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## ENGINEERING FACULTY

## e - Newsletter

**MAY / 2026**

**Issue: 44**



## LATEST ACADEMIC PUBLICATIONS

### Articles published in internationally indexed peer-reviewed journals (SCI-SCIE-ESCI and Scopus)

Al-Shuayfani, S. A., Gunday, S. T., Cevik, E., Almessiere, M. A., & Baykal, A. (2026). Quasi-solid-state polymer electrolyte for a high-stability, low-temperature Ni-Co phosphide supercapacitor. *Journal of Power Sources*, 685, 240429.

Slimani, Y., Almessiere, M. A., Baykal, A., Mojtahedi, E., & Altintas, M. Y. (2026). Magnetic properties and exchange coupling in Al<sup>3+</sup>-substituted multi-element spinel ferrite Co<sub>0.25</sub>Ni<sub>0.25</sub>Zn<sub>0.25</sub>Cu<sub>0.25</sub>Fe<sub>2</sub>O<sub>4</sub> nanoparticles. *Applied Physics A*, 132(7), 576.

Slimani, Y., Baykal, A., Shirsath, S. E., Almessiere, M. A., Amir, M., Fulari, A. V., & Mojtahedi, E. (2026). Enhanced EMI Shielding by Tailoring Exchange Coupling and Interfacial Polarization in Hard/Soft Sr-Hexaferrite/SrIn-Doped Co-Ni Spinel Ferrite Nanocomposites. *Ceramics International*.

Almessiere, M. A., Baykal, A., Slimani, Y., Shirsath, S. E., Korkmaz, A. D., Güngüneş, H., ... & Akhtar, S. (2026). Effect of Cr-V co-substitution on microstructure, hyperfine interactions, magnetic, and microwave absorption properties of Sr-Ba hexaferrites. *Materials Chemistry and Physics*, 132657.

Toklu, Y. C., & Kaya, Y. (2026). Finite element method with energy minimization (FEMEM) in structural analysis: State-of-the-art. *Challenge Journal of Structural Mechanics*, 12(2), 145-161.

Choupani, N., & Aliha, M. R. M. (2026). Mini review on fracture toughness studies of different engineering materials performed by the ENDB sample under pure and mixed modes I/II, I/III and I/II/III conditions. *Engineering Solid Mechanics*

Choupani, N., Shameli, M., Haddadi, E., & Aydiner, P. (2026). Investigating Crack Resistance Behavior of Polypropylene Using J integral, J-R Curve and Fractographic Analysis. *Fatigue & Fracture of Engineering Materials & Structures*.

Asadi, P., Akbari, M., Aydiner, P., Moghanian, A., Salarvand, V., & Safaee, S. (2025). Spark Plasma Sintering: A solid-state sustainable recycling technique. *International Journal of Lightweight Materials and Manufacture*.



Halit NAZLI, Osman YILDIRIM, Adaptive Fuzzy Network Denoising for Enhanced Thin Ice Visualization in Cross-Polarized Sentinel-1 SAR, International Journal of Electrical and Electronics Research (IJEER), Volume 14, Issue 1, Pages 19, e-ISSN: 2347-470X

Halit NAZLI, Osman YILDIRIM, Yasser GUEDIRI, Tail-Preserving Shape Partitioning via Multi-Orientation Centroid-Line Extraction and Fuzzy Influence-Zone Assignment, 18, 752, 2026.

Dehghanian, K., Muftuoglu, T.D., Oral, H.V. (2026). Geotechnical Considerations for Climate-Adaptive Buildings and Nature-Based Solutions. In: Brears, R.C. (eds) The Palgrave Handbook of Nature-Based Solutions. Palgrave Studies in Sustainable Futures. Palgrave Macmillan, Cham.

Tanyildizi H, Ziada M (Mahmut SEZER), Uysal M, Erdem S. Bacterial healing of cracks in metakaolin-based geopolymer concrete exposed to high temperatures. Structural Concrete. 2026.

Ergin, M. E. (2026). Behavioral risk profiles in urban pedestrian–vehicle crashes: Insights from latent class and SHAP analysis. Traffic Injury Prevention, 1–10.

Muftuoglu, T. D. (2026). High-accuracy day-ahead precipitation forecasting with an interpretable CatBoost regressor and a LightGBM-based extreme-event alerting pipeline. Water Science, 40(1), 32.

