MEHRAN UNIVERSITY
OF ENGINEERING & TECHNOLOGY
JAMSHORO, PAKISTAN

Institute of Information & Communication Technologies (IICT)

Report of activities such as conferences, meetings, seminars, book publications etc.

2020

ICT Endowment Fund for Sustainable Development

A Seminar on "Prospect funding opportunities for FYPs" conducted by Dr. Attiya Baqai, organized by the Department of Electronic Engineering on 27.01.2020

27 January 2020

As per objectives of the Departmental Final year Project Committee, Department of Electronics organized a seminar on "Prospect funding opportunities for FYPs" on 27-01-2020 at Audio Video Conference Hall, IT Building for the final year students of Electrical, Electronics, Computer Systems, Software, Biomedical, Telecommunication, Mechatronics and Mechanical Engineering departments. The resource person of this seminar was Dr. Attiya Baqai, Associate Professor in Department of Electronics Engineering who is also working as alternate focal person for NGIRI-Ignite since 2019 at MUET. Numerous final year projects have won different national and international competitions and grants under her supervision. Three of her recently supervised projects are incubated in various incubation centers and registered with their own startup companies. Dr. Attiya is also working as convener final year project committee at department of Electronics Engineering MUET.

The seminar started with the recitation of the Holy Quran. Dr. Tayab Din Memon, Chairman Department of Electronic Engineering opened the session and welcomed students, faculty, resource person Dr. Attiya Baqai and departmental coordinators Dr. Samar Zai (CS), Dr. Fahim Aziz Umrani (TL), Dr. Mohsin Memon (SW), Dr. Abdul Qadir Ansari (BM), Dr. Samiullah Samo (MTE), Engr Javed Larik (ME), Engr. Shafi Jiskani (EL). He shed some light on importance of learning the skills of writing grant winning applications and encouraged students to apply for funding not just for the sake to follow supervisor's instructions but for the sake of their own recognition and career development. He appreciated the efforts of Dr. Attiya for picking up this important topic and invited her to start the session.

Dr. Attiya Baqai thanked the students for participating in such large number and showing their interest. She divided her session into two halves. In the first half she enlisted and briefed the upcoming competitions, events and opportunities within well-known universities of Pakistan and their requirements. She also discussed some of the international opportunities and highlighted some examples of Pakistani students receiving accolades at international level. She motivated MUET students to become such successful achievers brightening name of their own university and country.

In second half of the session she presented some tips for writing grant applications and proposals. She conversed some of the key points that must be considered for grasping attention from the panel of evaluators. She encouraged students to take their FYP to the next level and commercialize their project or product. She said in this highly competitive world we should become well aware and well prepared with the techniques to contest various rounds currently being tested by the judges like rocket pitch, investor meeting, marketing pitch and marketing video etc. In the end she also deliberated on how to fill National Grass root ICT Research Initiative (NGIRI)-Ignite template/online form for FYPs as a case example followed by a question answer session.

The seminar ended with the vote of thanks by the Chairman Department of Electronics and a group photo with the participants.

Prof Paolo Bottoni from University of Sapienza Rome Italy visited MUET for developing joint collaboration in capacity building for higher education.

30 January 2020

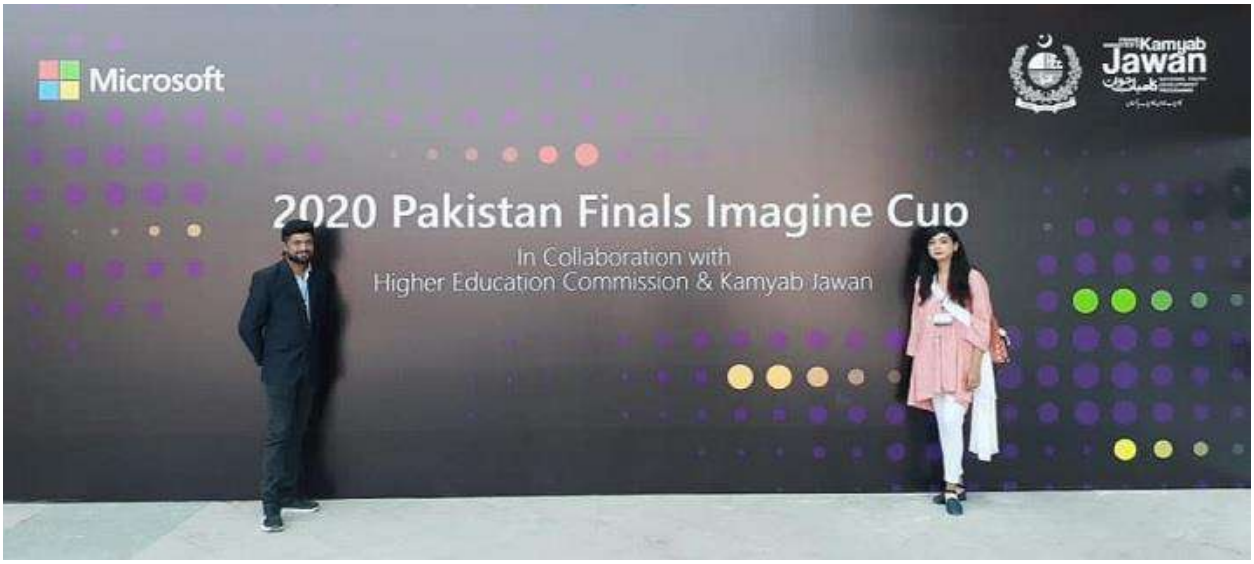
DIGICON’20

10 February 2020

The DIGICON'20 got flourished with sustainable guidance and knowledge as we were visited by two important guests. Professor Enrique Nava from University of Malaga Spain shed some light on youth pursuits regarding job after university and upcoming European projects. We thank Professor Bhawani Shankar for his presence at the session to make it worth a while.

MUET's Team Easy Monitor Got Regional Second Runner Up Position in Microsoft Imagine Cup 2020

18 February 2020



Muhammad Owais Raza and Ms Nazia Pathan M.E students of department of software engineering got 2nd Runners Up Position in Microsoft Imagine Cup 2020 for their project easy monitor. They were sponsored by Microsoft to be part of National finals held at Pak China Friendship center Islamabad on 18 Feb 2020. Microsoft Imagine cup is a yearly event hosted and sponsored by Microsoft which brings student developers around the world to showcase their solution to world eminent problems.

