



FACULTY OF ENGINEERING AND
ARCHITECTURE

BULLETIN

AUGUST 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

30 AUGUST

VICTORY

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***NEWS FROM
THE FACULTY***

News From Faculty

August 2023



Industrial Engineering

New Industrial Engineer candidates joined us. According to 2023 YKS preference results, 6, full scholarship; 19 Industrial Engineer candidates with 50% scholarships joined us. We congratulate our students who have chosen Istanbul Gelişim University and wish them success in their university life.

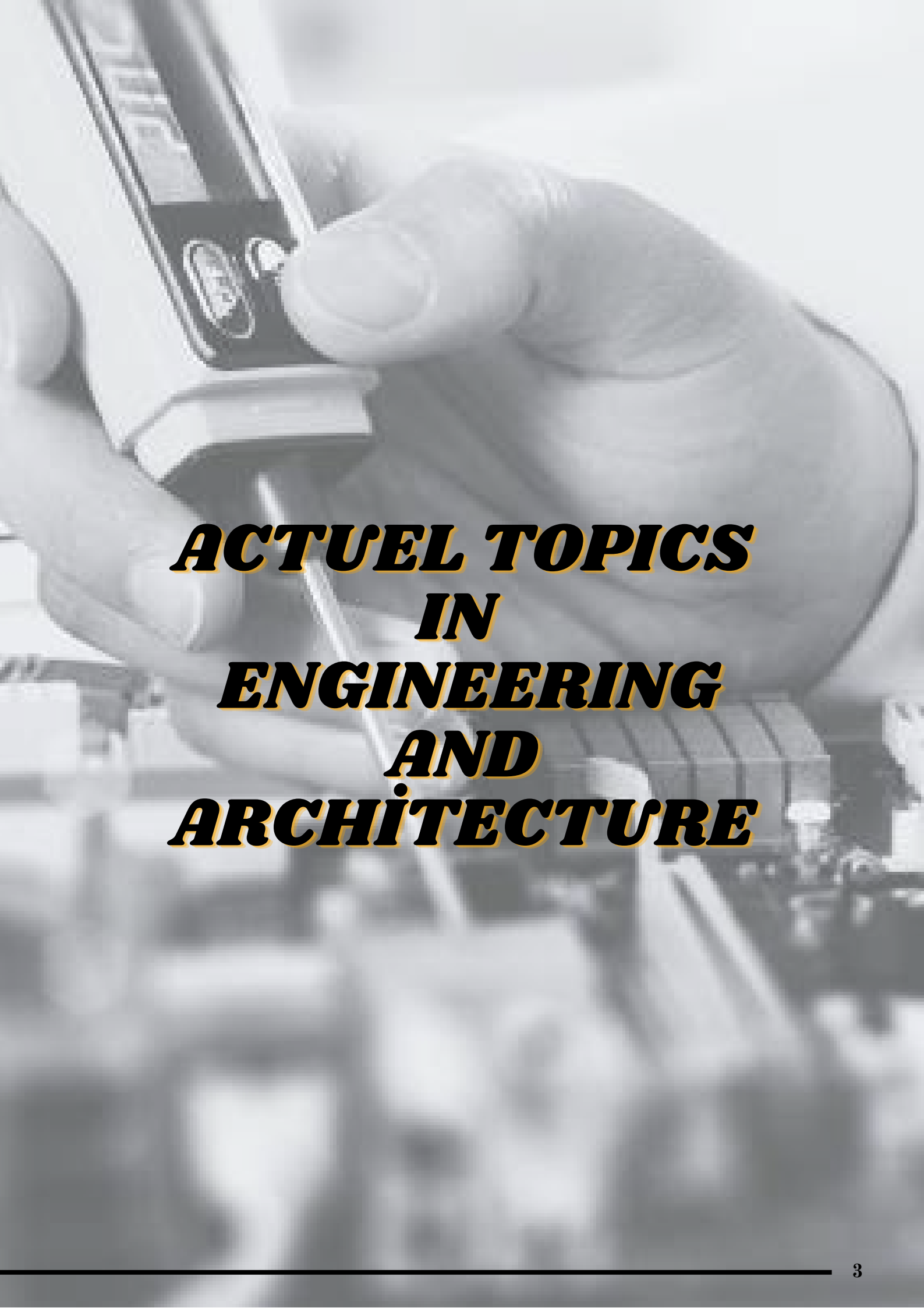
Mechatronics Engineering

1)Research Assistant Muhammed Lütfi TIRABZON has joined to Mechatronics Engineering Academic Staff. In 2015, I started my undergraduate education at Düzce University, Department of Mechatronics Engineering. At the first Teknofest in 2018, I won the 1st place with the autonomous vehicle I made in the Advanced category of the Robotaksi competition. Following my undergraduate degree, I started my master's degree with thesis in Marmara University Mechatronics Engineering department. In 2023, I joined the academic world as a Research Assistant in my department.