Mansour, H., Saleh Katubi, K. M., Kırkbınar, M., & Al-Buriahi, M. S. (2026). Developing of recycled CRT glass for enhanced radiation shielding via the impact of zirconium oxide doping. Radiation Physics and Chemistry, 113939.

Demirci, S., & Sahiner, N. (2026). Enzymatic-oxidative polymerization of 2-naphthol via horse-radish peroxidase entrapped p (HEMA) cryogel reactor and its antioxidant properties. Biochemical Engineering Journal, 110251.

Hakan Koman, Modelling and the Behaviour of ICF Wall Structures, Journal of Applied Engineering Sciences, 16,1,2026



Yildirim, P. (2026). Application of fractal analysis in civil engineering: aggregate size distribution, surface damage detection, and crack propagation monitoring. *Journal of Building Pathology and Rehabilitation*, 11(3), 183.

### **Papers presented at international scientific meetings and published in proceedings books**

Kaya, Y., Bay, İ., & Toklu, Y. C. (2026). Effects of Quakes on Earth and Mars on a Tensegric Structure. In *Turkish Conference on Earthquake Engineering* (pp. 16-26). Cham: Springer Nature Switzerland.

Ergin ME (2026;), "Capturing heterogeneity in urban air quality forecasting using a station-specific machine learning model". *Proceedings of the Institution of Civil Engineers - Transport*

Ergin, M. E. (2026). Characteristic Features of Traffic Crashes Occurring Under Nighttime Conditions: The Case of İzmir. 14th International Göbeklitepe Scientific Studies Congress, 26–27 April 2026, Şanlıurfa, Türkiye.

Karabuğa, A. (2026). Geothermal energy–based hydrogen production via an ORC using mixed refrigerants. 10th International Hydrogen Technologies Congress (IHTEC-2026).

Karabuğa, A. (2026). Global hydrogen emergence: A review and scenario based outlook. 10th International Hydrogen Technologies Congress (IHTEC-2026).

Ayca, S., & Dincer I. Photoelectrochemical Hydrogen Production Using a Rotating Cu/BaTiO<sub>3</sub> Coated Ni Foam Electrode. 10th International Hydrogen Technologies Congress (IHTEC-2026), May 10–13, 2026, at Istinie University, Istanbul, Türkiye.

Us, E., Kaymakci, B. Y., Corbaci, E., & Sahin, M. F. (2026). A comprehensive review of computational intelligence in modern electronic warfare: From deterministic approaches to hybrid meta-heuristic optimization. *International Conference on Recent Advances in Space Technologies (RAST 2026)*, Istanbul, Türkiye.

Us, E., Okur, F. B., Sahin, M. F., Okur, H. U., & Özcan, A. (2026). Metaheuristic parameter optimization for ghost imaging reconstruction: A comparative study on EuroSAT remote sensing data. *International Conference on Recent Advances in Space Technologies (RAST 2026)*, Istanbul, Türkiye.



## SEMINAR

The “Seminar on Analysis, Testing, Project Management, and Professional Development in the Sector” was organized by Istanbul Aydın University Faculty of Engineering. Held on 22 May 2026 at the T Block Turkuaz Hall, the event hosted Senior Engineer Huseyin DUYAN, Analysis & Testing Unit Chief at the Department of Information Technologies of Istanbul Metropolitan Municipality, as the speaker. Moderated by Prof. Dr. Ferdi SÖNMEZ, Head of the Software Engineering Department at Istanbul Aydın University, the seminar addressed analysis and testing processes in the sector, project management practices, and professional development opportunities.



## PARTNERSHIP

The Department of Software Engineering at Istanbul Aydın University Faculty of Engineering held cooperation meetings with invited academics and industrial researchers from Spain to conduct joint research and project activities in the field of maritime cyber security. As a result of the meetings, an agreement was reached to develop joint studies focused on software engineering, cyber security, sector-oriented R&D, and particularly Maritime Cyber Security.





