

FORTNIGHTLY ENGINEERING REVIEW

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Founded by Najam ul Hassan (Marhoon)
 Vol. 50 No. 01 January 1-15, 2025 Ph:+92-21-32215961-2
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Government Unveils 'Uraan Pakistan' 5-Year Economic Transformation Plan

On the eve of the new year, the federal government announced its ambitious plans for Pakistan's economic future. The government aims to achieve sustainable GDP growth of 6% by 2028, create one million jobs annually, attract an additional \$10 billion in private investment each year, and reach an export target of \$60 billion by FY2028.

Prime Minister Shehbaz Sharif officially launched the National Economic Transformation Plan 2024-2029, named Uraan Pakistan: Homegrown National Economic Plan, on Tuesday. This five-year initiative is designed to tackle Pakistan's key economic challenges through a framework known as the "Five Es": Exports, E-Pakistan (digital growth), Equity and Empowerment, Environment, Food and Water Security, and Energy and

Infrastructure.

Earlier in April, Prime Minister Shehbaz had emphasized the need for a comprehensive strategy to double exports. He urged the Ministry of Trade to develop an export strategy in collaboration with successful entrepreneurs and key stakeholders.

The unveiling ceremony, held in Islamabad, was attended by Finance Minister Muhammad Aurangzeb, Planning Minister Ahsan Iqbal, and Deputy Prime Minister Ishaq Dar.

In his address, PM Shehbaz commended the ministers for their presentations and acknowledged the challenges faced by the government in the past nine months. He noted that despite difficulties, the government had managed to achieve macro-economic stability, although he emphasized that this was only the beginning of a long journey that would require hard work and sacrifice. He called for unity in the effort to revive Pakistan's economy.

The Prime Minister also addressed the government's decision to enter into another program with the International Monetary Fund (IMF), acknowledging the reasons behind it, such as the financial losses of state-owned enterprises, the circular deficit, and corruption. He stressed the need to make inputs cheaper, encourage investment, and remove import restrictions to foster competition and efficiency, ultimately boosting export-led growth. He added that exports were essential for earning foreign currency and that the plan focused heavily on achieving this goal.

Further, PM Shehbaz highlighted the need to promote the digital and technology sectors, especially artificial intelligence, and called for political harmony to move forward with the privatization of state-owned enterprises, referencing past setbacks such as the unsuccessful privatization of Pakistan International Airlines (PIA).

The Prime Minister set a goal of attracting \$10 billion in annual foreign investment, acknowledging that this was a challenging target. However, he emphasized that local investment must be facilitated first to attract foreign investment.

Foreign Minister Ishaq Dar echoed these sentiments, urging an end to petty politics for Pakistan to achieve progress. Reflecting on the nation's decline from the 24th to the 47th largest economy, Dar expressed optimism that Pakistan could still join the G-20 group of nations, stressing that the goal was achievable if the country remained focused.

Dar also noted the importance of collective ownership of the economic roadmap for long-term success.

Finance Minister Muhammad Aurangzeb outlined the key pillars of the plan. These include stimulating private investment to create jobs and improve liv-

ing standards, boosting exports as a driver of productivity, and optimizing public finances for stability and sustainable growth. Aurangzeb emphasized that the implementation of these measures was crucial, not just the planning itself. He pointed out that while India made significant progress under the leadership of Manmohan Singh, Pakistan had not achieved comparable success over the same timeframe.

Aurangzeb also introduced a new tax policy unit, which will operate independently to focus on policy, while ensuring better tax collection and plugging tax leakages through data analytics. This move aims to accelerate privatization efforts and create continuity in tax policies.

The government's ambitious goals include achieving 6% annual GDP growth by 2028, generating one million new jobs each year, attracting \$10 billion



Prayers and Hope for 2025

in annual private investment, and reaching \$60 billion in exports by FY2028. Aurangzeb emphasized that while Pakistan has always known the policies it needs, the real challenge lies in implementing them, and this plan will be supported by a robust implementation framework.

The government's message was clear: achieving economic transformation requires collective effort, long-term commitment, and the successful execution of reforms that have long been overdue. - ERMD

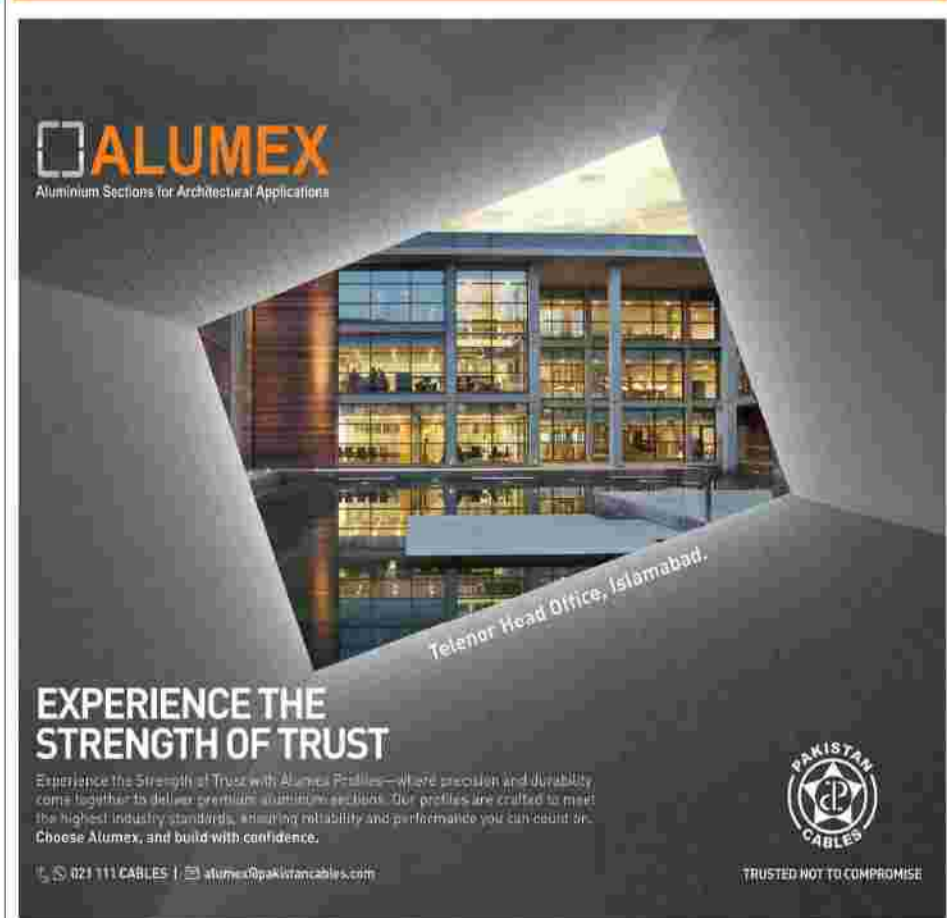


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Global Experts Collaborate at ICAMPE-2024 to Drive Innovation in Engineering

The 4th International Conference on Advanced Materials and Process Engineering (ICAMPE-2024), held on December 18-19 at NED University of Engineering and Tech-

and industry professionals to discuss groundbreaking advancements in materials science and sustainable development. The conference was organized in collaboration with the Institute of Engineers Pakistan (IEP), ASHRAE Pakistan Chapter, and the Higher Education Commission (HEC).

ing an environment of growth and development for society. The conference featured insightful keynote addresses from international experts, including Prof. Dr. Antonio Feteira (Sheffield Hallam University, UK), Dr. Salman Raza Naqvi (Karlstad University, Sweden), and Dr. Yasemin Tabak (TUBITAK,

Lahore), Dr. Younus (UET Peshawar), Dr. Mureed Husain (COMSATS), and Dr. Aqeel Bazmi (COMSATS) highlighted the impact of national research on the international stage and its global recognition.

Participants were captivated by over a dozen technical sessions showcasing research on advancements in materials science, chemical engineering, environmental

such as Mustafa Jaffar (CEO, Dynea Pakistan Ltd.), emphasized the importance of bridging the gap between academic research and industrial applications, particularly in the pursuit of sustainability. Representatives from Lotte Pakistan and other organizations also delivered insightful talks on technology, industry, and the role of young engineers.

The conference celebrated research excellence with



Closing

In his closing remarks, Engr. Prof. Dr. Muhammad Tufail (Pro-Vice Chancellor) expressed pride in the university's role as a hub for engineering innovation. He highlighted the event's success in sparking meaningful dialogue and collaborative opportunities between academia and industry. The contributions of collaborators IEP, ASHRAE Pakistan, and HEC were pivotal in making the conference a success, with the media partner, Engineering Review, providing extensive coverage of the event. With participants leaving inspired by the wealth of knowledge shared, ICAMPE-2024 reaffirmed its place as a premier platform for fostering advancements in sustainable materials and processes. — Karachi: Report by Dr. Saad Nadeem, Assistant Professor, Chemical Engineering Department, NEDUET.



nology, Karachi, concluded with remarkable success. The event, organized by the Department of Chemical Engineering, brought together leading researchers, academicians,

The conference opened with speeches by Mr. Nasir Hussain Shah (Energy Minister) and Prof. Dr. Sarosh Hashmat Lodi (Vice-Chancellor, NEDUET), who emphasized the importance of innovation and research in foster-

Turkey). The talks explored topics such as functional nanomaterials, sustainable energy solutions, and innovative approaches to engineering challenges. National speakers such as Prof. Dr. Naved Ramzan (UET

remediation, and nanostructured catalysts. Notable presentations included the application of recycled materials in industrial processes and strategies for optimizing energy storage in dielectric ceramics. Industry leaders,

the presentation of the Chairman IEP Medal for Best Paper. Certificates and mementos were awarded to outstanding contributors, fostering a spirit of innovation and collaboration among attendees.

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Islamabad Seeks to Attract Foreign Investment with Quick Fixes for Rashakai SEZ Challenges

Federal Planning Minister Ahsan Iqbal has urged authorities to address the challenges related to land acquisition and power tariffs faced by China's Century Steel Group, the primary investor in the Rashakai Special Economic Zone (RSEZ) in northwest Pakistan. This call comes as Islamabad intensifies its efforts to attract foreign investment in key sectors to strengthen the economy.

The Rashakai SEZ, which spans 1,000 acres, is a flagship project under the China-Pakistan Economic Corridor (CPEC), a multi-billion-dollar

initiative aimed at connecting Pakistan's Gwadar port with China's Xinjiang region. However, Century Steel Group has expressed growing frustration over delays in finalizing a land purchase agreement and securing a reliable power supply for its steel mills in the zone. This frustration has been voiced over the past couple of months.

