of the existing panels is that during the movement of the ions charged by the incoming photons in the nanofluid channels some ions escape from the channel. In the published study, it has been shown that this process becomes more efficient by augmenting the process by converting energy of photons into heat.

Source: <https://www.electronicshub.org/solar-panel-work/>

First Seismological Data on Mars Core

An article published in the journal PNAS provides important information about the interior structure of Mars with seismological data obtained from the InSight rover's geographical mission. According to Jessica C.E. Irving from the University of Bristol, UK and his colleagues, the core of Mars is predominantly composed of sulfur, oxygen, carbon and hydrogen.



Source: <https://mars.nasa.gov/news/9387/nasa-insight-study-provides-clearest-look-ever-at-martian-core/>

NANOTECHNOLOGY

Prepared by: Assist.Prof.Dr. Cansu NOBERI



“Today's science fiction is generally tomorrow's science fact” As Stephen HAWKING said, the things that seem impossible for us today and that we say are only science fiction are actually the science foundations of tomorrow. The concept of nanotechnology is at the forefront of these.

Nanotechnology; It is a science with a short history that aims to design and synthesize new nanostructures or to give nanostructures new extraordinary properties and to use these properties in new functions. The first emergence of nanotechnology is based on the famous physicist Richard Feynman's speech on the production of materials and devices at molecular dimensions on December 29, 1959 in California. In his speech titled “There is Plenty of Room at the Bottom”, although he did not fully use the term “nano”, he expressed the idea of directing and controlling everything on a small scale. And this speech can be described as the breakthrough moment of nanotechnology today.

The concept of nanotechnology, introduced by Norio Taniguchi in 1974 at the University of Tokyo (he used the term nanotechnology for the first time in his article On the Basic Concept of Nanotechnology), has been evaluated as a rapidly emerging technology based on the greater sensitivity and minimization of existing technologies. With the Scanning Tunneling Microscope (STM) and Atomic Force Microscope (AFM) developed in the 1980s, measurement and modeling at the nanoscale became possible. The IBM script that we all know has also become an icon written using these microscopes.



Implementation and Usage Areas of Nanotechnology

Nanotechnology and nanomaterials have a great importance and place in all the items we use in daily life, from health to clothing, from transportation vehicles to the space and aviation sector.

Materials and Production;

Advantages of nano-sized materials such as being lighter, stronger and more easily programmable materials, using less material, requiring less energy in production processes, not producing any residual material or producing very little materials are important considerations in nanomaterial manufacturing. The construction of the produced material from atomic and molecular dimensions provides the emergence of more robust and lighter materials compared to the materials obtained by conventional methods. These nano-sized materials, with their lower defect levels and unmatched durability strengths, are revolutionary innovations for many existing industries.

Environment and Energy;

Nanotechnology has a very important place in the efficient use, storage and production of energy. The use of electrodes coated with nanomaterial from solar cells increases the efficiency.

Nanoelectronics and Computer Technology;

Electronic circuit elements produced in nanoscale are expected to show new developments in computer architectural design. With the acquisition of electronic devices at nanometer scales, the processing power and capacity of the currently used systems will increase exponentially.

Aviation and Space Studies;

The weight of the materials used during the manufacture of aviation and space vehicles has a very important place in the high costs. At this point, nanotechnology can also reduce the cost of materials by significantly reducing the weight. In addition, the construction of structures that can rise from the earth's surface to the atmosphere, thanks to nanotubes whose tensile strength is higher than that of steel, may be among the potential application areas. In this way, launch costs, which account for a large part of space exploration costs, can be reduced. The use of nanotechnology materials and devices will also provide solutions to the difficulties in aerospace research. Possible implementation; It is used in the construction of high-efficiency computers that require less energy, nano-scale instruments that can be used in nano-scale spacecraft, flight systems supported by nano-structured sensors and nanoelectronics, and heat-resistant nano-structured coating materials.

Defense Industry;

Nanotechnology has an important place in the defense industry. Today, with the effective use of robotic systems, less human power can be used. By combining the produced nano and micro devices, nuclear defense systems can be controlled. Smart clothes can be made with nanotechnological textile materials.

International Council of Museums (ICOM)

May 18

Museums Day



In order to protect the world cultural heritage and promote museology, the International Council of Museums (ICOM) celebrates “May 18 Museums Day” with various events all over the world, and the main theme for 2023 has been determined as “Museums, Sustainability and Welfare” by the ICOM International Council of Museums.

RECODE'23: Construction and Demolition



Organized by Yıldız Technical University Construction Club, RECODE'23 was held on 24-25 May at Yıldız Technical University Auditorium.

On Wednesday, May 24, topics such as the sustainability of urban identity, the re-urbanization process of cities destroyed after the disaster, and the preservation of culture in cities were discussed in panels and sessions within the framework of the theme of Culture is Identity. In the workshop festival held on Thursday, May 25, different workshops were held in various fields where theoretical knowledge can be experienced in practice. A pleasant time was spent in a rich foyer area, which also hosts the human resources stands of valuable companies, where job and internship opportunities can be found, as well as the opportunity to communicate for two days. A pleasant networking environment was provided by bringing together hundreds of participants from all over Istanbul with experienced academicians, experts in their fields and representatives of leading companies in the sector.



***ACADEMIC AND
SCIENTIFIC
ACTIVITIES***

**ELECTRICAL AND ELECTRONICS
ENGINEERING**

One of our Electrical and Electronics Engineering Department lecturers, Dr. Fatma Gülşen ERDİNÇ's project "Development of an Optimization-Based Uncertainty Aware Hierarchical Decision-Making Mechanism for Service Management of Mobile Charging Service Oriented Electric Vehicles" within the scope of "TÜBİTAK 1002-A Rapid Support Module" has been accepted.

One of our Electrical and Electronics Engineering Department lecturers, Dr. Ayşe KARAOĞLU's article titled "Estimating and Minimizing Movement Artifacts in Surface Electromyogram" was published in the Journal of Electromyography and Kinesiology.

One of our Electrical and Electronics Engineering Department lecturers, Dr. Fatma Gülşen ERDİNÇ 's article titled "Rolling horizon optimization based real-time energy management of a residential neighborhood considering PV and USS usage fairness" was published in the "Applied Energy" journal.

One of our Electrical and Electronics Engineering Department lecturers, Dr. Fatma Gülşen ERDİNÇ 's article titled "Cost minimization oriented energy management of PV-assisted refueling and recharging stations for FC-ultracapacitor hybrid trams" was published in the "Energy Conversion and Management" journal.

CIVIL ENGINEERING

The research paper titled "On Fractional Integral Operator Over Non-Newtonian Calculus" prepared by one of our department academic members, Assis. Prof. Dr. Sajedeh N. Sigaroodi was published in the TWMS Journal of Applied and Engineering Mathematics.

MECHATRONICS ENGINEERING

The article named "Exploration of the Improving Effect of Cd-doping on Structural, Photocatalytic and Biological Properties of ZnO Nanoparticles" prepared by Asst. Prof. Dr. Kenan ŞENTÜRK and his working group has been accepted for publication by the Journal of Nanoparticle Research.

SOFTWARE ENGINEERING

The book titled "C and C++ with Practical Examples " written by our Software Engineering Department Chair, Dr. Serkan GÖNEN, and Prof. Dr. Ercan Nurcan YILMAZ from Gazi University, has been published by İGÜ Publications.