Mehran University won accolades in DICE-IET 2020 - Future of Innovation: A Smart World

16 March 2020

DICE-IET 2020 is a joint initiative of COMSATS University Islamabad (CUI), Pakistan and DICE Foundation, USA, held on 6th - 7th March 2020 at COMSATS University Islamabad (CUI), Lahore Campus. DICE-IET is an annual event on information technology. For the first time in 13 years of DICE, Silicon Valley has partnered up and played a significant role in introducing new Speakers and Sponsors of Pakistani descent Engineers, Thought leaders & Entrepreneurs. This year's theme was "Future of Innovation: A Smart World" focused on Design Thinking and innovation. A Smart World Event was a knowledge-sharing event on how cutting edge concepts like Machine Learning, Artificial Intelligence, Block Chain, Security, Virtual Reality, Augmented Reality and Biotech can create a better future. The two day event consisted of keynote presentations, case studies, roundtable discussions and visits of top companies who have adopted the human-centric approach, where one could meet the teams behind their latest research and innovation.

The event motivated academia, industry, government, entrepreneurs and expatriates to gather at a platform for sharing their innovations in technologies. It aimed to encourage ambitious and talented professionals from around the world towards knowledge exchange and collaboration for products' innovation targeting economic development of the country which also provided them an opportunity to exchange intellectual discourse with senior academicians and industry players. Punjab Provincial minister for Energy Dr. Akhtar Malik inaugurated the event. Well-known dignitaries like Haseena Moin, Misbah Ishaque, Syed Noor and Usman Pirzada attended this two day event as guests of honor. Ms. Uzma Almakky was the chief guest as DICE representative. She has her own company in Silicon Valley California and also running no of incubators there.

Around 370 projects were submitted for DICE- IET 2020 exhibition. Among these 80 projects were selected to display in the exhibition on basis of innovation and idea novelty. Some of these projects were awarded appreciation award of 10,000/Rs each. In addition to these; top three projects among 80+ were awarded 1 Lac Rs, 60,000/ Rs and 40,000/ Rs along with DICE shields respectively for 1st, 2nd and 3rd prize. Moreover 10 projects, having business potential were selected for DICE SHARK session. These projects were selected on the basis of submitted reports Initial Evaluation, Potential impact of project on local industry and economy, Readiness for commercialization (prototype, business plan), Demo/Presentation. A panel consisting of local investors comprising Mr. Muhammad Maaz Khan, Mr.

Saad Bin Saulat (Entrepreneur), Mr. Dawood Shahid (ONSETS), Mr. Farhan Shahid (Senior Engineer at Public Sector Organization), Mr. Atif Javed (Softpers Interactive (PVT.) LTD and Mr. Safi Ahmad, Country Head, Customer Services, General Electric) were present. COMSATS had sourced investors from local industry as well as Silicon Valley USA who attended the pitch presentations online by live-stream in order to bring these ideas to commercialization.

A team from Department of Electronics Engineering, of Mehran University of Engineering and Technology Jamshoro along with Dr. Attiya Baqai participated in this two-day event of DICE-IET 2020. The selected two project details from Mehran University are as follows.

- Ash Braille (Private) Limited (startup, SSBC-Cohort-2-IEC)
  Electronic Engineering Department.
  Supervisor: Dr. Attiya Baqai
  Team Members: Muhammad Ahmed Malik, Hassan Ahmed Shaikh, Sidra Memon
- Digital Range of Motion (ROM) Measurement System
  NGIRI-2019 IGNITE FYP funded
  DICE-SHARK winner DUHS-DICE Health Innovation Exhibition
  Electronic Engineering Department.
  Supervisor: Dr. Attiya Baqai
  Team Members: Anzalna Narejo, Neha Sikandar, Absar Ali

Both projects gained attention at the exhibition and the visitors highly appreciated the efforts of the Mehran University students. Among these projects “ASH Braille”, was awarded 2nd prize of Rs. 60,000 in Project competition category along with shield of appreciation.

The project “ASH Braille” - a startup at IEC- MUET, under supervision of Dr. Attiya Baqai, was also selected for DICE SHARK session. Out of 10 projects only two got succeeded in grabbing funding from the investors. Smart Wheelchair from Government Postgraduate College For Women Rahim Yar Khan secured funding of Rs. 3 Lac whereas ASH Braille from Mehran University secured total of 6 Lac funding in which Mr. Amer Haider from USA invested 5 Lacs for 20% stake in the company while Dr. Usman Shehzad, Assistant Professor, Department of Computer Sciences, CUI Lahore invested 1 Lac Rs for needy on nonprofit basis in his mother's name

The “ASH Braille” team has developed an advanced Braille framework for visually impaired people at very minimal cost. It is a network for a classroom in which several devices can be connected to teacher’s PC and would act as an input media for visually impaired students. The dedicated software is running on teacher’s PC through which teacher can monitor every student performance on runtime, maintains a database of every student and automatically evaluates the writing scores and their writing speed.

The participants and their advisor Dr. Attiya Baqai are very thankful to the University especially worthy Vice Chancellor Prof. Dr. Mohammad Aslam Uqaili, Prof Emeritus Dr. Bhawani Shankar Chowdhry and DEAN FEECE Prof. Dr. Mukhtiar Ali Unar for their cooperation, encouragement and financial support. The team said it was their trust in the team and facilitation that the team could participate resulting in this success.

TSUNAMI OF ARTIFICIAL INTELLIGENCE

کاوش دنيا

آچر 29 مارچ 2020ع

مصنوعي ذهانت: ٹيڪنالوجيءَ جي هڪ سونامي

پروفيسر ڊاڪٽر
پرواڻي شنڪر جوڏاڻي •

آرٽيفيشل انٽيليجنس (Artificial Intelligence) جنهن کي "مصنوعي ذهانت" يا "مصنوعي معلومات" پڻ چيو وڃي ٿو. اڄ دنيا ۾ عام ٿي رهيو آهي. نتيجي ۾ انسان ۽ مشين جي ڪم ڪرڻ جو روايتي طريقو بدلجي رهيو آهي. اهڙي صورتحال ۾ هي سوال پيدا ٿين ٿا ته:

- ڇا آرٽيفيشل انٽيليجنس انسان جي مسئلن جو حل ڳولي هڪ فائديمند تخليق ثابت ٿيندي يا ڪنهن وڏي مسئلي جو ڪارڻ بڻجندي؟
- ڇا ان سان انسان جو ڪم آسان ٿي ويندو يا انسان نوڪريون وڃائي ويهندا سين؟
- ڇا ان سان انسان وڌيڪ محفوظ ٿي ويندا سين يا انسان جي پرشيدگي ختم ٿي ويندي؟
- ڇا ان سان انسان لاءِ روزگار جا موقعا پيدا ٿيندا يا هر مهيني ملندڙ پگهار ۾ بند ٿي ويندي؟
- ڇا انسان جا حواس انسان جي وس ۾ رهندا يا انهن کي ۽ انسان وڃائي ويهندا سين؟
- ڇا انسان کي خوشين ملندين يا پريشانيون؟