Minister Iqbal recently met with Century Steel Group officials to discuss these issues. During the meeting, Iqbal instructed Pak-

istan's Board of Investment (BoI), the Power Division, and the Federal Board of Revenue (FBR) to swiftly address the

Press of Pakistan (APP), Iqbal specifically directed the Khyber Pakhtunkhwa Economic Zones Development and Man-

agement Company (KPEZDMC) to finalize land prices for the company as

soon as possible. KPEZDMC officials explained that Century Steel had requested discounted land

rates. A consultant for Century Steel highlighted that, in China, land is often provided for free in SEZs, urging Pakistan to consider similar incentives.

In response to concerns about power tariffs, Iqbal instructed relevant authorities to ensure that power distribution in the RSEZ is fairly priced and that the zone receives electricity at rates similar to those of regular consumers. Additionally, he asked the FBR to

conduct a consumption survey in the region to accurately estimate power demand in the area.

Pakistan is actively seeking investment from China and other regional partners, particularly from the Middle East, as it strives to reduce its dependence on foreign aid and stabilize its economy. Last year, the country narrowly avoided a sovereign default by securing a \$3 billion bailout from the International Monetary Fund (IMF). Since then, Pakistan has made some economic improvements, and Finance Minister Muhammad Aurangzeb has emphasized the importance of long-term financial reforms and international investment for continued economic stability. -- ERMD



problems hindering the development of the industrial zone. According to the Associated

Company

Electricity at rates similar to those of regular consumers. Additionally, he asked the FBR to

Engr. Haider Ali Khan Elected President of Pakistan Engineers Forum

Members of Pakistan Engineers Forum (PEF) all over the country have elected Engr Haider Ali Khan as President of PEF for the term 2024-2027.

Engr Khan, a seasoned engineer and educator, brings a wealth of experience to the role.

About Engr Haider Ali Khan

Engr Khan held the position of President of PEF Central Punjab and contested for the seat of Vice Chairman of PEC (Punjab) in the recently held elections on August 18, 2024. His impressive track record includes being elected as a member of the PEC governing body in 2007, 2015, and 2018. He also previously served as President PEF for one term before Engineer Al Kazim Mansoor took office in 2020.

Background and Experience
Hailing from Kasur, Engr Khan studied



at Govt. College Lahore and the University of Engineering and Technology Lahore, where he earned his BSc in Civil Engineering in 1990. He began his career working on projects in Saudi Aramco and later held construction management roles at ICI Pakistan Limited and Babcock & Wilcox Limited.

Engr Khan has been engaged in technical and engineering education, serving as Founder Principal of the College of Engineering at Lahore Leads University since 2011.

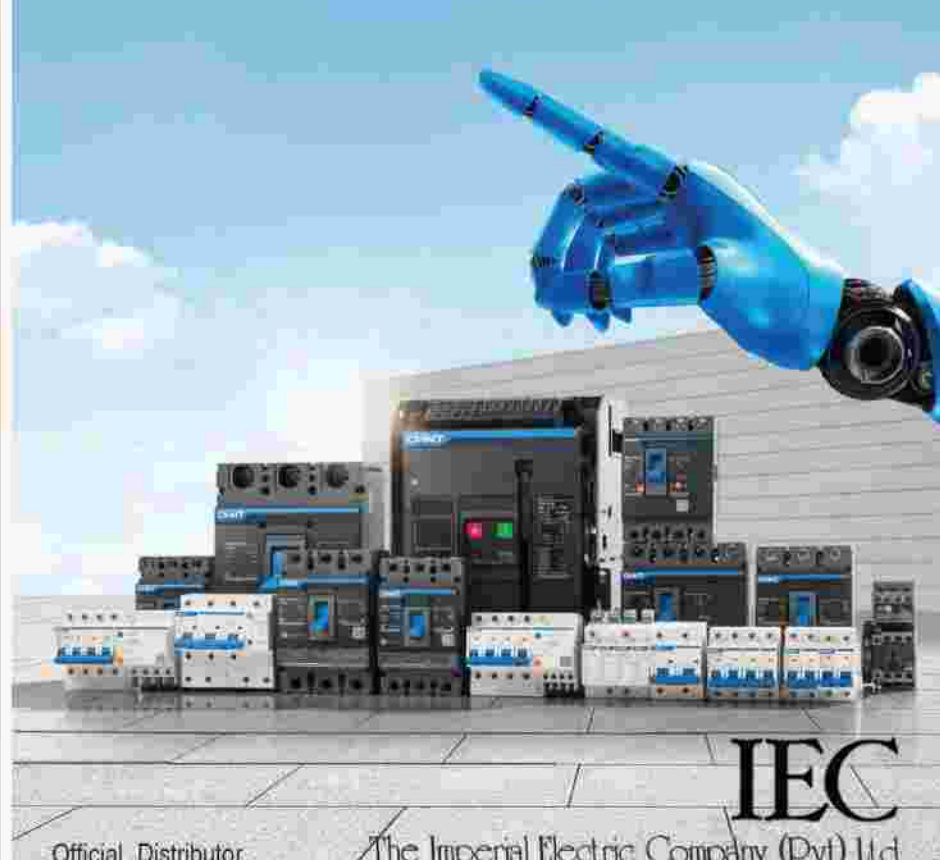
Election Details
The Central Executive Council of PEF nominated Engr Abdul Saboor Zaman (Karachi), Engr Haider Ali Khan (Lahore), and

Engr Muhammad Naeem (Peshawar) as candidates for the upcoming term. Members of PEF across Pakistan participated in the online election, which utilized a unique code for voting. Engr Haider Ali Khan emerged as the elected President. -- PR

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ers highlighted Schneider Electric Pakistan's business landscape and offerings in

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The Country President for Schneider Electric Pakistan, Humayun Akhlaq said: "By sharing insights into the latest trends, best practices, and product offerings, the Schneider Electric team in Pakistan aims to empower customers to drive sustainable growth and achieve business excellence." – Karachi: PR



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The Power of Materials Engineering: Key Takeaways from DUET's 2nd International Conference

The Department of Metallurgy and Materials Engineering at Dawood University of Engineering and Technology (DUET), Karachi, successfully hosted the highly anticipated 2nd International Conference on Blurring the Barriers: The Interdisciplinary Value of Materials Engineering on December 17-18, 2024. This landmark event served as a dynamic platform for exchanging ideas, showcasing cutting-edge research, and fostering collaborations between researchers, industry leaders, and academics. The conference aimed to highlight the transformative potential of materials engineering

from the Materials and Engineering Research Institute at Sheffield Hallam University. Prof. Feteira captivated the audience with his insights into recent advancements in materials science, particularly focusing on sustainable and high-performance materials that are revolutionizing industries. His address set a compelling tone for the two-day event. Adding to the thought-provoking discussions during the inaugural session, Prof. Dr.

presented diverse perspectives and groundbreaking research in material science and engineering, and twenty-four panelists representing both academia and industry. These panelists engaged in stimulating discussions on the interdisciplinary applications of materials engineering. The plenary sessions focused on key themes, including:

- Materials Engineering in the Healthcare

- Prof. Dr. Irshad Hussain, LUMS, Lahore
 - Prof. Dr. Mohsin Ali Raza, University of the Punjab
 - Dr. Zakir Hussain Dahri, DG, Agriculture Sindh
 - Prof. Dr. Niaz Ahmed Bhutto, IBA Sukkur
 - Dr. Muhammad Atiq-ur-Rehman, Institute of Space Technology, Islamabad
 - Dr. Muhammad Zahir Iqbal, GIK
 - Dr. Sajjad Ali Mangi, MUET, SZAB Khairpur
- Key luminaries from materials engineering and industries such as healthcare, architecture, green energy for a sustainable environment, circular economy, smart technology, agribusiness, and avionics also attended.



ing in various domains. It emphasized the critical importance of interdisciplinary approaches in addressing global challenges and advancing technologies in sectors such as healthcare, architecture and construction, green energy, the circular economy, and aerospace. This two-day conference was dedicated to promoting engagement, networking, and collaboration among researchers from renowned universities and professionals from diverse institutions, encouraging the exchange of knowledge and technology for mutual benefit. Over the decades, the field of materials engineering has improved the well-being of people through innovative systems. These achievements are a testament to the multidisciplinary, pragmatic, and systems-oriented approach that characterizes the field.

Hakan Ateş from Gazi University, Ankara, Türkiye, shared valuable insights on the integration of advanced materials into emerging technologies. Prof. Ateş emphasized the importance of fostering international collaborations and highlighted how innovative materials are critical in addressing modern industrial and environmental challenges.

- Sector
- Materials Engineering & Architecture/Construction Industry
 - Materials Engineering & Green Energy for a Sustainable Environment
 - Materials Engineering & the Circular Economy

The event was honored by the presence of Prof. Dr. Atta-ur-Rahman, a renowned educationist, as the Chief Guest, and Prof. Dr. S. M. Tariq Rafi, Chairman of the Sindh Higher Education Commission (Sindh HEC), as the Guest of Honor. Commodore Nauman Rafique, Director General, Pakistan Navy Concept and Doctrine Development Center, also graced the occasion.



The Guest of Honor, Barrister Murtaza Wahab, Mayor of Karachi, praised DUET's initiative in organizing such a significant event. In his address, Barrister Wahab spoke about the importance of breaking down silos and fostering interdisciplinary approaches to problem-solving. He commended the organizers for their vision and stressed the role of

In the technical presentations, scholars and industry experts presented over 50 research papers covering a diverse range of topics, from nanotechnology and advanced composites to solid-state electrolytes and smart coatings. Moreover, panel discussions covered future trends in materials engineering and strategies to promote interdisciplinary collaborations.

The event concluded with a vote of thanks from Prof. Dr. Samreen Hussain, Vice Chancellor of Dawood University of Engineering and Technology. She expressed heartfelt gratitude to the distinguished guests, speakers, participants, and organizing team for making the conference a resounding success. ■



address by Dr. Sajid Hussain Siyal, Chairperson of the Department of Metallurgy and Materials Engineering at DUET. Dr. Siyal expressed his gratitude to the participants, emphasizing the department's commitment to fostering innovation and collaboration in material science and engineering.

materials engineering in driving technological innovation and economic growth in Pakistan and beyond.

neering Research Institute, Sheffield Hallam University, UK

Prof. Dr. Samreen Hussain, Vice Chancellor of DUET, officially inaugurated the conference. In her remarks, she highlighted the relevance of the conference theme, stating that materials engineering is at the forefront of solving some of the world's most pressing challenges. She further emphasized the university's role as a hub for interdisciplinary research and knowledge sharing.