Civil Engineering

Res. Assist. Asena Pınar ÖZER started to work in our Civil Engineering (English) program.



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



Computer Programs That Industrial Engineers Should Know

#001

1. Microsoft Office
Programları

#002

2. Visual Studio

#003

3. Gams/Lindo/Lingo

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6. SQL (Microsoft
Structured Query
Language)

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Resource Planning)

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8. SolidWorks



Computer Programs That Industrial Engineers Should Know

Industrial engineers perform tasks such as optimizing production processes, increasing efficiency, and improving logistics and supply chain management. In this context, some important computer programs that industrial engineers should know are:

1. Microsoft Office Programs

Microsoft Office is a suite of office productivity software designed for business and personal use. It is mainly used for different tasks such as creating documents, managing databases, preparing presentations and creating spreadsheets. Microsoft Office programs are widely used tools in business and education, allowing you to perform different tasks more easily and effectively.

2. Visual Studio

Visual Studio is an integrated development environment developed by Microsoft. This platform enables software developers to write code in different languages, manage projects, debug and build applications. It is especially designed to make software development processes more effective and efficient. Visual Studio offers support for many programming languages. You can develop applications using languages such as C++, C#, Visual Basic, Python, JavaScript, HTML, CSS.

3. Gams/Lindo/Lingo

GAMS (General Algebraic Modeling System), LINDO and LINGO are software used to solve mathematical modeling and optimization problems. These software help to find the best solution by expressing complex decision making problems through mathematical formulas and constraints. By incorporating advanced mathematical optimization techniques and algorithms, they help make data analysis and business decision processes more effective and efficient.

4. AutoCad

AutoCAD is a professional design and drawing software used in computer aided design (CAD). It is mainly used to create 2D (two-dimensional) and 3D (three-dimensional) drawings, design and prepare technical drawings. AutoCAD is a tool that simplifies the design and drawing processes for professionals in different industries. It is used in architecture, engineering, construction, product design and more.

5. Arena

Arena is a simulation software used to model, simulate and analyze business processes. This software is used to understand, optimize and improve business processes in different industries. It enables better business decisions by evaluating data through simulations before testing them in the real world.

6. SQL (Microsoft Structured Query Language)

SQL (Structured Query Language) is a programming language used to manage, store, query, and manipulate relational databases. SQL is a language used for data manipulation and querying on relational database management systems (RDBMS).

7. ERP (Enterprise Resource Planning)

ERP (Enterprise Resource Planning) is a software system used to manage different business processes of enterprises in an integrated way and to increase efficiency. ERP helps businesses manage their business processes more effectively by facilitating data sharing between different departments. ERP can include different modules depending on the size and needs of businesses. These modules cover different business areas such as supply chain management, human resources, finance, manufacturing, inventory management, sales and marketing.

8. SolidWorks

SolidWorks is a CAD (Computer Aided Design) software used for three-dimensional modeling and design. This software is used to support product development processes in engineering, manufacturing, design and similar areas. SolidWorks is a powerful CAD tool used to accelerate design processes, improve product development processes, and meet design needs across industries.

Industrial engineers play a vital role in today's business world to increase efficiency, optimize processes and increase the competitiveness of businesses. Therefore, having the right tools can help them do their job more effectively and efficiently. It should not be forgotten that technology is developing rapidly and the needs of industrial engineers may change in parallel. Therefore, it is important to follow new technological developments and learn new tools. Industrial engineers can do their jobs more effectively and efficiently by constantly keeping themselves updated. This effort can increase both individual success and the success of businesses.

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Some News in the World of Science

Prepared by : Dr.Lecturer Mustafa
NURI



- **New findings on Mars' water cycle**

Based on data obtained by Curiosity rover from Mars' Gale crater, the research team of W. Rapin of the Institute for astrophysics and planetary sciences research at the University of Toulouse and colleagues, revealed important information about the short-period dry-wet cycles of water once believed to exist on the Martian surface. These evidences show that, in addition to the hydrological activities that have been detected previously and that occur occasionally due to the effect of volcanoes, short-term seasonal activities also occur, which allows prebiotic polymerization. This study, published in the journal Nature, can be considered an important step in the search for signs of life on the Martian surface.