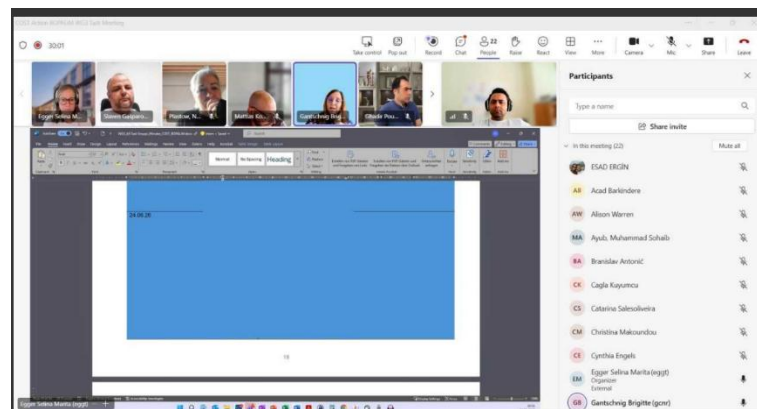
### PANEL

A panel titled “Watching the Oceans from Space” was held under the hosting of our university, in cooperation with the IAU Environmental and Human Health Application and Research Center, EURAS, the Department of Computer Engineering at IAU Faculty of Engineering, and ABMYO. The panel, which included participants from Italy, Pakistan, Iran, Egypt, and India, featured Dr. Stefano VIGNUDELLI from the Italian National Research Council (CNR) as the keynote speaker.



### PROJECT MEETING

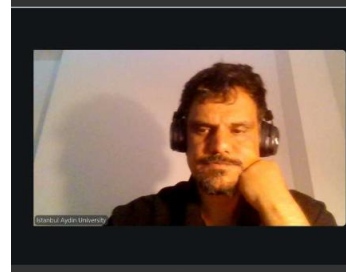
Assist. Prof. Dr. Esad ERGİN, Head of the Civil Engineering (English) Programme, has been accepted as a researcher in the COST project titled “Building Opportunities for Participation and Accessibility through Lifelong Community Mobility” (BOPALiM). On 24 June, the work carried out within the scope of the work package and the ongoing processes of the COST project were discussed.





### WEBINAR

A webinar titled “Prevention and Management of Agricultural Waste: Introduction to the FoodWaste COST Action” was held on 22 June within the scope of Zero Waste Week by Assoc. Prof. Dr. Hasan Volkan ORAL, a faculty member of the Department of Civil Engineering at Istanbul Aydın University Faculty of Engineering. During the event, information was shared on the prevention of agricultural waste, sustainable waste management approaches, and the studies carried out within the scope of the FoodWaste COST Action.



### TECHNICAL VISIT

Within the scope of the technical visit organized by the Department of Electrical and Electronics Engineering at Istanbul Aydın University Faculty of Engineering, students visited the Eksim Enerji Silivri Wind Power Plant facility operating in Silivri, Istanbul. Many undergraduate students participated in the technical visit, which was carried out under the coordination of Department Head Prof. Dr. Osman YILDIRIM.





### EVENT

Within the scope of the “Series of Academic Talks” events organized by the Department of Electrical and Electronics Engineering at Istanbul Aydın University Faculty of Engineering, Engin DEMİRBORA, one of the experienced figures in the telecommunications sector, met with students. DEMİRBORA, who serves as Electronics and Communications Project Director at Hyperion Telekom and is one of the leading professionals in the sector, delivered a presentation titled “From Enigma to the Present,” in which he explained the historical development of telecommunications and communication technologies to the participants.



### ALUMNI REUNION

Abdurrahim YİRMİBEŞOĞLU, a graduate of the Department of Electrical and Electronics Engineering, shared his post-graduation career and entrepreneurship experiences with our students. YİRMİBEŞOĞLU, who founded his own company, Baz Aydınlatma, and started production activities in the fields of electronics and lighting technologies, inspired our students with his success story in the sector.





## ERASMUS MOBILITY

- Prof. Dr. Osman YILDIRIM, Head of the Department of Electrical and Electronics Engineering, visited the University of Bari Aldo Moro in Italy for one week within the scope of Erasmus mobility.
- Assist. Prof. Dr. Zafer ÖZDEMİR from the Department of Mechanical Engineering participated in the “Global Week 2026” event held at Kaunas University of Technology in Kaunas, Lithuania, between 04–08 May 2026 within the scope of Erasmus+. During the event, he delivered lectures on “Cryogenic Heat Treatment” and “Advanced Welding Methods.”
- Assist. Prof. Dr. Tevfik Denizhan MÜFTÜOĞLU, a faculty member of the Department of Civil Engineering (English), delivered lectures to civil and computer engineering students at the Polytechnic Institute of Portalegre in Portugal within the scope of Erasmus+. In his lectures, he addressed his original artificial intelligence architecture developed to predict extreme rainfall events that determine the design loads of critical hydraulic structures such as dam spillway capacities and urban drainage networks, bringing together both disciplines.
- Assist. Prof. Dr. Neslihan DEMİR from the Department of Industrial Engineering carried out a Staff Teaching Mobility activity at the Institute of Production Engineering and Photonic Technologies within Technische Universität Wien between 04/05/2026 and 08/05/2026 as part of the KA131 Erasmus+ Staff Mobility Programme.