The inaugural session concluded with a heartfelt vote of thanks by Prof. Dr. Abdul Waheed Bhutto, a senior academic at DUET. Prof. Bhutto expressed his deep appreciation to the distinguished speakers, esteemed guests, and participants for their invaluable contributions to the success of the event. He also extended special gratitude to the organizing committee for their tireless efforts in making the conference a reality.

- Prof. Dr. Hakan Ateş, Gazi University, Ankara, Türkiye
- Dr. Yasemin Tabak, TÜBİTAK, Türkiye
- Prof. Dr. Yu Yunua, Beijing University of Chemical Technology, China
- Dr. Tulio Hallak Panzera, Federal University of São João del Rei (UFSJ), Brazil

The keynote address was delivered by Prof. Antonio Feteira, a renowned scholar

The two-day conference featured an impressive lineup of experts and panelists, including five international speakers from leading universities and research institutions around the globe, nine national speakers who

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second term, expected to contest for the last time; Oldies should lead the way. PEC Chairman PEC advices former chairmen brace for 2024. Prayers and Hope for 2024. Party after Crow. Microsoft. Tampering with Indus River System Authority worries provinces. By Manzoor Shaikh. Understanding the lessons that the nations drawn from their centuries-old history otherwise had Prime Minister Sheikh Sharif withdrawing the notification of the Indus River System Authority (IRSA) chairman after stiff resistance from Sindh. But mind it, the amendment to the IRSA Act is still intact. Chief Minister Syed Murad Ali Shah made a telephone call to the Prime Minister and conveyed a very strong message. Minister for Water and Power, also spoke on a point of order in the National Assembly and raised concerns on the appointment of a retired bureaucrat as Chairman. IRSA: "On the very first day, if we start encroaching upon..." Contd on page 2.

A Quick Look at 2024

A Fresh Perspective on PEC Elections 2024

PEC Chairman Manzoor Shaikh has advised former chairmen to brace for the 2024 elections. He emphasized the importance of a fair and transparent process, highlighting the role of the National Engineering Council (NEC) and the Engineering Council of Pakistan (ECP). The article discusses the challenges ahead and the need for a united front among engineering professionals.

China's Cooperation from Relying on Pakistan

China's cooperation with Pakistan is a key factor in the region's stability. The article explores the economic and political implications of this relationship, particularly in the context of the Indus River System Authority (IRSA) and the ongoing tensions between Pakistan and India. It highlights the role of international organizations like the World Bank and the International Monetary Fund (IMF) in supporting Pakistan's development.

Can SC Directives in Public Sector Universities

The Supreme Court's directives regarding public sector universities have caused a stir. The article discusses the impact of these directives on the education sector, focusing on issues like faculty appointments, curriculum changes, and the role of the government. It also touches upon the challenges faced by public sector universities in maintaining their standards and quality of education.

PEC Extraordinary

PEC Chairman Manzoor Shaikh has announced a special meeting of the Extraordinary General Meeting (EGM) of the Engineering Council of Pakistan (ECP). The meeting is scheduled for the 14th of February 2024, at the NEC Conference Center, Islamabad. The agenda includes the election of the new Chairman and the re-election of the members of the Council. The Chairman expressed his confidence in the ECP's ability to lead the engineering profession in Pakistan towards a brighter future.



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Let's have a look at external upgrade of the re

The article discusses the challenges and opportunities for the external upgrade of the re... It highlights the need for a comprehensive approach that involves all stakeholders, including the government, academia, and industry. The article also mentions the role of international organizations in providing technical assistance and funding for such projects.

EC Embarks on a New Three-Year Journey

The Engineering Council of Pakistan (ECP) has embarked on a new three-year journey. The article discusses the council's vision, mission, and the key areas of focus for the next three years. It highlights the council's commitment to promoting the interests of the engineering profession and to ensuring the highest standards of education and practice. The article also mentions the council's ongoing efforts to improve its governance and to enhance its effectiveness.

Engineering an engine for 4th PEC Int'l Deans Conference exchange ideas to solve

The 4th International Deans Conference of the Engineering Council of Pakistan (ECP) was held in Karachi. The article discusses the conference's objectives, agenda, and the key takeaways. It highlights the exchange of ideas and experiences among the deans of engineering colleges and universities across the country. The article also mentions the conference's role in promoting the development of the engineering education sector and in addressing the challenges faced by the industry.

Economic recovery: Pakistan secures support of Int'l monetary, dev institutions

Pakistan has secured the support of international monetary and development institutions for its economic recovery. The article discusses the role of the International Monetary Fund (IMF) and the World Bank in providing financial assistance and technical support to Pakistan. It highlights the government's efforts to implement the reforms recommended by these institutions and to attract foreign investment. The article also mentions the importance of a strong and stable economy for the country's long-term development.

...the group with a wish that any bigger group may come and get it to the victory stand. The article that has attracted NEA, it may have...

Digital Twin Technology in Enterprise Management: Bridging Physical and Virtual Worlds

Engr. Dr. Muhammad Nawaz Iqbal

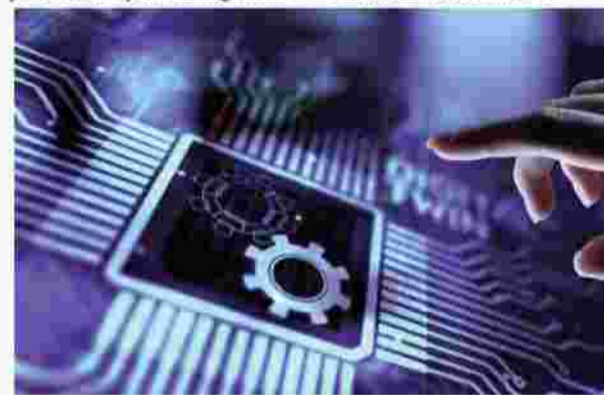
Digital twins have become an advanced solution for managing enterprise assets where a physical thing has its digital twin. Digital twins allow enterprises to model a physical system, product, or process in-depth and in real-time, all while achieving better results with fewer errors and greater efficiency. This technology uses information gathered from various sensor characteristics, IoT objects and much more to create real models of actual physical objects, which can be altered or interacted with within the technology platform. Digital twins' application in enterprise management introduces solid fundamentals to address the increased performance improvement rational. Organizations can keep track of asset status continuously, observe a deviation, and employ preventive measures. This cuts the time that machinery takes before it can be used again and in turn increases the lifespan of machinery that are highly crucial. In particular, for manufacturing and logistics industries strongly dependent on

highly technical equipment, digital twins offer an affordable approach to maintaining flawless functionality and addressing potential equipment failures.

Another major benefit of digital twins is generated from various dynamic models associated with it, which can simulate scenarios. It provides the enterprises the virtual environment on which they can test out different operational models that would not interfere with the actual operations. For instance, a factory manager can model what a new production schedule will look like or try a new layout of equipments to determine the most efficient flow rate. This capability ensures that business organizations are in a position to respond to new market conditions whenever these are available and make decisions based more on facts than feelings. In supply chain management, digital twins act as a source of a holistic representation of the company's value chain. They give enterprises tools to describe the material flow of products, find out where the problem is, and when demand changes. Real-time integration of information from suppliers, warehouses and distribution

channels increases supply system robustness and customer satisfaction. Thus, this approach guarantees that resources be consumed to their optimum; and that any disruptions be addressed before they happen.

As important as in each stage of the product's lifecycle, the applications of digital twins are also impactful in product lifecycle management



as well. Digital twins do not only extend from design and development phase all the way to deployment and even the retirement phase of the product's life. Engineers can also simulate rigid prototypes and learn of structural drawbacks and usage of materials during simulation without physically manufacturing their products. Digital twins, after the product

release, can also be used in ongoing monitoring, and if necessary, product updates and customer experiences may be updated to meet their needs.

Digital twins find application in smart cities and relate to areas such as urban planning and management of infrastructure. They serve as a Rest Controller of the city's layout for the city planners to simulate data to make decisions on

movement patterns, energy usage and resources. The decision makers of the city can get an idea of how to apply sustainable concepts to improve the standard of living in the different quarters. Another thing that can point to the use of digital twins is the prediction of potential effects of natural disasters and suggested measures. Another sector that greatly profits from using digital twin technology is healthcare. Avatars of the medical devices, the hospital environment, or—even—patients themselves may have a positive impact on health care's quality and on the service's organization. For instance, patient-specific digital twins allow for better estimation of the physical response to various therapeutic measures since each patient is considered a special case. This approach in devising diagnosis, reduces the side effects in a patients treatment process.

In retail specifically, they are transforming the entire experience that a consumer gets or the running of stores. Today retailers have the chance to utilize virtual replicas of stores in order to define the best layouts, evaluate various merchandising scenarios and even determine customers' traffic simulation. Regarding e-commerce, they are useful in forecasting the behavior of consumers and estimating their purchases, controlling stock and providing customization of the advertisements. Such capabilities can help retailers to sustain the forthcoming marketplace challenges successfully.

In energy and utilities industries, digital twins are also helping them manage and improve performance and reduce overall impact on the environment. Utility companies, windmill generators, and solar companies can derive a lot of value from monitoring original equipment buildup and analytics that digital twins offer. In this way, modeling helps stress-test companies and introduces approaches that

would help save money and meet environmental standards at the same time. This is a move that is in harmony with the main world trends aimed at using renewable energy and reducing carbon footprint.

Some of the industries earliest to embrace digital twin are the aviation and automotive industries applying it in the design, maintenance and overall operational optimization. All developers of aircraft can perform tests on engines and airframes as well as predict the behavior of their aircraft to guarantee safety. The same way, auto makers leverage digital twin in improving the car design and evaluating the vehicle fleets, in addition to creating the self-driving technology.

Rather, digital twins are also creating positive change in construction and real estate sectors. Virtual models can also be used in demonstrating how well a given structure will be designed structurally, or how energy efficient the building will be once it's in use or how effectively a particular space inside a building will be utilized. As mentioned in the operational phase, the digital twins help the managers of the building to, monitor facility systems, control energy consumption, and forecast maintenance requirements. This not only brings down cost but also results in improved satisfaction levels of the occupants of the premises.

In the given field of education and training, it is used to give realistic learning sensations and simulations. Machineries, facilities or processes can be created or designed virtually to enable trainees handle them real like situations, which of course helps to climate extreme risks. This is especially useful in the fields like the oil and the gas, where mistakes which are made can be disastrous.