- **Detailed investigation of the Kahramanmaraş earthquake**

Zha Jia from the Scripps Institution of Oceanography in San Diego, USA, and the colleagues published their article in the August issue of Science, which includes a detailed analysis of two devastating earthquakes that occurred in Kahramanmaraş in February 2023. In the study, besides near and far ground measurements, satellite data and physical models including the dynamic structure and interaction of fault lines were used. In the study, it was stated that physical models as well as measurement data would be useful in examining the geophysical characteristics of the region after the earthquake.

- **Prediction of solar activities**

The effects of the sun's activities on the communication systems in the world has been a subject that has been researched for a long time. Accurate estimation of plasma winds, particle currents and radiations originating from the sun is also of great importance in minimizing the damages that may occur in communication systems. Prantika Bhowmik of Durham University in the United Kingdom and colleagues from different organizations have published a paper on the performance of data-based and physical models of observed cycles in sunspots and the sun's magnetic activity. This article was published on the website of Space Science Reviews in July.



US Begins Providing F-16 Training to Ukrainian Pilots

Washington has commenced providing F-16 fighter jet training to Ukrainian pilots, further strengthening their defense cooperation. This move represents a significant milestone as a result of the robust military collaboration between the two nations.

The Ukrainian Ministry of Defense confirmed that the United States has initiated F-16 fighter jet training for Ukrainian air force pilots. The training program aims to enhance Ukraine's air defense capabilities and increase access to modern fighter jet technologies.

The President of Ukraine emphasized that this training program is a crucial step in bolstering the country's defense capacity. He highlighted that the collaboration with the US serves the purpose of promoting regional stability and safeguarding Ukraine's sovereignty.

Experts suggest that Ukrainian pilots receiving F-16 training will contribute to the modernization of the air force and aligning with NATO standards. Simultaneously, this step is considered a manifestation of the US support and commitment to Ukraine.

Ukraine's F-16 training program introduces a new dimension to regional security dynamics, and international observers closely monitor the collaboration between the two countries.



- **Machine Learning and Dark Factories: The Future Unveiled**

Imagine stepping into a factory where there are no workers, no human supervisors, just an intricate dance of robots and machines, governed by the omnipotent force of machine learning algorithms. Welcome to the world of "Dark Factories," a phenomenon that is redefining manufacturing as we know it.

- **The Rise of Dark Factories**

Dark Factories, the term coined for fully-automated manufacturing facilities, are no longer the stuff of science fiction. Enabled by advances in machine learning and robotics, these factories can operate 24/7 without the need for human intervention. No lunch breaks, no sick leaves, and no salaries—just relentless productivity.

- **The Role of Machine Learning**

Machine learning algorithms are the architects of this new industrial revolution. They control the robots, analyze data to optimize performance, and even handle complex tasks like quality control. Machine learning also allows these factories to be highly adaptable. They can switch from making car parts one day to assembling smartphones the next, all without requiring a human to reprogram them.

- **Ethical Concerns**

This utopian productivity comes with its ethical dilemmas. What happens to the human workforce? While some argue that automation will create more skilled jobs, the fact remains that a vast majority of factory jobs could be made redundant. There's also the issue of the enormous energy consumption that these machines require, which has significant environmental implications.



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The Human Element

In traditional factories, humans bring an element of creativity and problem-solving that machines have yet to replicate. Also, there's a sentimental factor to consider; many artisanal techniques that have been honed over generations could be lost forever. Plus, can we really trust a machine to uphold the highest safety standards, particularly in sectors where human lives could be at risk, such as pharmaceuticals?

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What's Next?

Like it or not, dark factories are not a distant possibility but an imminent reality.

Governments and industries need to work together to establish ethical guidelines and transitional programs for workers who might be displaced.

Sustainable practices must also be developed to mitigate the environmental impact of these factories.

In conclusion, Dark Factories, driven by machine learning, are redefining the very fabric of manufacturing. They promise unparalleled efficiency but also pose complex ethical questions that society must address. The future is here, and it's both fascinating and slightly terrifying. Just like any powerful tool, the benefits and risks of dark factories hinge on how responsibly we wield this technological sword. It could either be the harbinger of a new age of prosperity or a Pandora's box that, once opened, unleashes consequences we are ill-prepared to handle.



- **Artificial Intelligence: Friend or Foe?**

Artificial Intelligence (AI) has rapidly infiltrated various facets of our lives. From book recommendations on Amazon to medical diagnoses by your doctor, AI is increasingly becoming a constant presence. However, the swift rise of AI also brings with it a multitude of ethical and practical debates. Two recent flashpoints—the Writers Guild of America (WGA) strike and issues surrounding patents—have thrown into sharp relief the question of whether AI is friend or foe.