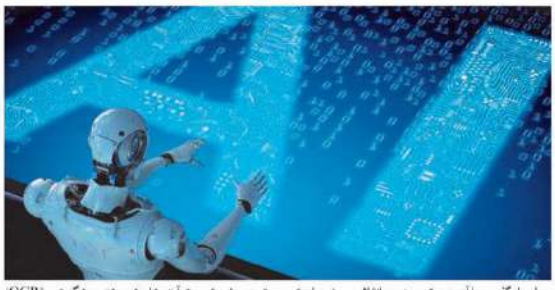
اڄ انسان جيڪڏهن انهن سوالن جا جواب نه ڏنا ته مستقبل ۾ انسان کي پريشانين کي منهن ڏيڻو پوندو. ٿو. انسان تاريخ جي هڪ اهم موڙ تي بيٺو آهي. "مصنوعي ذهانت" انسان جي زندگيءَ جو هڪ اهم حصو بڻجي رهي آهي. اهڙي ۽ انسانکي "مصنوعي ذهانت" کي وسيع ڪري ۾ سخت ضرورت پوندي. "مصنوعي ذهانت" انسان جي زندگي ۾ سماج ٿي غير معمولي اثر ڦيرڪائيندي. جنهن سبب انسان جو ۽ انسان جي ايندڙ نسلن جو مستقبل داءُ تي لڳي سگهي ٿو. حال ۽ انسانکي اهڙي قيادت جي ضرورت آهي، جيڪا انسانن کي ترجيح ڏئي. هن ٽيڪنالاجي، تي تحقيق ۽ تصوري ڪرڻ لاءِ، ڪمپيوٽر جي ماهرن، انجنيئرن، ڊاڪٽرن، سائنسدانن، قانون جي ماهرن، اقتصاديات جي ماهرن، فلاسافرن، ٽيڪڪ ۽ ادبين سميت زندگيءَ جي مختلف شعبن سان تعلق رکندڙ ماڻهن کي غور و فڪر ڪرڻ جي ضرورت پوندي.

ڪڏهن ڪڏهڙي ڪا "مصنوعي ذهانت" هڪ نظرياتي سائنس ڪا وڏي ڪاري ٽيڪنالاجي جي هڪ سونامي کي جنم ڏئي رهي آهي، جنهن کي منهن ڏيڻ لاءِ، اسان سڀني کي تيار رهڻو پوندو. سمارٽ موبائل فون جي اندر اها "مصنوعي ذهانت" ئي آهي، جنهن سري (Siri) ۽ اليڪسا (Alexa) جي صورت ۾ اسانجي زندگي آسان ڪري ڇڏي آهي. ڳوڙهو ٿي ڳوگل (Google)، اسانجي پسند ۽ ناپسند کان متعارف ٿي ويو آهي ۽ اسانکي اسانجي ذهنيت ۽ ضرورت مطابق مواد مهيا ڪري ٿو. اها "مصنوعي ذهانت" جي صرف شروعات آهي. مستقبل ۾ "مصنوعي ذهانت" هرشئي مڪمل طور تي قابض ٿي ويندي.

جڏهن انسان "مصنوعي ذهانت" جي گاڏ ڪرين ٿا ته ان ۾ ان سان اسانجو مقصد ڪمپيوٽر جون اهي خوبيون آهن، جيڪي اسانجي روزمره جي زندگي ۾ اثرانداز ٿين ٿيون. اهي خوبيون انسان جي ڪم کي آسان بڻائي ٿيون ۽ هڪ ڪال وڌيڪ ماڻهن جو هڪ اڪيلي سرانجام ڏيڻ جي صلاحيت کي وڌائي ٿو. جيئن ڪمپيوٽر آپٽيڪل ڪيريڪٽر ريڪگنيشن (OCR) جي مدد سان ڪاغذ تي لکيل اکرن کي پڙهي ڪمپيوٽر ۾ لکي ٿو. يا وري هڪ روبوٽ سرجري (Surgery) ڪري ٿو. "مصنوعي ذهانت" جي اهڙين خوبين سبب ڪيترا ئي پيشا ختم يا وري تمام پيڇن ۾ تبديل ٿي ويندا. بينڪ جي ڪيشيئر واري ڪم کي اي ٽي ايم (ATM) ڪندا. ريسيپشنسٽ جو ڪم وڃوڻ لاءِ آهي. ورچوئل اسسٽنٽ (Virtual Assistant) ڪندو. ڪاڏي هلائڻ جو ڪم سيلف ڊرائيونگ ڪار (Self_driving car) ڪندي. پيزا ڊليوري جو ڪم ڊرونز (Drones) ڪندا. فيڪٽرين ۾ مزدورن جي جڳهه تي روبوٽ (Robots) ڪم ڪندا ۽ روزاڻي اخبار هاڪر بجاءِ موبائيل وسيلي ملندي. ان سميت مختلف پيشن سان لاڳاپيل ماڻهن جو ڪم آرٽيفيشل انٽيليجنس وسيلي ٿيندو.

مستقبل ۾ مشين جي ايجاد جي وسيلي مختلف ڏکين نوڪرين کي پڻ "مصنوعي ذهانت" وسيلي آسان بڻايو ويندو. جهڙوڪ باهه وسائڻ واري عملي (Firefighters) جو ڪم. سمنڊ ۾ تيل ڪڍڻ ۽ عمارتن جي اڏاوت سميت بيا ڪيترا ڪم "مصنوعي ذهانت" ڪريءَ سرانجام ڏيڻ ويندا.

جيئن دنيا آڪسفورڊ ڊڪشنري جي مشهور لفظ آرٽيفيشل انٽيليجنس جا ڪجهه فائدا ڏٺا آهن، تيئن ان جا ڪجهه نقصان به سامهون آيا آهن. جيڪي فضل جي ٻيدارار ۽ مڪمل مدد ڪندا. اهي ڊوبرٽ ڪيسراڻي جي مدد سان زمين جي نگرانيءَ ڪندا ۽ انٽرنيٽ ذريعي ان معلومات کي مختلف جاين تي پهچائيندا. ان ڪري علاوه اهي ڊوبرٽ اسپري ۽ لاٻارو ڪرڻ سميت مختلف ڪمن لاءِ استعمال ٿيندا. دنيا آرٽيفيشل انٽيليجنس جي مدد سان ماضيءَ جي جاڻ مان مختلف الگورٿمز ذريعي بيداربا بهتر ڪار ڪري بهتر بڻائي سگهندي. فصل جي لاءِ، بهتر موسم، زمين ۽ دوائن جو انداز لڳائي سگهندي. آرٽيفيشل انٽيليجنس جي مدد سان فصل تي اينڊ لاڳت ۽ گهٽائي اينڊ ۽ وقت جي پڻ بچت ٿيندي.