With more enterprises integrating the digital twin technology in their operations, issues to do with data security and privacy come to the forefront. Due to the overwhelm-



ing number of generated and shared data by digital twins, there are certain risks and threats that have to be considered. It will also be pertinent to use firewalls and other mechanisms like encryption and access control to enhance adequate protection of information within organizations for the sake of ascertaining expected corporate loyalty from stakeholders. To be precise, digital twins can be best and most efficiently utilized only if specialized assistance is sought from engineers, data scientists, and business strategists at the same time. IT vendors, subject-matter specialists, and consumers must work together to get the most out of this technology. In addition, companies have to rely on the infrastructure, which can be incorporated readily and manage the data integration easily for making the enterprises to function effectively in a large scale.

Digital twin technology is already gearing up to revolutionize the concept of the future enterprise management by dealing with duality of the physical and virtual realms. Its effectiveness to give monitoring detail, predictive analysis, and operation effectiveness make it an important tool in many sectors. In the future, the application of digital twins of everything will grow and make it possible for companies to set higher levels of technical advancement, environment preservation, and market prowess. ■

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Sales Blog for Young Engineers and Entrepreneurs THINK OUT OF BOX & TAKE THE BULL BY THE HORNS:

Muhammad Tariq Haq | ESL

On a chilly October morning in 1960, a future game-changer, was born in Boston. From the get-go, Reed Hastings was destined to think outside the box and always take the bull by the horns!

Growing up in a family that valued hard work and helping others, he learned that true success isn't just about personal wins; it's about making a difference in the world.



As a kid, Reed loved math. His thirst for knowledge took him to Swaziland, where he spent two eye-opening years teaching math in a rural school. He saw the tough side of life—poverty and resilience. Reed often said, "If you can make it in Africa with just ten dollars, no challenge back home can seem too big." This lesson became the backbone of his entrepreneurial journey.

After returning to the U.S., Reed earned a master's degree in computer science and jumped into the tech world. In 1991, he launched his first company, which found success quickly. But Reed knew that intelligence alone wouldn't make him a great leader. He rolled up his sleeves and worked on his leadership skills.

In 1997, everything changed. After being hit with a hefty late fee for a movie rental, an

idea sparked in Reed's mind. He dreamed up a new way to rent movies—Netflix! It started simple: order DVDs online and get them delivered to your door. But Reed's vision was far ahead of this initial idea.

In 2007, he took a big leap of faith and shifted Netflix from DVD rentals to online streaming. This was a risky move since internet speeds were slow, and streaming was still new. But Reed believed in the future and encouraged his team to think big. To think OUT OF BOX!

Facing tough competition from giants like



Blockbuster, Reed stood his ground. His hard work paid off when Netflix launched its first original series in 2013, turning the company into a global powerhouse.

Reed's journey shows us that everyone has the potential to succeed. It highlights the power of vision, resilience, and taking risks. Success isn't just about having a great idea; it's about having the guts to chase it and the determination to keep going.

Are you, as a young entrepreneur, ready to take the bull by the horns and carve your own path? The world is waiting for you to shine! ■

Pakistan Engineering Council's role in Development of Engineering Profession

By: Engr. Zahid Arif

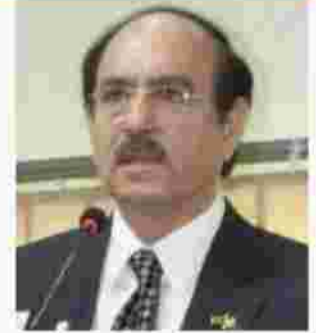
Nation progress revolves around the engineering profession. All developed countries have grown because they have properly utilized this strength. Engineer's input is almost everywhere starting from infrastructure, Health equipment's, Hospital's, Heavy-light industry, Information technology including artificial intelligence and so on. Wherever you go you will witness Engineering hand all around. In Pakistan, engineers are at the forefront of these advancements, yet they face challenges that limit their career prospects, financial stability, job opportunities and genuine recognition.

Pakistan Engineering Council, established under the Act of Parliament in 1976, serves as the regulatory authority for engineering education, professional licensing, and industry standards. However, time demands that it should assume role beyond regulation—it has the potential to be a driving force for the betterment of engineers and the engineering profession in Pakistan. As it is uniquely positioned to address these challenges. By adopting a multifaceted approach, it can

play a transformative role in reducing unemployment among young engineers, ensuring timely promotions for mid-career professionals, and enhancing the respect and global recognition of engineers.

PEC Role for providing job opportunities

Unemployment Among Young Engineers is currently the major challenge faced by PEC. The rapid expansion of engineering universities in Pakistan has resulted in an increasing number of graduates entering the job market each year. However, the job creation rate in the engineering sector has not kept pace due to financial instability of our country, leading to unemployment and under-employment. Many young engineers are jobless or find themselves working in irrelevant fields, or even worse with absolutely no job opportunity. The present financial condition of Pakistan is also not conducive to enhance development activities which can create jobs in the Country. In such a scenario PEC role become more relevant and important. It's Think Tank must ensure that this professional energy is converted into positive strength by giving it a proper pathway. PEC must hold their



hands and lead them to the relevant area where from they can grow and contribute to their families and country.

• PEC needs to aligning engineering education with Industrial needs as the key reasons for unemployment among engineers is the disconnect between academic training and industry requirements. PEC can bridge this gap by way of curriculum development. It can play its mandated role of Collaborating with universities to design curricula that aligns with current and emerging market/industry trends, updating their knowledge with latest technology development in major engineering disciplines including renewable energy, artificial intelligence, advanced manufacturing, latest infrastructure development techniques etc.

• PEC needs to ensure and

Contd on page 10

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Pakistan Engineering Council's role in Development of Engineering Profession

Contd from page 09

encourage Academic institutions so that all engineering programs include mandatory internships or industrial training, equipping students with practical skills and experience before graduation so that they are willingly absorbed by the relevant industry.

- Introducing specialized training programs to address skills gaps in fields like presentation, software development, project management, and sustainable Engineering.

- PEC can serve as a bridge between employers and job-seeking engineers by Launching a National Job Portal. Developing an online platform where engineering graduates can connect with employers, access job postings, and receive career guidance.

- PEC should Organize Job Fairs by Hosting annual or biannual job fairs that bring together engineering companies, government departments, and young professionals

- Mentorship Programs may be organized by Pairing recent graduates with experienced engineers who can provide career advice, technical guidance, and networking opportunities.

- Encouraging engineers to become entrepreneurs, this will not only address unemployment but also drive innovation and economic growth by offering seed money and grants as partner with government bodies and private organizations to provide financial support to engineering

startups.

- PEC should establish Innovation Hubs by Creating incubation centers in newly constructed buildings at Peshawar, Lahore, Karachi, Quetta and under construction building at Islamabad, where young engineers can develop their ideas into viable businesses with access to resources, mentorship, and market exposure.

- Organize innovation competitions to identify and reward promising ideas in fields like clean energy, robotics, and smart infrastructure.

World markets offers significant potential for employment to young Engineers in particular and mid-career Engineers in general, PEC can help engineers tap these opportunities by ensuring continuous Collaboration with International bodies like the Washington Accord, IPEA, FIAP etc. to secure global recognition for Pakistani engineering degrees.

- To ensure that HEIs are Providing Certification Programs which align with international standards, making Pakistani engineers more competitive globally.

- PEC needs to engage with embassies and international engineering councils to create pathways for engineers to work abroad.

Role of PEC for Mid-Career Engineers

PEC should rigorously work with its connections with parliamentarian to secure passage of Bill in National Assembly which has already been passed

by Senate for separate Engineering Cadre. This will provide a legal way of job security and in time promotion. PEC can advocate for the adoption of standardized career progression frameworks in both public and private sectors. Which should include clear promotion Criteria defining benchmarks for promotions based on qualifications, performance, and professional development rather than solely on tenure basis. Introducing competency-based evaluation systems that reward engineers for their skills, knowledge, and contributions.

Focus on Continuing Professional Development (CPD)

CPD programs are not only crucial for mid-career engineers looking to advance their careers but also for young unemployed Engineers. PEC can enhance its CPD program by:

- Expanding Training Opportunities by Offering a wider range of workshops, courses, and certifications in leadership, management, and emerging technologies.

- Digital Learning Platforms through online learning portal should be properly programmed to benefit engineers of all disciplines to have access to latest research and developments in the world and is so convenient that engineers can access these CPD programs easily.

- Mandatory CPD for Promotions by way of encouraging organizations to make CPD participation a prerequisite for promotions.

PEC role for rights of Engineer

PEC can play a vital role in ensuring that engineers receive fair treatment and opportunities through negotiation with Employers advocating for policies that ensure fair wages, benefits, and career growth opportunities for engineers.

- Addressing Discrimination in working to eliminate biases and ensure equal opportunities for engineers of all backgrounds, including women and minority groups.

- Creating a Grievance Mechanism by establishing a platform within PEC where engineers can report workplace issues and seek its remedy.

Role in enhancing Respect and Recognition of Engineers'

To improve the societal perception of engineers, PEC can launch public campaigns highlighting their contributions to national development. These campaigns can focus on:

- Showcasing Success Stories by Sharing inspiring stories of Pakistani engineers who have made significant contributions in fields like infrastructure, technology, and innovation.

- Highlighting National Projects by emphasizing the role of engineers in iconic projects like dams, highways, IT, Agriculture Industry etc.

Engineers for Engineering Job
The main issue of our Country is that no one prefers to do what he is supposed to do or for which he has competence and qualifications. Similarly, Engineers are not engaged on

all engineering slots instead these are filled with non-technical journalists who have no idea how to guide the organization where he is perform his duties on path of success.

Resultantly we are nowhere in the list of developed states of the world despite countries getting freedom much after us are progressing and even donating to poor Nations of the Globe.

PEC must play its role as per its Act to ensure that no Engineering position is occupied by a non-Engineer in the country. This slogan must be converted to reality. If PEC can achieve this, we will surely witness a different nation which progress with pride and dignity.

Continuity of National Honors and Awards

Recognizing excellence within the engineering profession can elevate its status. PEC since 2017 has initiated recognition of Engineers who have performed beyond the scope of their duty and have significantly contributed to the profession for innovation, leadership and social impact in engineering. With exception of 2018 and 2019 this PEC National Excellence Award has been a regular feature which should continue. This will not only motivate high performing Engineers but will also bring a healthy competition among inspiring Engineers to perform even better to be entitle for such Award.

Enhancing Policy Advocacy
PEC should focus on its

very crucial mandate of acting as think Tank and advice Government on prioritization of steps of leader which can transform this developing country to a developed Nation. Once proper direction is set by our political leadership our youth wouldn't go aboard for seeking job but return back with their foreign friends and contribute in the development of our Nation. A country full of Natural resources and variety of season with more than sixty percent of its population of youth full of energy and brain can surely excel.