- **The WGA Strike and AI**

The latest strike by the WGA has ignited conversations about authorship rights concerning AI-written scripts. Advanced AI algorithms can now write short stories, screenplays, and even newspaper articles. Yet, this reality risks devaluing the labor and intellectual rights of human writers. So, who's the friend and who's the foe here? While AI may be a 'foe' threatening the livelihood of writers, it could be a 'friend' for producers seeking to cut costs.

- **The Patent Maze**

Can content and inventions generated by AI be patented? This is a divisive question that has the legal world at odds. If an invention created by AI is granted a patent, should it be considered equal to those produced by human intelligence? Here, too, AI exists in a grey area. It could be an opportunity for big tech companies but a threat to independent inventors.

- **Friend or Foe?**

Whether AI is a 'friend' or 'foe' depends on context and perspective. If AI aids doctors in medical diagnoses, it is certainly a 'friend' to patients. However, if it overshadows the work of artists and writers, it could be a 'foe.'

PLASMA STATE OF MATTER AND SOME BASIC APPLICATIONS

PREPARED BY : ASST. PROF. DR. KENAN ŞENTÜRK

Although the word plasma sometimes appears as a medical term, sometimes as the name of the toy that children play with, and sometimes as an expression in modern television technology, it actually describes a very important scientific concept, which is described as the 4th state of matter, especially in the field of physics. To describe the plasma very simply, it is possible to describe it as an ionized gas. It is estimated that almost all of the visible universe (more than 99.9%) is in the plasma state. Even from this point of view, it can be understood how important it is, and even because of this feature, it is a multidisciplinary subject that can be closely related to many fields of science. The sun, lightnings, and illuminations called Northern lights, which can be viewed as a visual feast, are examples of natural plasmas. In particular, astrophysicists by stating that almost the entire universe is plasma they predict that learning the behavior of plasma may actually mean learning about astrophysics. In addition to the natural plasmas mentioned above, plasmas can also be produced in artificial environments, that is, in the laboratory environment.

Artificially produced plasmas such as electrical arcs, industrial plasmas, plasma in fusion reactors, gas discharges, etc. are used extensively in industry and technology. Gas discharge systems are one of the most frequently encountered plasma production methods. To describe it simply, after a glass tube is filled with gas and two additional electrodes are placed, the product obtained by applying high voltage to the electrodes will be a plasma. The words plasma used in biology and medicine are often confused with the concepts of plasma used in physics. As stated above, the scientific world generally accepts plasma as the 4th state of matter. Although the first studies in this field were seen with the discovery of direct current (DC) arc discharge systems at the beginning of the 19th century, the use of the word plasma in the scientific world or literature started with Irving Langmuir in 1929. Langmuir was awarded the Nobel Prize in Chemistry in 1932 for his work in this field.

PLASMA STATE OF MATTER AND SOME BASIC APPLICATIONS**PREPARED BY : ASST. PROF. DR. KENAN ŞENTÜRK**

Today, there are measuring instruments called Langmuir probes, which are still used to measure many physical properties of plasma. In 1970, Hannes Olof Gösta Alfvén was awarded the Nobel Prize in Physics for his important work on plasma. There are not only ions and electrons in the plasma, which is described as ionized gas, but also photons, excited atoms or molecules, radicals, UV rays, neutral atoms or molecules. In order to achieve ionization, a high energy or a strong electric/magnetic field is required. Plasmas can be classified according to their temperature, pressure, etc. Since it is basically composed of charged particles and electrons, plasma can be affected by electric and magnetic fields, so it can be controlled by these fields. Since charged particles interact with each other, a collective motion emerges in plasmas for this reason.

Plasma, which can be controlled under suitable electric and magnetic fields, has a wide application area in technology. The reasons why plasma applications can be used in very wide areas are that the reactive particles formed cause conditions such as cleaning, abrasion, surface activation, etc. on the surface of the material without deteriorating the properties of the material used. When it comes to the interaction of a surface with plasma, it should be understood that the surface actually interacts with electrons, radicals, UV rays, etc. Since electrons play an important role in these interactions, it is very important to obtain information about their temperature (electron temperature, T_e), densities and energy distributions. In plasma applications, interactions, collisions, etc., which naturally occur depending on the properties of the material and the gas used, are encountered as a result of energizing the material to which the plasma is applied and thus breaking some bonds.