غور و فڪر ڪرڻ گهرجي ته اسانجي وڌندڙ آدمشماري انسان جي لاءِ مستقبل ۾ خطرو پيدا ڪري سگهي ٿي. ضرورت ان ڳالهه جي آهي ته انسان آدمشماري کي ضابطي ۾ آڻي لاءِ، عوام ۾ جاڳرتا پيدا ڪرڻ.

پاڪستان جي خوشقسمتي آهي جو اسانجي ملڪ جي تقريبن 60 سيڪڙو آبادي نوجوانن تي مشتمل آهي. آتوميشن ڊائجن وينڊرٽ جرمني، جاپان ۽ روس سميت پين ترقي يافته ملڪن ڪي ليکين نوجوانن جي ضرورت آهي. اهڙي ۾ پاڪستان جي نوجوان آبادي جيڪڏهن آٽوميشن جي ڏيا ۽ پنهنجن صلاحيتون مجراني ته انسان دنيا ۾ آڳواڻي ڪري سگهن ٿا.

اسانجي ايندڙ نسلن جي ڪامياب مستقبل ۽ ملڪ ۽ جديد ٽيڪنالاجي متعارف ڪرائڻ لاءِ، صدر پاڪستان واهٽر عارف علوي آرٽيفيشل انٽيليجنس ۽ ڪمپيوٽنگ (Presidential Initiative for Artificial Intelligence & Computing) منصوبي جو بنياد رکيو آهي، جنهن تحت هزارين نوجوان لاءِ، مشترڪ جي بنياد تي آرٽيفيشل انٽيليجنس (AI)، ڪلائوڊ نيٽو ۽ موبائيل ويب (Cloud Native and Mobile Web)، بلاڪ چين (Blockchain)، انٽرنيٽ آف ٿنگس (IoT)، ڪوانٽم ڪمپيوٽنگ (Quantum Computing)، 5G ۽ سافٽويئر ڊفائينڈ نيٽورڪنگ (5G and Software Defined Networking) جهڙا جديد ٽيڪنالاجي تي مشتمل پروگرام متعارف ڪرايا ويا. جنهن مان هزارين شاگرد مفيد ٿي رهيا آهن. اسان جا نوجوان ان پروگرام ۾ وڏو ڪاڏ وڌ شرڪت ڪري پاڻ کي آرٽيفيشل انٽيليجنس جي دنيا ۾ مجراني سگهن ٿا.

پاڪستان هڪ زرعي ملڪ آهي. ۽ اسان اڄا ٽائين زراعت کي هٿي وٺرائڻ لاءِ ٽيڪنالاجي مان ڪوخاص فائدو وٺي نه سگهيا آهيون. "مصنوعي ذهانت" مستقبل ۾ پاڪستان جي زراعت ۽ آبادگارن لاءِ مددگار ثابت ٿيندي. انسان جهڙين صلاحيتون جهڙوڪ بڊي سمجهڻ، ڏسڻ ۽ فيصلو ڪرڻ جي سگهه رکندڙ روبوٽ مستقبل ۾ زراعت جي معيار کي بهتر بڻائيندا. اهي روبوٽ هاري ۽ حا ڪر جهڙوڪ هر ڪاهن، لاٻارو ڪرڻ، ٻج پوکڻ، آبپاري ڪرڻ، فصل جي چڪاس ۽ پاڻي ڏيڻ وغيره وڌيڪ آسان ۽ بهتر طريقي سان سرانجام ڏيندا. ڊرونز جي نگراني سان خراب فصل کي گولڻ ۽ آساني ٿيندي.

دنيا ۾ ترقي يافته ملڪ آرٽيفيشل انٽيليجنس جي مشمل اهڙا ڊرونز تيار ڪري رهيا آهن. جيڪي فصل جي ٻيداوار ۽ مڪمل مدد ڪندا. اهي ڊوبرٽ ڪيسراڻي جي مدد سان زمين جي نگراني ڪندا ۽ انٽرنيٽ ذريعي ان معلومات کي مختلف جاين تي پهچائيندا. ان ڪري علاوه اهي ڊوبرٽ اسپري ۽ لاٻارو ڪرڻ سميت مختلف ڪمن لاءِ استعمال ٿيندا. دنيا آرٽيفيشل انٽيليجنس جي مدد سان ماضيءَ جي جاڻ مان مختلف الگورٿمز ذريعي بيداربا بهتر ڪار ڪري بهتر بڻائي سگهندي. فصل جي لاءِ، بهتر موسم، زمين ۽ دوائن جو انداز لڳائي سگهندي. آرٽيفيشل انٽيليجنس جي مدد سان فصل تي اينڊ لاڳت ۽ گهٽائي اينڊ ۽ وقت جي پڻ بچت ٿيندي.

آرٽيفيشل انٽيليجنس انساني جذبن، تصورات خيالن ۽ حواس کي به پنهنجي وس ۾ آڻي سگهندي.

هڪ اندازي مطابق هلندڙ سال 2020ع تائين دنيا ۾ آرٽيفيشل انٽيليجنس جي پاڻيندڙ 50 ارب ڊوائيس (Devices) ايجاد ٿي ويندڙ ان حساب سان 2025 تائين تقريبن 100 ڪروڙ ڊالرز جو معاشي منافعو ڏيندڙ آهي. ڊوائيس ماحوليات، آفيس، اسپتالن، گاڏين، گهر يا زراعت ۾ استعمال ڏيندڙ مشين سان مشابهت ٿي سگهن ٿيون. جيڪڏهن انسان پنهنجي گهر، ڪاروبار يا گاڏين کي سمارٽ ڊوائيس ذريعي استعمال ۽ آٽيمن ڏان سان زندگيءَ ۾ مثبت تبديلي ايندي. آهر سپ انٽرنيٽ آف ٿنگس (IoT) جي مدد سان ممڪن ٿي رهيو آهي. آهر روزمره جي عملن کي معلوماتي نظام (data factories) ۾ تبديل ڪري رهي ٿو ۽ آها معلومات آرٽيفيشل انٽيليجنس سان ملي هڪ ذهني نظام جوڙي ٿي. جيڪو مستقبل جي ڪمن کي ماضيءَ جي تجربن سان بهتر ۽ آسان بڻائي ٿو.

آرٽيفيشل انٽيليجنس جا تعليم تي به ڪافي مثبت اثر پوندا. آرٽيفيشل انٽيليجنس کي اسڪولن، ڪاليجن، يونيورسٽين ۽ ريسرچ سينٽر سميت مختلف تعليمي ادارن ۾ استعمال ۾ آندو ويندو. آها شاگردن جي سکيا ۽ تربيت لاءِ استعمال ٿيندي ۽ ان جي مدد سان اهڙا نظام ٺاهيا ويندا، جيڪي شاگردن جي ڪارڪردگيءَ ۽ سکڻ جي صلاحيت کي ماضيءَ جي تجربي سان بهتر بڻائي شاگرد جي معلومات وڌائيندا ۽ تربيت ڪندا.