The Pakistan Engineering Council has a pivotal role to play in transforming the engineering profession in Pakistan. By addressing unemployment, creating pathways for career advancement, and enhancing the respect and recognition of engineers, PEC can ensure that the profession thrives. These efforts will not only benefit individual engineers but also contribute to Pakistan's socio-economic development and global standing. Through strategic initiatives, strong partnerships, and a commitment to excellence, PEC can lead the way in making engineering a respected, rewarding, and globally competitive profession in Pakistan. It is time for PEC to step into its full potential as a catalyst for change in the engineering sector, paving the way for a brighter future for engineers and the nation alike. ■

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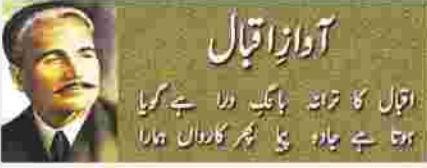
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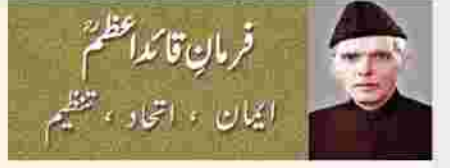
آوازِ اقبال

اقبال کا ترانہ ہر ایک دل سے گویا ہوتا ہے چاہے نیا نیا نوجوان ہو یا

آہ! یہ دست جو اے گل رنگیں نہیں کس طرح تجھ کو یہ سمجھاؤں کہ میں گل جیسی نہیں کام مجھ کو دیدہٴ حکمت کے انجیروں سے کیا دیدہٴ بلبل سے میں کرتا ہوں نظارہ تر

تو شناسائے خورش عقدا مشکل نہیں اے گل رنگیں ترے پہلو میں شاید دل نہیں زیب محفل ہے شریک شورش محفل نہیں یہ فراغت بزم ہستی میں مجھے حاصل نہیں اس چمن میں ' میں سراپا سوز و ساز آرزو اور تیری زندگانی ہے گداز آرزو توڑ لینا شاخ سے تجھ کو مرا آئیں نہیں یہ نظر غیر از نگاہ چشم صورت میں نہیں

پوری کوششیں کرنی چاہیے۔ جو لوگ فی الحال لاہور کی قرارداد پاکستان کے خلاف ہیں ہمیں ان کے دل میں غیر ضروری تکی پیدا نہیں کرنی چاہیے۔ آخر ہمیں ضرورت ہی کیا ہے؟ مجھے پورا پورا یقین ہے کہ ہمارے یہی حریف ایک نیا ایک دن محسوس کر لیں گے کہ ہندوستان کے انتہائی پیچیدہ مسئلے کا واحد اور بہترین حل قیام پاکستان ہے کہ جس کے قیام کی نظیر پوری دنیا کی تاریخ میں نہیں ملتی۔ (مجاہد مسلم سٹوڈنٹس فیڈریشن۔ 2 مارچ 1947ء)



فرمانِ قائد اعظم

آزادی اور قربانی

پس جہاں تک ممکن ہو ہمیں اپنے حریفوں کو سمجھانے کے لئے عقل اور دلیل سے کام لینا چاہیے۔ میں جانتا ہوں کہ دلیل اور عقل ہمیشہ ہی کامیاب نہیں ہوتیں لیکن ہمیں اپنی طرف سے

یونیورسٹیوں کی خود مختاری متاثر ہونے کا خدشہ

قرار پائے۔ ایچ ای سی بہت ہی وجوہات کی بناء پر تحقیق کے لیے ویسے فنڈز فراہم نہیں کر سکتا جیسے فنڈز بھارت، جاپان، یورپ اور امریکا کی یونیورسٹیوں کے پاس ہوتے ہیں۔ ریاستی بجرات کی بناء پر یونیورسٹی کو ملنے والی گرانٹ کم ہوئی۔ ایچ ای سی کے سربراہوں نے یہ بیانیہ اختیار کیا کہ یونیورسٹیاں مالیاتی خود مختاری کے لیے فیوٹور میں اضافہ کریں۔ تعلیمی آڈٹ نہ ہونے کی بناء پر غیر معیاری پی ایچ ڈی کے تھیسز بھی سامنے آئے۔ اس کے ساتھ ہی علمی سرقہ نویسی Plagiarism کا رجحان بھی تقویت پا گیا مگر مجموعی طور پر پاکستان کی یونیورسٹیاں ایک جدید دور میں داخل یونیورسٹی کے مسائل کو سمجھنے اور معیار تعلیم کو بلند کرنے اور دنیا بھر میں یونیورسٹیوں میں تحقیق کے نتیجے میں سامنے آنے والے نئے رجحانات کو پاکستان یونیورسٹیوں میں رائج کرنے کا فریضہ وہی شخص بہتر طور پر انجام دے سکتا ہے جو یونیورسٹی کلچر میں ابھر کر سامنے آیا ہو اور خود تحقیق کی ہو وہ شخص صرف پروفیسر ہو سکتا ہے وہ طلبہ کے رجحانات سے واقف ہوتا ہے اور ان کے مسائل کا حل نکالتا ہے۔ ایچ ای سی اور اس چانسلر کے بارے میں کہا جاتا ہے کہ وہ خود بڑا محقق ہو، انتظامی تجربہ ہو اور طلبہ کی نفسیات کو سمجھتا ہو۔

سندھ کا بینڈ نے اب یونیورسٹیوں کے وائس چانسلرز کی تقرری کے ضابطے میں تبدیلی کی منظوری دیدی ہے۔ حکومت سندھ کے ایک فیصلے کے مطابق وائس چانسلر کے لیے اہمیت متعلقہ شعبہ میں ماسٹر ڈگری کے ساتھ مکمل پروفیسر شپ کے علاوہ گریڈ 21 کا بیورو کریٹ بھی وائس چانسلر بننے کا اہل ہوگا۔ اس کے ساتھ ہی حکومت نے یہ بھی فیصلہ کیا ہے کہ اب غیر تدریسی عملے کے علاوہ نیچر زکا تقرری بھی کنٹریکٹ کا بنیاد پر ہوگا۔ سندھ کا سینڈ نے یہ بھی فیصلہ کیا ہے کہ تعلیمی بورڈز کے مسائل حل کرنے کے لیے سندھ بورڈ آف انٹرمیڈیٹ اینڈ سیکنڈری ایجوکیشن آرڈیننس میں ترمیم کی جائے گی۔ اب بورڈ کے چیئرمین بھی بیورو کریٹ ہوں گے۔ سندھ حکومت کے یہ فیصلے سرکاری یونیورسٹیوں کی ہیبت کو تبدیل کر دیں گے۔ جدید تعلیمی نظام میں تعلیم کے مختلف مدارج میں جدید نظام میں پہلا مرحلہ اسکول کی تعلیم کا ہے۔ اسکول میں بچے کی شخصیت بننے کا عمل شروع ہوتا ہے۔ بچہ بنیادی چیزیں سیکھتا ہے۔ اسکول میں استاد اس کا آئیڈیل ہوتا ہے، اور بچے کو زبانوں کے علم کے ساتھ لکھنا اور پڑھنا آتا ہے۔ بچہ میٹرک کرنے کے بعد کالج میں جاتا ہے۔ کالج میں خاصا آزادانہ ماحول ہوتا ہے۔ اب بچہ کو خاصی آزادی ملتی ہے۔ اسکولوں میں بچوں کی نفسی صلاحیتوں کو ابھارنے کے لیے کلاس کا نمائندہ CR بننے کا موقع ملتا ہے۔ کچھ اسکولوں میں مختلف نوعیت کی سوسائٹیاں بھی قائم ہوتی ہیں۔ ایک زمانے میں جب طلبہ یونین کا ادارہ موجود تھا تو طالب علم جمہوری رویے سے آشنا ہوتا تھا۔ مختلف طلبہ تنظیموں سے بھی اس کا واسطہ پڑتا ہے مگر اسکول اور کالج میں ابھی طلبہ کو تحقیق کا موقع نہیں ملتا مگر برطانوی نظام تعلیم O لیول اور A لیول میں نصاب جدید سائنسی بنیادوں پر مرتب کیا جاتا ہے، اس بناء پر طلبہ کو مختلف موضوعات پر تحقیق کا موقع ملتا ہے۔

پاکستان کی یونیورسٹیوں میں بہت سے اساتذہ وائس چانسلر گزرے ہیں جنہوں نے یونیورسٹی میں بڑے بڑے رجحانوں کا حل بغیر کسی امتناعی اقدام کے کیا۔ جب ایک بیورو کریٹ وائس چانسلر تعینات ہوگا وہ علمی معاملات سے نااہل ہو گا مگر ان پر فیصلے کرے گا۔ ایم ایس اور پی ایچ ڈی کے تھیسز اور تحقیق کے لیے موضوعات کے بارے میں فیصلے کا تہا مجاز ہوگا۔ یوں بیورو کریٹ وائس چانسلر کے لیے طلبہ اور اساتذہ کی علمی آزادی کی کوئی اہمیت نہیں ہوگی۔ ایک بیورو کریٹ کے پاس طلبہ و اساتذہ اور غیر تدریسی عملے سے نمٹنے کا صرف انتظامی راستہ ہی ہوگا۔ اس کے لیے علمی ادارے کی کوئی اہمیت نہیں ہوگی جس سے یونیورسٹی میں علمی آزادی کو سخت نقصان ہوگا۔ اساتذہ کو کنٹریکٹ پر رکھنے کا مطلب یہ ہے کہ اساتذہ ہر وقت اپنے افسران کی تابعداری پر مجبور ہوگا۔ ایک زمانے میں چیئرمین اور ڈین مستقل ہوتے تھے، جو نئے اساتذہ کے ساتھ ان کا رویہ ڈیکلینر کا ہوتا تھا۔ اس وقت اساتذہ دس دس سال تک ایڈ ہاک بنیادوں پر کام کرنے پر مجبور ہوتے تھے اور جو اساتذہ اپنے حق کے لیے آواز اٹھاتا تھا تو وہ ملازمت سے فارغ کر دیا جاتا تھا۔ نا تجربہ کار بیورو کریٹ چارج سنبھالیں گے تو وہاں پر بھی صورتحال خراب ہوگی۔ جب پیپلز پارٹی کی حکومت برسرِ اقتدار آئی تو یونیورسٹی کے اس قانون میں تبدیلی کر دی جو پیپلز پارٹی کے بانی ڈو الفکار علی بھٹو کے دور میں بنایا گیا تھا۔ اس قانون کے تحت حکومت نے سنڈ کیٹ سے رجسٹر اور ڈائریکٹریٹس کے تقرر کا اختیار چھین لیا گیا۔ اس ترمیم سے وائس چانسلر بے اختیار ہوئے مگر جب اساتذہ نے احتجاج کیا تو حکومت نے ترمیم تو واپس نہ لی مگر کراچی یونیورسٹی میں اور سندھ یونیورسٹی کو اس قانون سے منتقلی قرار دیا تھا البتہ دیگر یونیورسٹیوں میں یہ قانون نافذ ہو گیا۔ وفاقی اردو یونیورسٹی کی اساتذہ یونین کے سابق سیکریٹری جنرل ڈاکٹر عرفان عزیز کا کہنا ہے کہ "جامعات کے وائس چانسلرز کے عہدے کے لیے غیر پی ایچ ڈی افراد کی تقرری نہ صرف تعلیمی اداروں کے ساتھ نا انصافی اور غیر اخلاقی ہوگی بلکہ یہ پاکستانی جامعات میں تعلیمی معیار میں مزید گراؤ کا سبب بنے گی۔ یہ فیصلہ بین الاقوامی روایات اور اصولوں کی بھی خلاف ورزی ہوگا۔" دنیا بھر میں یونیورسٹی کی سربراہی تعلیم و تحقیق میں ممتاز مقام رکھنے والے افراد کے سپرد کی جاتی ہے۔ حکومت کو یونیورسٹیوں کی خود مختاری پر حملہ کرنے کے بجائے یونیورسٹیوں کے انتظامی اور مالیاتی بحران کے حل کے لیے مدد کرنی چاہیے۔