PLASMA STATE OF MATTER AND SOME BASIC APPLICATIONS

PREPARED BY : ASST. PROF. DR. KENAN ŞENTÜRK

As a result, it can be said that the materials can be provided with the targeted or desired surface properties by using plasma. In short, to mention the application areas, a large number of applications such as coating with plasma, sterilization, waste disposal, etc. can be made. In plasma coatings, a nanoscale polymer layer is formed on the surfaces of the objects placed in the plasma. With this coating process, which can take only a few minutes, a permanent coating is obtained that bonds to the material surface at an atomic scale. Another application area is sterilization. Plasmas that can be obtained at atmospheric pressure do not need a vacuum environment and the surface, material, food, etc. cleaned with these plasmas are not damaged since they are sterilized without reaching high temperatures. Since organic substances can be removed from the surface in this way, as mentioned above, this can actually be considered as a cleaning. There is no flame burning system in solid waste disposal application for plasma, it is a preferred method as it is a highly efficient and reliable method.

In this method, which is called plasma gasification, the energy provided by the plasma generator is used, while no smoke and harmful emissions are produced, synthetic gases are obtained. Many differences can occur with the effects of plasma on the surface of the materials. Due to the evaporation that may occur from the surface with the applied plasma, the abrasion and accordingly the adhesion properties can be changed. The hydrophilic or hydrophobic properties of the material surface can be changed by plasma application. This application is of great importance especially in textiles, as it forms the basis for the production of textile materials that protect from rain. Not only the interaction of the fabric material with water, but also its durability, antibacterial properties, resistance to washing, etc. can be changed with plasma applications. It is possible to get rid of many chemical and industrial wastes produced by conventional methods with plasma methods used in the textile and leather industry.

PLASMA STATE OF MATTER AND SOME BASIC APPLICATIONS

PREPARED BY : ASST. PROF. DR. KENAN ŞENTÜRK

Unlike the above-mentioned applications, another area that has emerged in recent years attracts a lot of attention. This field is plasma agriculture, which is one of the newest application areas of plasma physics. An important and innovative research area has emerged due to the improvement potential in the fields of agricultural production and food preservation, with the plasmas which can be called cold plasma in which the electrons may be at high temperatures but neutral particles, ions and radicals are at temperatures close to room temperature. This research area is characterized as a friendly plasma technology in increasing agricultural yield and combating plant pests. Since the world population is estimated to be around 10 billion in the 2050s, the global agriculture and food industry will be in greater demand than ever, and accordingly, especially natural resources will decrease significantly. Using pesticides, etc., which is one of the steps to be taken to increase food production, will harm the environment and living things.

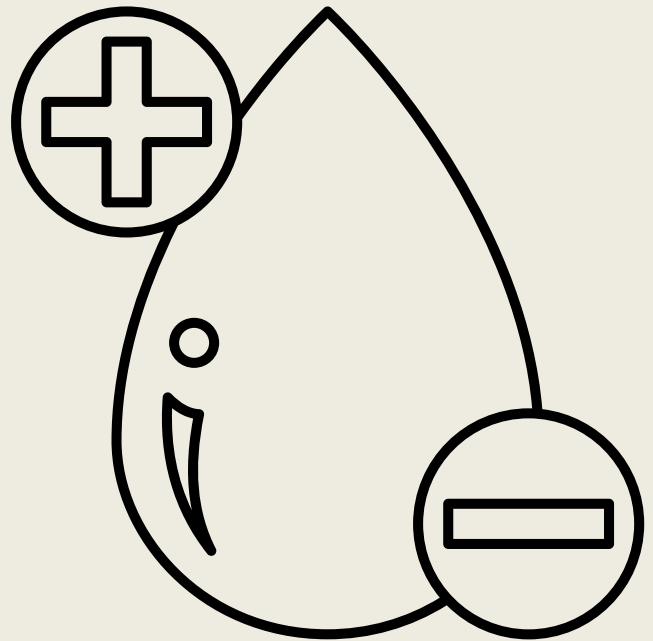
As it can be understood from here, the importance of different and environmentally friendly solutions will increase gradually. It will be very important features that the solutions consume less water and energy and be environmentally friendly. Cold plasma technology has the potential to be a total solution with the above-mentioned features by working at low temperatures and short processing times without harming the product, food, seed, human and environment. Plasma discharges are non-toxic applications and they cause changes in reactive oxygen and nitrogen species density, pH, oxidation-reduction potential and electrical conductivity by affecting seed germination, plant growth and agricultural product quality with products such as physical and reactive neutral species, electrons, ions, UV radiation.

PLASMA STATE OF MATTER AND SOME BASIC APPLICATIONS

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With recent studies, it has been observed that cold plasma applications have very positive effects on seed germination, plant development and growth. In addition, it has been determined that the damage caused by various microorganisms such as *Escherichia coli*, *Staphylococcus aureus*, *Candida albicans*, *Aspergillus niger*, etc. observed in many food products, is reduced by the effect of reactive species produced by plasma. While it is possible to reduce pesticides with activated water obtained by applying cold plasma, very promising results have also been obtained in commercial fertilizer production.