Erasmus+

## ACTIVITIES

- Prof. Dr. Zafer ASLAN, a faculty member of the Department of Computer Engineering, will serve as Vice Chair of the International ICCW2026 Conference, which will be held on 25–26 November 2026 in Islamabad, Pakistan, in cooperation with our university, Riphah International University, and Tashkent State Transport University.
- Prof. Dr. Yusuf Cengiz TOKLU, a faculty member of the Department of Civil Engineering at the Faculty of Engineering, Istanbul Aydın University, served as a keynote speaker at the International Conference on Innovations in Infrastructure and Construction Engineering (ICINFRA2026). Prof. Dr. TOKLU delivered a presentation titled “An Improved Form of FEM: Finite Element Method with Energy Minimization (FEMEM) to Deal with Problems That Cannot Be Solved by FEM.”



- The study titled “Experimental Investigation of Performance and Emission Characteristics in Diesel, Biodiesel, and Hydrogen-Fueled Internal Combustion Engines,” conducted under the supervision of Assist. Prof. Dr. Süleyman ŞİMŞEK, a faculty member of the Department of Mechanical Engineering, was evaluated as part of the application process for the 2026 International Electric Vehicle Races Electromobile Category. The Technical Design Report prepared within the scope of the study was found successful as a result of the referee evaluation and received a score of 2606.
- A meeting was held between the Faculty of Engineering and North China Electric Power University to evaluate possible academic collaborations. During the meeting, opportunities for cooperation between the two institutions in joint research activities, student and academic staff mobility, and education and training were discussed. The meeting is expected to contribute to strengthening academic relations between the faculties.

## HIGH SCHOOL SUMMER

Istanbul Aydın University Faculty of Engineering is launching the “Shadow Engineers” Program for high school students. The program, to be held on 20–24 July 2026, will offer students the opportunity to explore current engineering fields such as computer science, artificial intelligence, Industry 4.0, aerospace, energy systems, biotechnology, and smart city technologies.

The poster for the "Shadow Engineers" program features a green background. At the top left is the Istanbul Aydın University logo. To its right, the text "İSTANBUL AYDIN ÜNİVERSİTESİ" and "Mühendislik Fakültesi" is displayed. Below this, the title "Lise Öğrencilerine Yönelik 'Shadow Engineers' PROGRAMI Başlıyor" is written in white and yellow. A list of topics is shown in yellow boxes: "BİLGİSAYAR BİLİMLERİ VE KODLAMA TEMELLERİ", "5G, DİJİTAL TASARIM VE YAPAY ZEKA", "ENDÜSTRİ 4.0 VE AKILLI ÜRETİM", "HAVACILIK, UZAY VE ENERJİ SİSTEMLERİ", and "BİYOTEKNOLOJİ VE AKILLI ŞEHİR TEKNOLOJİLERİ". The bottom left contains the text "DETAYLI BİLGİ İÇİN: liseyazokulu.aydin.edu.tr" and the bottom right shows the dates "20-24 Temmuz 2026". The central image shows two students, a boy and a girl, standing in front of a large digital screen displaying various engineering-related graphics.



### MEETING

Prof. Dr. Ferdi SÖNMEZ, Head of the Software Engineering (English) Department at Istanbul Aydın University Faculty of Engineering, and Asst. Prof. Dr. Tülay ÖZDEN, Vice Head of the Department, participated in meetings held within the scope of academic and industrial cooperation with Poland. During the meetings, joint research projects, academic collaborations, and sector-oriented R&D activities were discussed.



### SEMINAR

Prof. Dr. Ferdi SÖNMEZ, Head of the Software Engineering Department at Istanbul Aydın University Faculty of Engineering, participated as a speaker in the seminar titled “Professions and Artificial Intelligence,” held at Çorlu Science High School on Friday, 08 May 2026. During the seminar, the effects of artificial intelligence on the future of professions, transformation processes in the field of engineering, and the importance of considering technological developments in students’ career planning were discussed.