دنیا بھر میں یونیورسٹی کا تصور مختلف ہے۔ یونیورسٹی کے بنیادی فرائض میں تدریس کے علاوہ تحقیق بھی شامل ہے ہی تصور کیا جاتا ہے کہ یونیورسٹی میں طلبہ اور اساتذہ ایک کھلے ماحول میں ہر موضوع پر تحقیق کریں گے اور تحقیق کے ذریعے معاشرے اور ریاست کو نئے نظریات سے آگاہ کریں گے۔ یونیورسٹی کے اساتذہ طالب علموں کے لیے نصاب بھی خود تیار کریں گے اور وقت کے ساتھ اس نصاب میں تبدیلی کی جائے گی۔ اساتذہ اور طلبہ یونیورسٹی کے اداروں میں شامل ہو کر اس کا نظام چلائیں گے۔ اس بناء پر یونیورسٹی کو مکمل خود مختاری دی جاتی ہے۔ اس سارے عمل کی علمی آزادی Academic Freedom کہا جاتا ہے۔ یورپ کی قدیم یونیورسٹیاں آج بھی علمی آزادی کے ادارے کی بناء پر دنیا بھر میں اہم مقام رکھتی ہیں۔ یہ یونیورسٹیاں زندگی کے ہر شعبے میں تحقیق پر یوں روپے خرچ کرتی ہیں۔ پاکستان میں گزشتہ صدی میں یونیورسٹیوں میں تحقیق کا رجحان نہیں تھا۔ ایم اے اور ایم سی میں کسی موضوع پر تحقیق کو اضافی مضمون کا درجہ حاصل تھا اور محدود پیمانے پر ایم فل اور پی ایچ ڈی ہوتا تھا۔ طبی سائنس اور انجینئرنگ یونیورسٹیوں میں تو تحقیق ہوتی نہیں تھی۔ یہ یونیورسٹیاں ایم فل اور پی ایچ ڈی کے لیے اپنے اساتذہ کو امریکا اور یورپی ممالک میں بھیجتی تھیں۔ صرف چند نوجوان اپنے فرق پر یورپی اور امریکی یونیورسٹیوں میں تحقیق کرتے تھے مگر گزشتہ صدی کے آغاز کے ساتھ دنیا بھر میں یونیورسٹیوں کے بنیادی ڈھانچے میں نمایاں تبدیلیاں رونما ہوئیں۔ اب یونیورسٹی گرانٹ کمیشن کی جگہ ہائر ایجوکیشن کمیشن HEC وجود میں آیا۔ ایچ ای سی نے دنیا بھر کی یونیورسٹیوں میں نافذ کرنے کو راج کیے اور بی ایس کی سطح سے تحقیق کا مضمون تدریس میں شامل ہوا اور پہلے سمسٹر سے تحقیق لازمی حیثیت اختیار کر گئی ہوں ایم ایس اور پی ایچ ڈی یونیورسٹی اساتذہ کے لیے لازمی

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کراچی میں ٹرانسپورٹ سمیت 5 منصوبوں کیلئے پاک چین ایم او یو پر دستخط

ایکسٹرنل کارکی لوکل اسمبلنگ، سولر پینل کی لوکل مینوفیکچرنگ، الٹی فارمنگ اور میڈیکل سٹی کے قیام سمیت دیگر منصوبے شامل

چینی سرمایہ کاروں کی جانب سے کسی بھی شعبے میں سرمایہ کاری کی گئی تو حکومت سندھ ہر ممکن مدد کرے گی، شرجیل مبین

کراچی میں ٹرانسپورٹ سمیت 5 منصوبوں کیلئے پاک چین ایم او یو پر دستخط کی فراہمی کی یقین دہانی کروائی۔ ہم نے نوجوانوں کو روزگاری فراہمی کے لیے ای وی ٹیکسی شروع کرنے کا اعلان کیا تھا، انھوں نے کہا کہ چینی سرمایہ کاروں کا دورہ کا میاب رہا حکومت سندھ نے میڈیکل سٹی کے قیام کے لیے سرمایہ کاروں کو مکمل تعاون کی یقین دہانی کروائی، وزیر اعلیٰ کے معاون خصوصی قائم نوید قمر نے کہا کہ گریڈ 1 سے ایک سو چھوٹے ہونا تھا اور دوسرے ملکوں سے پرائیس ہو کر ہمارے ہی ملک میں فروخت ہو رہا تھا، ہماری کوشش ہوئی کہ اس کے پرائیس کا کام بھی یہاں پر ہی ہو۔

وزیر قومی منصوبہ بندی و ترقیات ناصر شاہ نے کہا کہ فرسٹ سٹیٹ ہمارا ہی اہم ضرورت ہے، دو سو ایکڑ زمین پر پلانٹ لگا کر کولنگ کی سسٹم کا کام کیا جائے گا، سولر پارک بھی لگائے جا رہے ہیں، ہم چاہتے ہیں کہ عوام کو سستی بخلی، سستی بخلی کی فراہمی حکومت کا ورژن ہے۔



انہوں نے کہا کہ چینی سرمایہ کاروں نے مختلف شعبوں میں سرمایہ کاری کرنے میں دلچسپی دکھائی۔ پاکستان میں اسٹیٹ آف دی آرٹ میڈیکل سٹی بنانا چاہتے ہیں، جس پر حکومت سندھ نے تمام ممکنہ ہولیاہت

کے کہا کہ چینی سرمایہ کاروں کا ایک وفد سندھ آیا ہوا ہے، وفد کی وزیر اعلیٰ سندھ سید مراد علی شاہ سے ملاقات ہوئی۔

حکومت سندھ کی معاونت سے چینی اور پاکستانی سرمایہ کاروں نے کراچی میں ٹرانسپورٹ، صحت، توانائی و زراعت کے 5 مختلف منصوبوں کے مفاہمت کی یادداشت ناموں پر دستخط کر دیے۔ فریقین کی جانب سے ایکسٹرنل کارکی لوکل اسمبلنگ، سولر پینل کی لوکل مینوفیکچرنگ، سولر لیز فریٹ لائزر، الٹی فارمنگ اور دھانچہ ایکٹس اکٹا تک زون میں میڈیکل سٹی کے قیام کے ایم او یو پر دستخط کیے گئے۔

چینی اور پاکستانی سرمایہ کاروں کے درمیان ایم او یو پر دستخطوں کی تقریب سندھ کے وزیر قومی سید ناصر حسین شاہ کے دفتر میں ہوئی، تقریب میں سندھ کے سینیئر وزیر شرجیل انعام مبین، صوبائی وزیر برائے توانائی، منصوبہ بندی و ترقیات اور وزیر اعلیٰ سندھ کے معاون خصوصی برائے سرمایہ کاری پبلک پرائیویٹ پارٹنرشپ سید قائم نوید قمر نے بھی شرکت کی۔ سینیئر وزیر شرجیل انعام مبین

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کروڑوں برس میں ہونے والا کام محض 5 منٹ میں ہو سکے گا، مزید تحقیق جاری

چپ جو ہری فیوژن ری ایکٹرز کے ڈیزائن، ادویات، بہتر بیٹریاں بنانے میں معاون ہوگی

امریکی کمپنی گوگل نے دنیا کے تیز ترین سپر کمپیوٹر سے بھی کھربوں گنا تیز چپ تیار کرنے کا دعویٰ کیا ہے۔ گوگل کا کہنا ہے کہ جس کام کو کرنے میں آج کی دنیا کے تیز ترین سپر کمپیوٹر کو کروڑوں سال لگتے ہیں وہ کام کی چپ محض پانچ منٹ میں کر سکتی ہے۔

گوگل کی کوانٹم آئی بیٹ کے سربراہ بارٹ نیوٹن کا کہنا ہے کہ کرشل ایپ لکھنے میں استعمال کی جانے والی کوانٹم چپ کی تخلیق میں مزید کئی سال لگ سکتے ہیں۔

بارٹ نیوٹن کے مطابق ابتدائی طور پر یہ ایپلی کیشنز ایسے کاموں کی نقل کرنے میں استعمال کی جائیں گی جہاں کوانٹم اثرات اہم ہوتے ہیں۔ ان میں جوہری فیوژن ری ایکٹرز کے ڈیزائن، ادویات کی تیاری، گاڑیوں کی بہتر بیٹری بنانے اور اس نوعیت کے دیگر کام شامل ہیں۔

انہوں نے کہا کہ وہ آج تک بنایا جانے والا سب سے بہترین کوانٹم کمپیوٹر ہے۔ رواں سال فروری میں ایپل نے اعلان کیا تھا کہ انہوں نے ایپل کے آئی میسجنگ کی انکرپشن کو کوانٹم ٹم پروف بنا دیا ہے تاکہ کوانٹم کمپیوٹر کا استعمال کرتے ہوئے ان میسجنگ رسائی حاصل نہ کی جاسکے۔