In the coming years, it is possible to say that plasma applications due to their easy applicability and environmentally friendly properties will be seen more frequently in the fields such as electronics, textile, medicine, automotive, aircraft, food industry etc.



ENERGY STORAGE INVESTMENTS TO REVOLUTIONIZE RENEWABLE ENERGY SECTOR

In recent years, energy storage investments have gained momentum and are poised to reshape the renewable energy sector. The growth trajectory in energy storage investments, which has attracted investors' attention in recent years, will continue to accelerate due to significant initiatives taken by countries participating in the global race for energy technologies. Turkey, having established the regulatory framework for energy storage activities, is also poised to be a player in this competition.

The energy storage technology, open to new ideas and innovative products, presents a significant opportunity for entrepreneurs and investors. Indigenous production of storage technologies is expected to be the preferred choice for investors. As storage systems become more widespread, entrepreneurs who can accurately identify emerging needs and develop software, smart recycling systems, and innovative products that can extend the product lifespan will gain a competitive advantage.

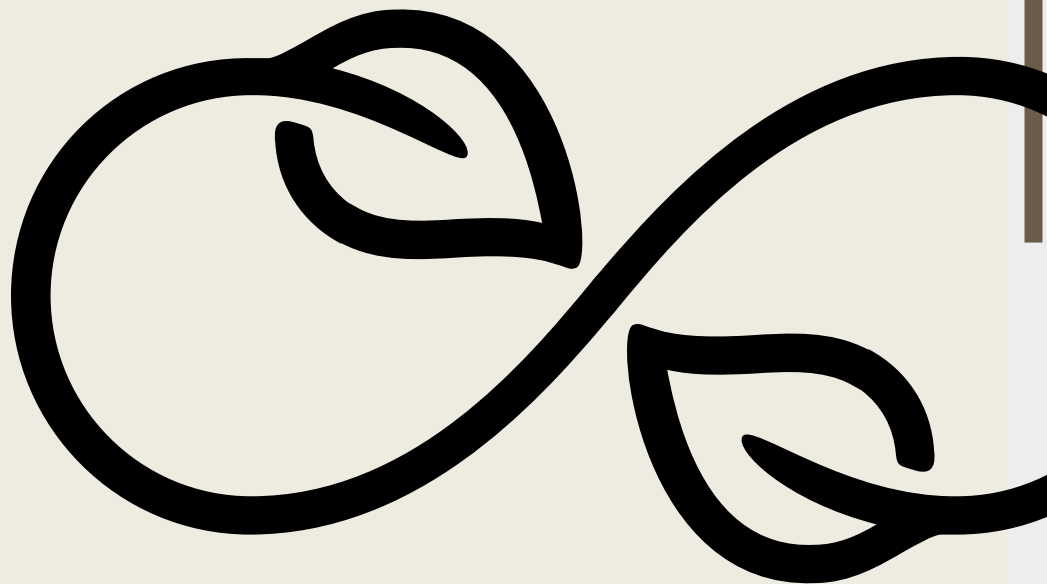
Support measures, such as granting capacity to storage-integrated wind and solar power plants without auctions, will enhance investor interest. Starting from November 19, 2022, applications for storage-integrated wind energy plants (RES) and solar energy plants (GES) have reached a total installed capacity of 221,000 MW, as reported by the Energy Market Regulatory Authority (EPDK). These applications, along with associated industrial and technological investments, are projected to translate into investments of around \$40-45 billion.

Industry representatives highlight that energy storage investments will not only boost wind turbine and solar panel production but also accelerate battery technology advancements. They emphasize that these investments will contribute to employment and impact the development of the electric vehicle sector through the advancement of indigenous battery technologies.

Especially in Turkey, energy storage investments are expected to contribute significantly to the nation's renewable energy sector. The global energy storage capacity is projected to grow by over 15 times by the end of 2030. According to a Bloomberg NEF report, global energy storage capacity, which stood at 27 GW/56 GWh at the end of 2021, is projected to reach 43 GW/91 GWh in 2022 and forecasted to reach 508 GW/1,432 GWh by 2030. In the EMEA region (Europe, Middle East, and Africa), residential applications, primarily in Germany and Italy, are anticipated to experience rapid growth beyond expectations due to investments of approximately €1 billion, leading to a storage capacity increase to 4.5 GW/7.1 GWh by 2022. The region is expected to reach an energy storage capacity of 114 GW/285 GWh by 2030, with major contributions from the United Kingdom, Germany, Italy, Greece, and Turkey.