هڪ اندازي مطابق 2024ع تائين 47 سيڪڙو ڪان مٿي تعليمي ادارا آرٽيفيشل انٽيليجنس جي مدد وٺندا هر شاگرد جي سمجهه ۽ سکڻ جو طور طريقو پين کان جدا هوندو آهي. جنهن ڪري شاگرد سڀا نيڪا ناهن ڏئي سگهندا. ان ڪري شاگردن لاءِ نصاب جي تياري استادن بجاءِ آرٽيفيشل انٽيليجنس ذريعي عمل ۾ آڻي ويندي. ته جيئن هر شاگرد جي ذهن ۽ سمجهه جي سگهه مطابق ان کي سکيا ڏئي سگهي. آهو سکيا ڏيڻ جو عمل نه وچوڙل استاد (virtual teacher) ذريعي عمل ۾ آندو ويندو جيڪڏهن شاگردن کي سکيا سمجهه نه آهي ته ان جي سوالن جا برابر جواب ڏئي سگهندا. هن وقت دنيا جا ڪجهه مشهور ادارا شاگردن جي سکيا لاءِ، ڪيترا اهڙا آلا ڏئي رهيا آهن جيڪي آواز سان ڪنٽرول ٿي عمل ڪن ٿا ۽ شاگردن جي سکيا ۾ مدد ڪن ٿا. اهي آلا نصاب کان هٽي ڪري پڻ معلومات پڻ فراهم ڪن ٿا.

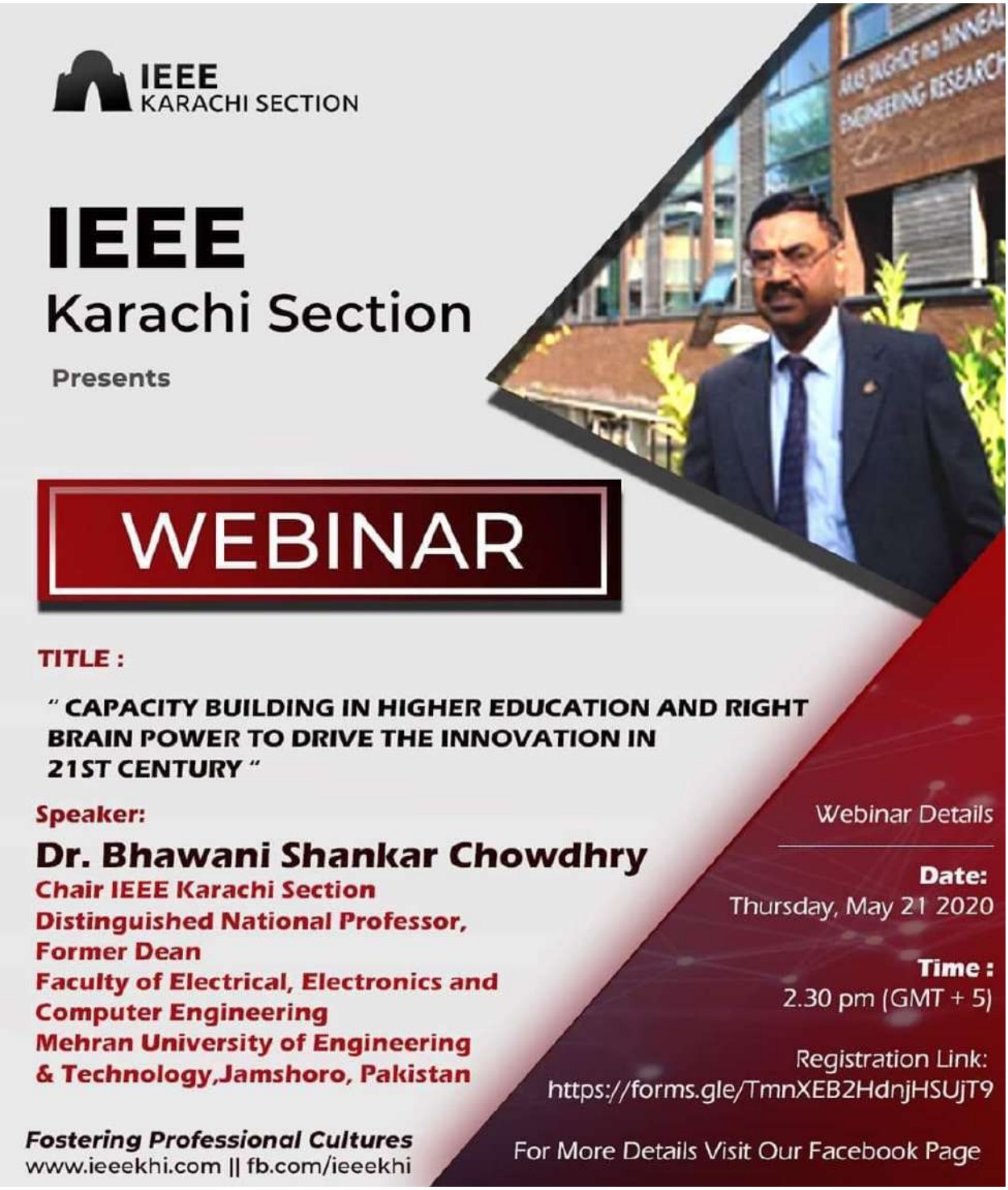
جتي آرٽيفيشل انٽيليجنس جا ڪيتي فائدا آهن اتي ان جا ڪجهه خطرا پڻ آهن. اهڙا روبوٽس ۽ پيدا ٿي سگهن ٿا. جيڪي انسان تي حڪمراني ڪرڻ لاءِ، سامهون اچن ۽ انسان کان خودمختياري جو حق کسي وٺن. ڪجهه سائنسدانن جو چوڻ آهي ته روبوٽ انساني تهذيب جو خاتمو آڻي ڇڏيندا. خوشقسمتي سان اڄا ٽائين ڪو اهڙو آلو دريافت ناهي. ٿيو. جيڪو انسان کي پنهنجو غلام بڻائي. انهن کان ڪو ڊڄي. هر شين ايجاد سان تولن فائدا ۽ خطرا ظاهر ٿيندا. انسان کي انهن ايجادن مان فائدو وٺڻ لاءِ، انهن جو مثبت استعمال ڪرڻو پوندو ته جيئن دنيا بهتر جڳهه بڻجي سگهي ■

Article published in Kawash Magazine

IEEE Section Officers: Fostering Professional Culture:

Webinar: Capacity Building in Higher Education

21 May 2020



Getting Started With O365

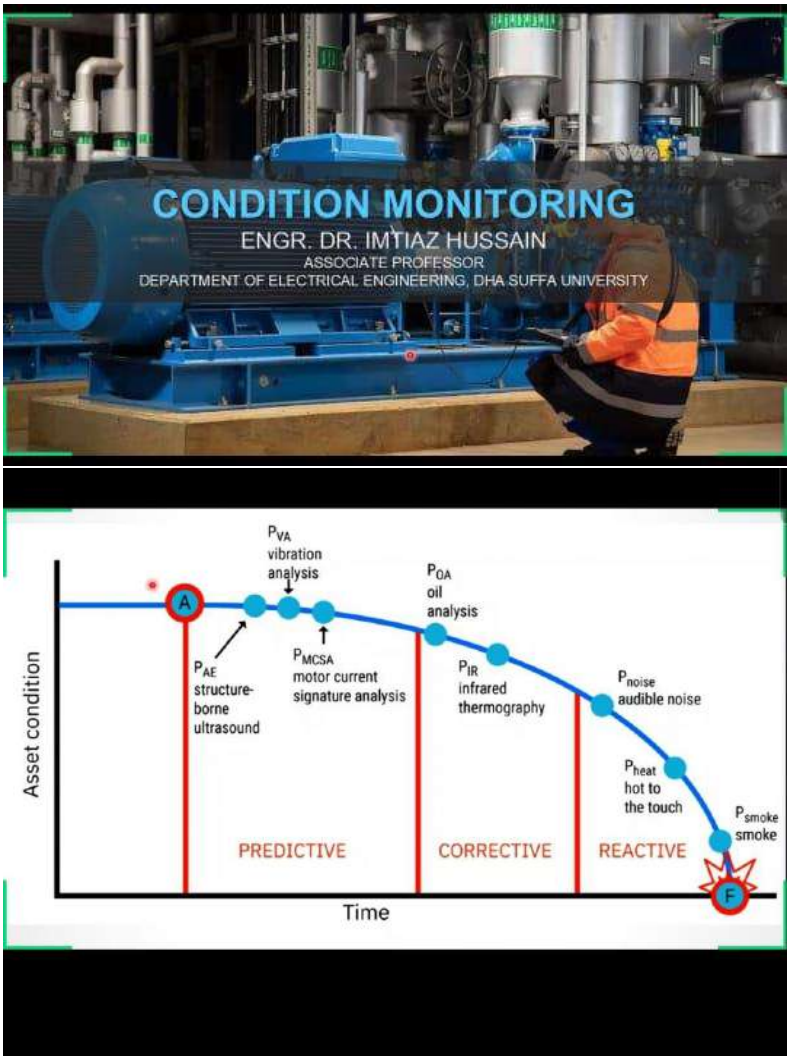
30 May 2020

With 1st June approaching fast, we are moving towards online classes. And, in order to stay updated and help everyone in MUET work smoothly through their O365 suite, we are arranging an awareness session on O365 tools.

Mr. Adnan Amin, having over 15 years of extensive experience in Microsoft Technologies with major expertise on SharePoint Server, Office 365, .Net Platform, and Microsoft BI and currently working as Senior Microsoft Consultant for PCM will be speaking with us, the students of Mehran UET live on MS Teams about efficiently using O365 tools for online classes on 30th May 2020 from 4 PM., sharp.

Webinar on " Condition Monitoring Applications for Improving Safety and Reliability of Operating Assets"

5 June 2020



Resource Persons
Engr. Prof. Dr. B S Chowdhry,
National Distinguished Professor MUET, Jamshoro
Engr. Dr. Imtiaz Hussain,
Associate Professor, Electrical Engineering DHA Suffa University, Karachi

1st Session: 10:00 am to 11:00 am Topic:
Introduction to Condition Monitoring and Modern Condition Monitoring Techniques Resource Person:
Engr. Dr. Imtiaz Hussain

2nd Session: 11:00 am to 12:00 pm Topic:
Condition Monitoring Applications Resource Person: Engr. Prof. Dr. B S Chowdhry

A Free Online Seminar on "Research Paper Writing" organized by Department of Electronics Engineering

2 July 2020

A free online seminar on "Research Paper Writing" was organized by the Department of Electronics Final Year Project Committee on 2nd July 2020. The presenters for the seminar were Dr. Attiya Baqai (Convener ES-FYPC) & Engr. Khuhed Memon (Member ES-FYPC) and the coordinator was Engr. Mansoor Teevno (Secretary ES-FYPC).

A large number of students from the final year (F16ES) attended the seminar with keen interest. Engr. Mansoor Teevno started the session while Dr. Attiya Baqai briefed about the need of the online seminars during this prevalent situation and the committee's will to facilitate students. Prior to organizing this seminar she conducted a survey to know the willingness of the students to attend such seminars in their free slots that came out to be more than 90% and that became evident with the attendance in the seminar too. She thanked Engr. Mansoor for the arrangements and support; she also thanked Engr Khuhed Memon who voluntarily stepped forward to conduct the first online seminar along with her by taking up a section for him. She further thanked the Chairperson Department of Electronics Prof. Dr. Arbab Nighat for approving her initiative and all the FYPC members Prof. Dr Wajiha Shah, Dr. Farzana Rauf Abro, Dr. Farida Memon and Dr. Shoaib Rehman Soomro for supporting her and giving their consent to conduct their respective allocated seminars online in near future.

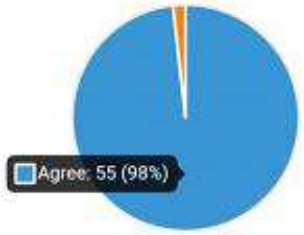
The seminar was divided into three sections.

Part-1 was delivered by Dr. Attiya Baqai in which she gave introduction to Research paper, its various types, and ways to check about the authenticity of a journal, research journal and paper quality metrics, submission possibilities for students where they can submit their research work and the timeline along with different phases from submitting an article to publishing.

The second Part was for "Research Article Writing "delivered by Engr. Khuhed Memon whereas the 3rd Part was on "Writing a Review Paper" delivered by Dr. Attiya Baqai. The sub-sessions continued for two hours whereas the seminar concluded with half an hour Question and Answer session. At the end of the seminar a feedback form about the seminar was also asked to be filled by the students whose statistics demonstrate the success and effectiveness of the seminar. This feedback also demonstrates the students' and organizers' dedication towards learning and educating in this pandemic situation as well. The seminar ended with vote of thanks to all the attendees.

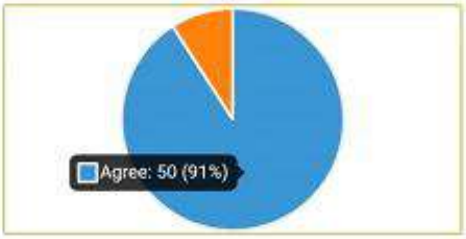
3. Overall, the session was informative and valuable.