اس سینٹر کے سربراہ مائیکل سمٹھرٹ واکو کسی بریک تھرو سے زیادہ ایک سنگ میل کے طور پر دیکھتے ہیں۔

جامعہ داؤد میں جدید کورسز متعارف کر رہے ہیں، ڈاکٹر شمرین

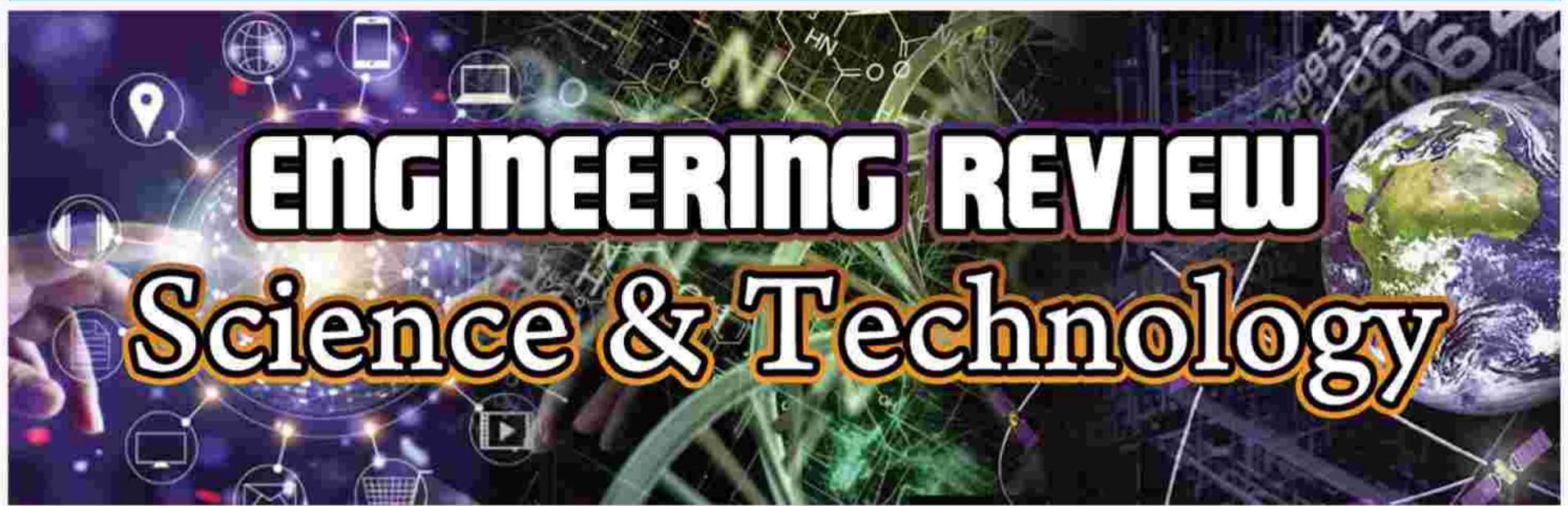
ہمارا مقصد تعلیمی اداروں اور انڈسٹری کے درمیان فاصلوں کو ختم کرنا ہے

داؤد یونیورسٹی کے اکیڈمک کونسل اجلاس میں نئے پروگراموں کی منظوری

داؤد یونیورسٹی آف انجینئرنگ اینڈ ٹیکنالوجی کی اکیڈمک کونسل 20 واں اجلاس وائس چانسلر انجینئر پرو فیسر ڈاکٹر شمرین حسین کی زیر صدارت ہوا جس میں اکیڈمک کونسل نے 28 اپریل کو ہونے والی 19 ویں اجلاس کے منٹس کی باضابطہ توثیق کی اور 19 ویں اجلاس میں کیے گئے فیصلوں کی عملدرآمد رپورٹ کا جائزہ لیا۔

اکیڈمک کونسل نے 22 نئے پگنڈ آف سائنس (بی ایس) پروگراموں کے لیے اکیڈمک آف اسٹڈیز کی منظوری دی، یہ پروگرام روہڑی سکھ میں واقع سینٹر فار انٹرنیشنل پریذیور شپ میں کیے گئے فیصلوں کی عملدرآمد رپورٹ کا جائزہ لیا۔

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Interactions between humans, robots are no longer just science fiction

AI and robots pose new ethical challenges for society

Artificial intelligence (AI) and AI-enabled robots are becoming a bigger part of our daily lives. Real-time, flexible interactions between humans and robots are no longer just science fiction. As robots become smarter and more human-like in both behavior and appearance, they are transforming from mere tools to potential partners and social entities.

This rapid evolution presents significant challenges to our legal and ethical frameworks, including concerns about privacy, safety, and regulation in the context of AI and robots. The Cambridge Handbook of the Law, Policy, and Regulation for Human-Robot Interaction, published by Cambridge University Press in November explores and addresses these emerging issues. It is now available online as of December 2024.

Edited by Woodrow Barfield, Yueh-Hsuan Weng, and Ugo Pagallo, three experts in AI-related legal issues, the handbook gathers insights from social sciences, computer science, and engineering. It is the first book to specifically address issues of law, policy, and regulation focusing on human-robot interaction.

"Humanities are crucial to AI development," says Yueh-Hsuan Weng, Associate Professor at the Institute for Advanced Study (IAS), Kyushu University, and the Frontier Research Institute for Interdisciplinary Sciences (FRIS), Tohoku University (Cross-appointment). He is also a co-editor of the book. "Tech professionals can create cutting-edge systems, but without input from legal and humanities perspectives, these systems may struggle to coexist with humans. We hope this book serves as a compass for developers, ensuring AI

systems better benefit our society."

Comprising 46 chapters, the handbook is organized into four parts. The opening section introduces the legal and ethical challenges arising from human-robot interaction, addressing issues such as trust in robots and anthropomorphism—where non-human entities are given human-like emotions or intentions. The second section explores the societal impacts of human-robot interaction, discussing questions about whether AI entities should be granted legal personhood and what steps are

needed now are solutions that balance enforceability and flexibility."

The book concludes by discussing the legal challenges posed by AI's integration into society, offering insights into how consumer law, criminal law, and constitutional law may need to evolve to accommodate intelligent systems.

This handbook brings together authors from various countries and presents case studies from across the globe. By offering diverse perspectives, it provides valuable insights into the ethical dilemmas emerging from our personal interactions with

needed now are solutions that balance enforceability and flexibility."

One solution Weng proposed in his chapter is global AI ethics standards developed by the Institute of Electrical and Electronics Engineers (IEEE), the world's largest technical professional organization. Currently, Weng chairs a working group at the IEEE and is compiling a database of AI-related ethical cases from various countries, modularizing core issues and region-specific concerns, aiming to help developers navigate and apply them effectively.

The handbook also addresses critical topics like anthropomorphism, robots in health care, and privacy protection, all requiring continued focus and collaboration. As algorithms enable robots to perform human-like actions, such as robot dogs dancing jazz, these behaviors challenge traditional ethical expectations and may reshape how future generations perceive concepts like "dogs."

Meanwhile, when people, especially older adults, are unfamiliar with robots, they may view robotic caregivers as true companions, leading to emotional challenges. Ethical guidelines are needed to ensure responsible use in these sensitive contexts. Additionally, balancing high-quality services with data security remains an

urgent task that demands innovative regulatory solutions.

Reflecting on these topics, Weng emphasizes, "As human-AI interactions become more common, I hope designers, manufacturers, and users of robots will engage with our book. Responsible research and innovation are crucial for the development of AI and robots, and this requires input from people across various societal sectors. We warmly invite everyone to explore this book and join us in creating IEEE's global standards for AI ethics." -- TX



needed for the growing integration of robots into human life.

The third section looks deeper into ethical, cultural, and value-based issues in human-robot interaction. A key aspect of AI governance is aligning AI's value judgments with human values, which can vary across regions, contexts, and cultural value systems. Through a range of scenarios, including the role of robots in long-term assistance, their potential function in religious settings, and intercultural challenges, this chapter reveals the complexities of

robots, sparking a global dialogue on these issues.

"A major issue I addressed in the book is the AI pacing problem," says Weng. This refers to the gap between rapid AI advancements and the slower pace of legislation. While many countries and organizations are working on regulations for AI-enabled robots, creating comprehensive laws often struggles to keep up with AI's progress. "Governance mechanisms have been proposed, ranging from 'hard' legislation to 'soft' ethical guidelines. What's

Five cybersecurity tips to protect yourself from scams and deepfakes

In an age when misinformation and deepfakes blur the lines between fact and fiction, identifying scams has never been more challenging. Falling for a scam can have devastating social, financial, and personal consequences. Over the past year, victims of cybercrime reported losing an average of \$30,700 per incident.

As Christmas and Boxing Day approach, shoppers face heightened risks, particularly millennials and Gen Z consumers. In the U.S., one in five people have unknowingly purchased a product promoted by deepfake celebrity endorsements. This figure climbs to one in three among those aged 18-34.

Sharif Abuadba, deepfake expert in our Data61 team, highlighted how technology like AI has made deception easier than ever.

"Scammers can quickly and easily create imitations of popular social media influencers. Deepfakes can manipulate a person's voice, gaze, mouth, expressions, pauses—basically putting words in their mouth that they've never said," Sharif said.

"On social media, attackers rely on the viewers believing fake content and sharing it widely," he added.

You might think you have nothing valuable for a hacker to steal. However, cybercriminals often exploit individuals as gateways to larger targets, including family members, friends or organizations. Identity fraud can also severely damage your professional relationships and reputation with financial services.

As technology becomes more integral to our daily lives, how can we protect ourselves and those we care about from these cyber threats? Here are five expert tips:

1. Have a family safe word
Scammers are increasingly using texts, calls and even video to impersonate loved ones and request money. With AI voice cloning on the rise, these schemes are becoming more and more believable.

Jamie Rossato, our Chief Information Security Officer, advises setting up a pre-agreed safe word to verify who you're speaking to. This word should remain private and

not be easily discovered through social media or other online sources. Scammers can convincingly mimic organizations like banks to steal money. Lauren Ferro, Human-centric Security Research Scientist with our Data61 team, recommends verifying caller identities before sharing any information.

"If something seems a bit off, hang up and call the organization directly using their official number, or go and visit them in person," Lauren advised.

stored with Medicare and government accounts.

One effective method to protect your account is enabling multi-factor authentication (MFA) to log in. MFA requires a password and a one-time verification code. Often, this is sent as a text message, but Jamie suggests using authentication apps like Microsoft Authenticator for added security.

"One of the benefits of app-based authenticators is they often use biometric controls, such as face ID or thumbprints to get into the app, before you get to the actual code itself," Jamie explained.