The issuance of preliminary licenses for storage-integrated RES and GES in Turkey marks a pivotal period for the nation's domestic and renewable energy sectors. Mustafa Yılmaz, the President of EPDK, emphasized the significance of these preliminary licenses in demonstrating the energy sector's investment appetite.

Following the secondary regulatory changes published in the Official Gazette on November 19, 2022, EPDK began accepting applications for storage-integrated electricity generation. Investors committed to establishing storage facilities are now able to apply for preliminary licenses for RES and GES projects without a competition held by the Turkish Electricity Transmission Corporation (TEİAŞ). According to Mustafa Yılmaz, President of EPDK, 4,369 applications were received by EPDK as of November 19, 2022, totaling 221,000 MW of installed capacity within the context of storage-integrated RES and GES applications. Yılmaz pointed out that this capacity exceeds 252,000 MW in terms of installation and investment demand, which is more than 2.5 times the current installed capacity. Yılmaz also revealed that, based on connection opinions received from TEİAŞ and related distribution companies, approximately 26,500 MW capacity has been allocated for 403 projects. He highlighted that this allocation is expected to translate into investments of around \$40-45 billion once combined with associated industrial and technological investments.





***ACADEMIC AND
SCIENTIFIC
ACTIVITIES***

INDUSTRIAL ENGINEERING



Working in Department of Industrial Engineering Assist Prof. Dr. Binnur Gürül's new book chapter has published.

Istanbul Gelisim University (IGU) Engineering and Architecture Faculty Industrial Engineering Faculty Member Assit. Prof. Dr. Binnur Gürül's "The Production Management Information Systems" section was published in the book "Business and Management Information Systems in Strategic Management"

The book is introduced as follows:

"In strategic management, while performing business and management functions, collecting data using information systems provides time and cost advantages to businesses. Healthy decisions can be made with real and correct information, otherwise wrong decisions put the lives of businesses at risk. In the book; While trying to deal with the role, importance, applications and problems of business and management information systems in strategic management, the use of information systems in business functions has been tried to be examined and presented in depth.

This comprehensive book titled "Business and Management Information Systems in Strategic Management"; It will enable students and experts who encounter issues such as digitalization, strategic management, information systems, production, human resources, accounting, marketing, to better learn and assimilate current concepts, information and developments on the subject. In addition, it is an important source book on artificial intelligence, learning/autonomous robots, internet of things (IoT), applications, information systems security and informatics ethics. Original book written and published with great care; It will be a very useful roadmap in terms of raising awareness for academics, researchers, administrators, graduate students and those who are interested in the aforementioned subjects."



Working in Department of Industrial Engineering, Res. Assist. Nurdan Tüysüz attended the International Conference on Intelligent and Fuzzy Systems (INFUS2023).

Res. Assist. Nurdan Tüysüz presented his study "Picture Fuzzy Z-AHP: Application to Panel Selection of Solar Energy" at the International Conference on Intelligent and Fuzzy Systems (INFUS2023) between 22-24 August 2023, and the full text of the study was published by Springer in the conference proceedings book.

CIVIL ENGINEERING

The research paper titled “Influence of the Web Opening Shapes on the Bending and Free Vibration Responses of Castellated Steel Beams” prepared by the head of our department, Assis. Prof. Dr Ahmad Reshad NOORI and his master student Nihad Abdulzahra Mezher MEZHER was published in the International Journal of Engineering Technologies.

Assis. Prof. Dr. Mustafa NURI was the first author for a book chapter entitled "Meteorological Drought Assessment in Mountainous Regions Based on Outputs of General Circulation Models" published by CRC Press (<https://doi.org/10.1201/9781003276555>).

Assis. Prof. Dr. Yasin PAŞA (PhD) and Eng. Abdülbaki HACI (MSc), his book titled "Computer Applications in Water Resources Engineering (HEC RAS)" was published. In addition, Dr Yasin PAŞA has graduated 5 MSc. students (4 as a supervisor and one as a second supervisor in partnership with Istanbul Cerrahpaşa University). In addition, 2 PhD students of Dr Yasin PAŞA have successfully passed the PhD Qualifying Examination.

AERONAUTICAL ENGINEERING

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This achievement reflects not only the dedication of Sabri Khalil and Adem Khalil, but also our institution's commitment to promoting academic excellence and interdisciplinary research. We extend our warmest congratulations to them and look forward to their future contributions to the forefront of aviation innovation.