Agree	55
Neutral	1
Disagree	0
N/A	0



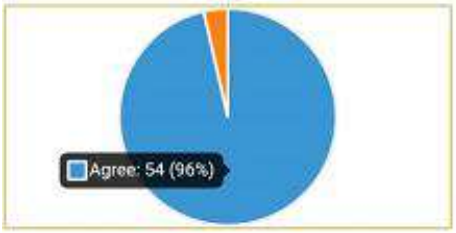
4. I learned things that I can apply to my work / courses/ research.

Agree	50
Neutral	5
Disagree	0
N/A	0



5. The presenters knew their subject matter and material

Agree	54
Neutral	2
Disagree	0
N/A	0

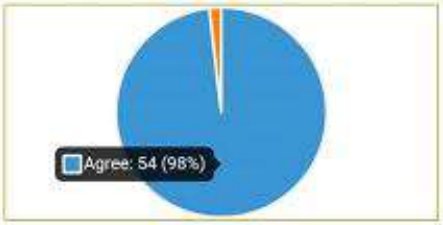


6. The seminar material was presented in a clear and organised manner

Agree	53
Neutral	3
Disagree	0
N/A	0

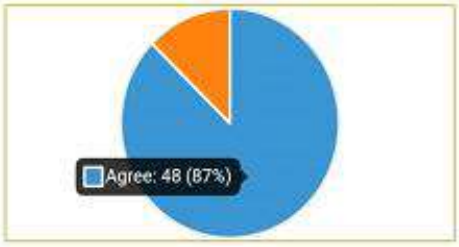
7. The presenters responded to questions in an informative, appropriate and satisfactory manner.

Agree	54
Neutral	1
Disagree	0
N/A	0



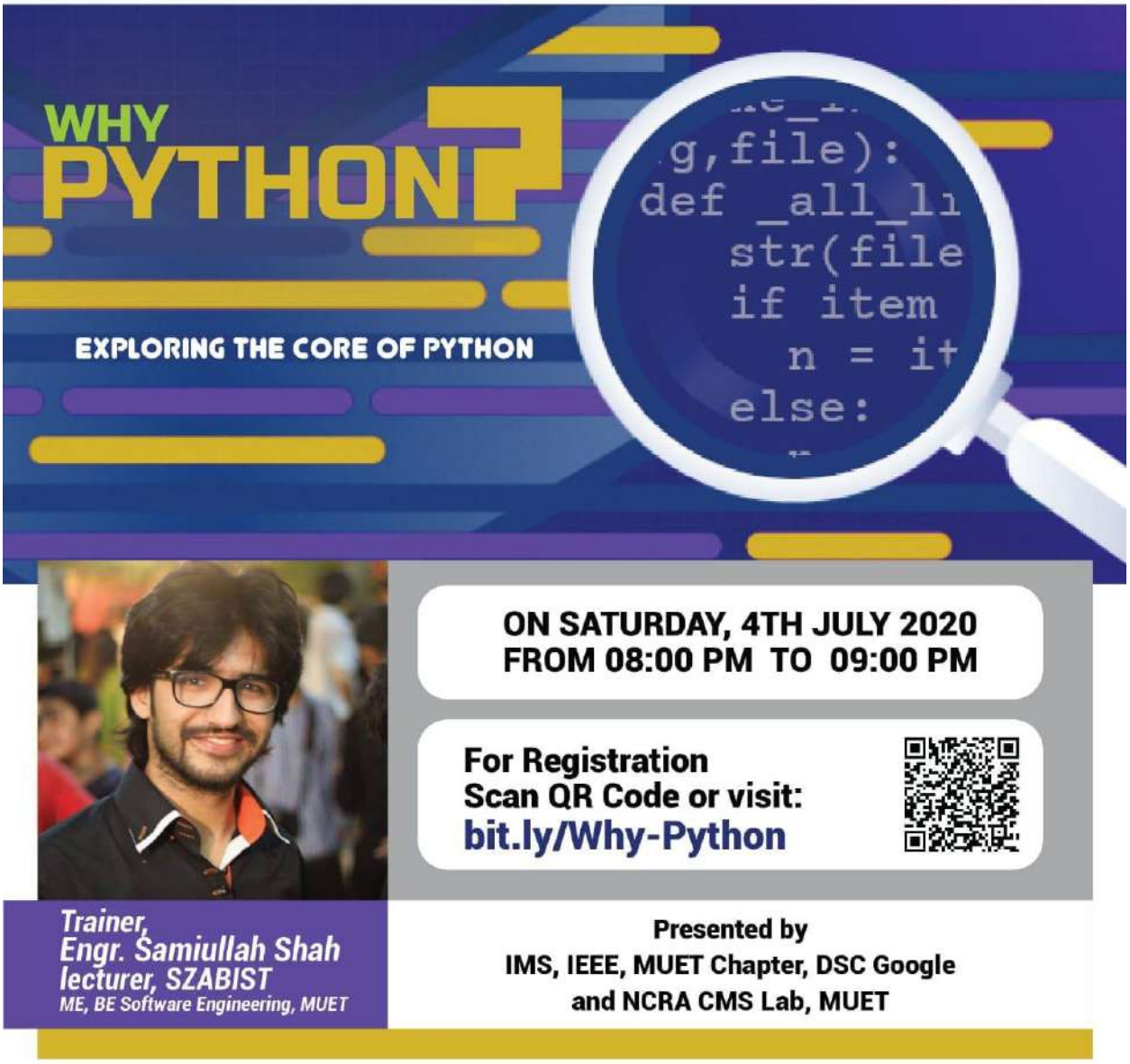
8. I would recommend this session to a colleague or friend

Agree	48
Neutral	7
Disagree	0
N/A	0



Webinar: Why Python?

4 July 2020



Free webinar on "Mendeley; A Reference Management Tool" organized by Department of Electronics Engineering

9 July 2020

A free webinar workshop on “Mendeley Reference Managing Tool” was organized by the Department of Electronics Final Year Project Committee on 9th July 2020 as second online webinar from the series. The presenter for the seminar was Dr. Attiya Baqai Convener ES-FYPC & Associate Professor in Department of Electronics Engineering MUET.

The seminar started in the name of Allah. Dr. Attiya Baqai welcomed the participants while appreciating their regular participation in the webinar series arranged by FYPC of Department of Electronics Engineering. She briefed about the need and importance of reference management tools available; for research paper and thesis writing. The session was accompanied by the interactive exercise activities in which the students were first taught about the concepts using different features and utilities of the Mendeley software and then were asked to complete different tasks at run time. The activities included installing MS Word and Web importer plugins through Mendeley, searching references in Mendeley through literature search from database, through browsers & Google scholar, directly importing references from pdf files or complete folders, making watch folder. The students were also given task to cite references and later change citation styles and insert bibliography using word plugin. Last activity was to use import and export feature. The students were asked to import and export files from different reference managers like BibTex *.bib, Reference Information System *.ris, Endnote .xml or Zotero zotero.sqlite. Dr. Attiya also highlighted the role of built-in pdf viewer and its features like adding notes, annotating & highlighting text right from Mendeley software. She encouraged students to share and discuss their search or literature review section with their FYP group members through this feature.