"This creates an extra layer of protection beyond SMS codes."

4. Turn on banking push notifications

With most people using card and online payments, staying informed about your transactions can help you detect scams. While banks monitor suspicious activity, scammers can bypass these measures by mimicking your usual spending patterns.

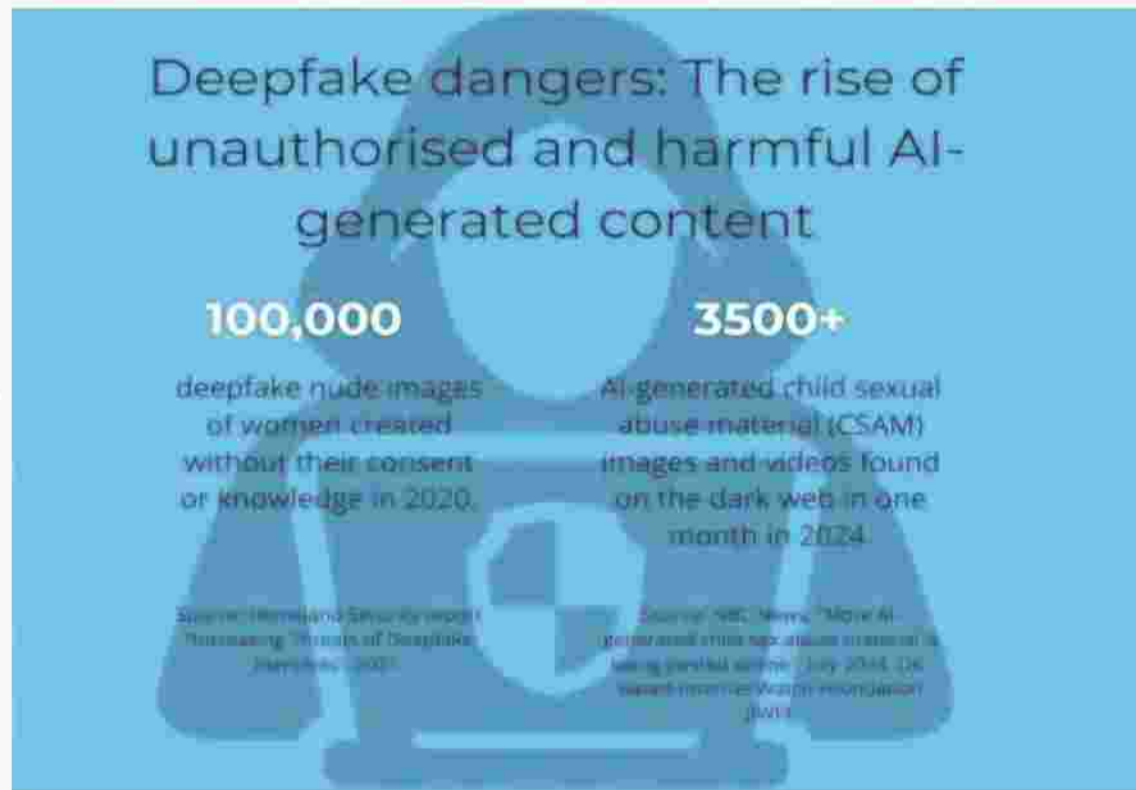
Enabling real-time notifications through your banking app allows you to track transactions immediately, adding another layer of security.

5. Be aware of what you are sharing online

Most of us have an online and social media presence, but the photos, videos and information we share can be exploited. These assets can train deepfakes, which, once created and shared, are difficult to detect and remove.

Liming Zhu, Research Director in our Data61 team, stresses the importance of being mindful of what we share online and who can access it. This is especially critical for children.

Education is your best form of protection. Ultimately, awareness and proactive protection are key to staying safe online. Educating yourself about cybersecurity is your first line of defense against scams. -- TX



not be easily discovered through social media or other online sources.

"Use this proactively, rather than waiting until you are suspicious," Jamie said.

"If my children asked me for money, unless they said our special safe word, I would never transfer funds to them."

2. Don't be afraid to hang up
With advances in voice-spoofing technol-

ogy, fraudsters can convincingly mimic organizations like banks to steal money. Lauren Ferro, Human-centric Security Research Scientist with our Data61 team, recommends verifying caller identities before sharing any information.

3. Enable multi-factor authentication
Identity fraud is the most common self-reported cybercrime this year, making it crucial to protect your personal data online. For example, private or sensitive information

"They would prefer you to be cautious. It's far easier to address concerns up front than to recover stolen money or repair reputational damage later."

Education is your best form of protection. Ultimately, awareness and proactive protection are key to staying safe online. Educating yourself about cybersecurity is your first line of defense against scams. -- TX

New method enables mass production of flexible diamond membranes

A research team has developed a method for massively producing ultrathin and ultra-flexible diamond membranes.

The results are published in Nature. The researchers were led by Professor Zhiqin Chu, Associate Professor in the Department of Electrical & Electronic Engineering, and Professor Yuan Lin, Professor in the Department of Mechanical Engineering, Faculty of Engineering at the University of Hong Kong (HKU).

These ultrathin and ultra-flexible diamond membranes are compatible with existing semiconductor manufacturing technologies, and thus can, in principle, be fabricated into a variety of electronic, photonic, mechanical, acoustic, and quantum devices.

The innovative edge-exposed exfoliation method discovered by the team facilitates the rapid production of scalable, free-standing diamond membranes. This

approach is superior to traditional methods, which are typically time-consuming, costly and limited in size. Remarkably, the new process

surfaces, essential for high-precision micromanufacturing, along with the flexibility of the membranes, open up new possibilities for next-

generation flexible and wearable electronic and photonic devices. The research team envisions significant industrial applications in electronics,

photonics, mechanics, thermics, acoustics, and quantum technologies.

"We hope to promote the usage of the high-figure-of-

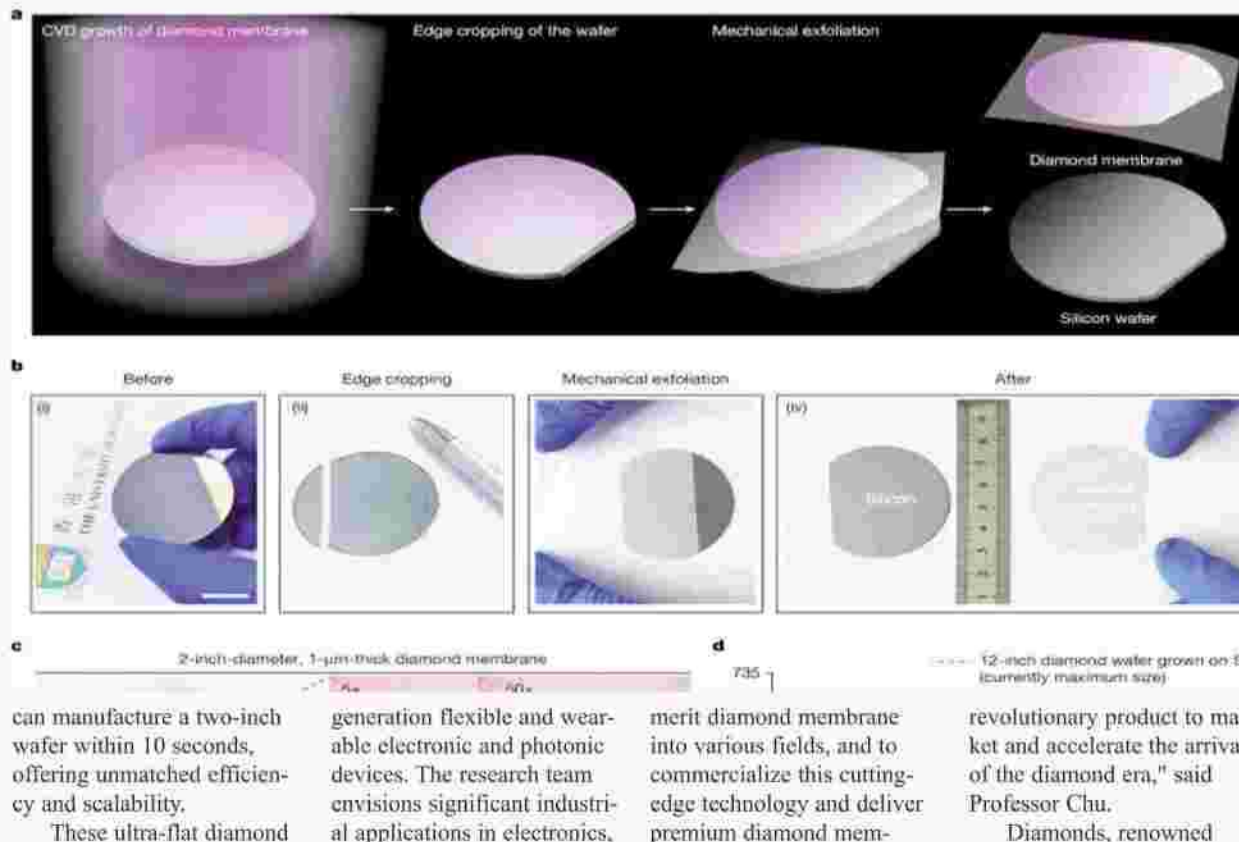
merit diamond membrane into various fields, and to commercialize this cutting-edge technology and deliver premium diamond mem-

branes, setting a new standard in the semiconductor industry. We are eager to collaborate with academic and industry partners to bring this

globally as valuable gemstones, possess exceptional versatility in various scientific and engineering applications. They are the hardest natural material, boasting unparalleled thermal conductivity at room temperature, extremely high carrier mobility, dielectric breakdown strength, an ultrawide bandgap, and optical transparency spanning from the infrared to the deep-ultraviolet spectrum.

These remarkable properties make diamonds ideal for fabricating advanced high-power, high-frequency electronic devices, photonic devices, and heat spreaders to cool high-power density electronic components, such as those in processors, semiconductor lasers, and electric vehicles.

However, the inert nature and rigid crystal structure of diamonds pose significant challenges in fabrication and mass production, particularly for ultrathin and freestanding diamond membranes, thereby restricting their widespread usage. -- TX



can manufacture a two-inch wafer within 10 seconds, offering unmatched efficiency and scalability.

These ultra-flat diamond

generation flexible and wearable electronic and photonic devices. The research team envisions significant industrial applications in electronics,

photonics, mechanics, thermics, acoustics, and quantum technologies.

revolutionary product to market and accelerate the arrival of the diamond era," said Professor Chu.

Diamonds, renowned