For more details, the full article can be found in MDPI Aerospace under the title "Digital Twin Technologies for Automated Aircraft with Artificial Intelligence and Synthetic Data Generation".

Our Department Students Sabri Khalil and Adem Khalil's Collaborative Study with University of Salento Published in MDPI Aerospace Magazine

We are proud to announce that the collaboration of our two esteemed students, Sabri Khalil and Adem Khalil, has resulted in an important publication. Their research, titled "Digital Twin Technologies for Automated Aircraft with Artificial Intelligence and Synthetic Data Generation," was successfully published in the prestigious journal MDPI Aerospace.

This study with the University of Salento offers an in-depth look at the field of Digital Twin Technologies, which has great potential for the aviation industry. Using the power of Artificial Intelligence (AI) and synthetic data generation, Sabri Khalil and Adem Khalil have discovered innovative ways to increase the capabilities of automated aircraft.

This research not only contributes to the advancement of aerospace technology, but also highlights the importance of international cooperation. The publication in the journal MDPI Aerospace confirms the quality and relevance of their work, placing them among the rising voices in this dynamic field.

This achievement reflects not only the dedication of Sabri Khalil and Adem Khalil, but also our institution's commitment to promoting academic excellence and interdisciplinary research. We extend our warmest congratulations to them and look forward to their future contributions to the forefront of aviation innovation.

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<https://www.mdpi.com/2226-4310/10/8/683>

ARCHITECTURE



Urban Dreams Workshop by Chamber of Architects

Organized for the 16th time this year by TMMOB Chamber of Architects Istanbul Metropolitan Branch, the Urban Dreams Workshop's theme was "Urban Resilience". A total of seventy-five students came together in three groups to do their summer internships in the workshop, which was led by academics representing different universities. Working in the Karaköy and Galata districts, the students completed their conceptual work with group work and individual presentations during the thirty-day study period. The students, who developed their approaches to the area through urban analysis from different perspectives, tried to present their designs individually with the guidance of the workshop instructors.

In the atelier where both the students of the Department of Architecture took part in the workshop and our graduate students served as workshop assistants, the lecturers from the Department of Architecture of our University, who undertook the workshop coordinators, contributed to the workshop. Serranur Yeşil, a 1st year student of the Department of Architecture, took part in the workshop and our graduate student Arda Erden worked as an assistant in the workshop. Architecture and Design Club President Ebrar Sugün and graduate students Elif Sağır, Kevi Beqiraj, Amarildo Petriti, Serenay Bayram and Merve Savrunlu followed the workshops.

Our lecturers Assoc. Prof. Türkan Uzun and Lecturer Burak Kaan Yılmazsoy, who participated in the workshops, officially represented our University from the beginning of the 30-day workshop process and undertook the workshop coordinator. In addition to being the workshop coordinator, Assoc. Prof. Türkan Uzun made a presentation on "Resisting Urban Architecture and Life on the Street" on Wednesday, August 2, 2023, and at the end of the workshop, she conveyed her experience and knowledge in the field of architectural history and the history of Feshane to the workshop participants. Lecturer Burak Kaan Yılmazsoy also shared with the students with his presentation on "Urban Identity". In addition, Assist. Prof. Meryem Müzeyyen Fındıkgil enriched the workshop by contributing to the workshop juries. Assist. Prof. Erdem Üngür, who is on the staff of the Department of Architecture until the end of the 2022-2023 Academic Year, was among our professors representing our University by undertaking the role of workshop coordinator.



Urban Dreams Workshop is a large production center that has been going on continuously for 16 years and brings together many universities under one roof. As Istanbul Gelisim University Department of Architecture, we have taken part in this production with our academic staff and students this year as we do every year. The results, products, discussions and interviews that emerged during and as a result of the workshop have also made a great contribution to architectural education.

MECHATRONICS ENGINEERING



The research article titled 'Optimization of a Rapid and Sensitive Nucleic Acid Lateral Flow Biosensor for Hepatitis B Virus Detection' by Asst. Prof. Dr. Abbas Ali Husseini, Lecturer of Biomedical Device Technology at Vocational School of Health Services, and Asst. Prof. Dr. Serap Yeşilkır Baydar, one of the faculty members of our faculty, was published in Molecular Biology Reports (Q2 journal within the scope of Springer Nature, SCI-E) in August 2023.

The aforementioned research article was produced from the project titled 'CRISPR Based HBV DETECTR Lateral Flow Test Development' (KAP-050421- AAH)', supported by the Scientific Research Projects Coordination of Istanbul Gelisim University and conducted by Asst. Prof. Dr. Abbas Ali Husseini and researcher by Asst. Prof. Dr. Serap Yeşilkır Baydar.