Other features like collaboration with other researchers, creating groups, discovering statistics and recommending articles were also briefly touched during this online workshop.

The statistics of the feedback forms filled by the students were maintained high as for the first webinar and the students rated this seminar as 4.45 on average out of 5. The two hour technical session was followed by half an hour Question and Answer session and the seminar ended with vote of thanks by the resource person to all the attendees.

CPD Webinar on LATEX

11 July 2020

Continuing Professional Development (CPD) is basically the means by which members of professional bodies maintain, improve and broaden their knowledge and skills for developing personal qualities required in their professional lives.

Pakistan Engineering Council (PEC) under its Act has mandate for introducing and ensuring continued professional development activities amongst its growing community of engineers. Professional Engineers are required to obtain 3 credit points per year for the renewal of the registration, with effect from July 2010

CPD points Eligibility: Final year students or Graduate. Further details are mentioned in the given poster.

Condolence Reference

15 July 2020

Condolence Reference in memory of Late Engr. Fazal Rehmaan, Engr. Tanweer Hasan Siddiqui and Engr. Mirza Feroz Baig was organized by IEEEP Local Centre, Hyderabad in collaboration of Mehran University of Engineering and Technology, Jamshoro and was held in VC Office on 7th July, 2020.

Vice Chancellor Engr. Prof. Dr. M.A Uqaili, also Chairman of IEEEP Local Centre Hyderabad presided over the meeting.

At the outset, Engr. Arshad Chughtai welcomed the participants and briefly introduced the event.

The proceedings commenced with recitation of the Holy Quran by Mr. Umar Jamil. Later, renowned religious scholar Engr. Jamil Awan offered Fateha for the departed souls. Engr. Jamil Awan also prayed for the affectees of pandemic and the welfare and prosperity of engineers and continued success of Mehran University and IEEEP.

Engr. Prof. Dr. M.A Uqaili, in his presidential address, expressed that this is our tradition and moral duty to pay respect and remember our passed away legends. Accordingly we are holding this condolence reference. He appealed IEEEP Headquarters and PEC to institutionalize this tradition and ensure that such legends are awarded with posthumous National Pride of Performance Awards for their services. He lauded the remarkable, long and illustrious services of Engr. Fazal Rehmaan, Engr. Tanweer Hasan Siddiqui and Engr. Mirza Feroz Baig. He said that University is making every possible endeavor to promote the cause of engineering education and the profession. He thanked the participants that despite restrictions due to COVID-19, following the SOPs, they attended the condolence reference.

Engr. Prof. Dr. B.S Chowdhry, Vice Chairman of Local center also lauded the work and services of departed engineers and told that, particularly, Engr. Mirza Feroz Baig was in close liaison with the university. He expressed his deep sorrow and grief on the tragic death of Engr. Fazal Rehmaan in the airplane crash, For IEEEP his services are historical and will be long remembered.

Webinar: IEEE ComSoc

13 August 2020

Department of Electronic Engineering organized 0.5 CPD webinar on "Android Development – An Introduction" on 15th August 2020

15 August 2020

Department of Electronic Engineering MUET organized a 0.5 CPD webinar on "Android Development – An Introduction" on 15th August 2020. The resource person for the webinar was Engr. Khuhed Memon, Assistant Professor, Department of Electronic Engineering. This webinar was organized in collaboration with ORIC MUET and PEC. The coordinators for the seminar were Dr. Attiya Baqai (Associate Professor, ES Dept, Engr Mansoor Teevno (Assistant Professor, ES Dept), and Engr Bharat Lal (Lecturer, ES Dept).

The webinar was started in the name of Allah. Dr. Attiya Baqai thanked the attendees for joining the webinar. She acknowledged the contribution and efforts of the resource person for his time, devotion, and hard work for the webinar on such short notice. She expressed gratitude to her team for coordinating and working hard for conceptualization of the this CPD webinar. She appreciated Engr. Mansoor that in spite he was leaving for his Ph.D., the way he supported the idea and arrangements. She specially thanked Engr. Bharat Lal for managing all the registrations and the technical aspects of the webinar. She also thanked Mr. Haq Nawaz (IT Dept.) for his volunteer services and assistance.

After the acknowledgment Engr. Khuhed Memon formally started the session. As the webinar was for the noobs so he explained the concepts from very basic to exploring the possibilities for building mobile apps and discussed different applications. The webinar covered the Introduction to Android OS, Introduction to Android Studio, Introduction to Java, Creating Pilot Project (Hello World!), Android Virtual Device Manager, Layouts & Resources for the UI, The Android Studio Debugger, Activities & Intents, Touch & input, Camera, introduction to Sensors, Importing the Mobile Ads SDK, App Deployment, Google Play, and Google Firebase. The webinar was supported by the codes and GUI implementation by the resource person on run time for the understanding purpose of the attendees.

The webinar was attended by multi-discipline and multi-organization attendees. There were 102 registrations for the webinar from which 56.3% opted for attending the free webinar whereas 43.7% opted for the paid CPD webinar with certificates. Engineers from various organizations and universities attended this webinar including Best Buy Canada Product Process, Public Health Engineering, Sukkur IBA University, China Huadian Power Plant Operation Company (CHDOC), Isra University Hyderabad, National Radio Telecommunications Corporation, Sindh University Jamshoro. A large number of students from Mehran University from First year to Final year attended the webinar. The active participation was from Electronic Engineering, Software Engineering, Computer Systems Engineering, Electrical Engineering, Telecommunication Engineering, Biomedical Engineering, Mechatronic Engineering, Mechanical Engineering, Mining Engineering, and Civil Engineering departments.

In the end, there was a question & answer session and the attendees were asked to fill the feedback forms. The ratings and comments received were very encouraging and appreciating. The attendees were eager to attend more such seminars in the future too. The session was ended with the vote of thanks by the organizing members.

Webinar on "Latex-Document Preparation System" organized by the Department of Electronic Engineering

5 September 2020

A free webinar on “Latex (Document Preparation System)” was organized by the Department of Electronic Engineering Final Year Project Committee on 5th September 2020. The resource person of the webinar was Prof. Dr. Wajiha Shah Professor, Department of Electronic Engineering MUET.The coordinators of the webinar were Dr. Attiya Baqai (Convener ES-FYPC) & Engr. Qudsia Memon (Secretary ES-FYPC).

Dr. Attiya formally started the webinar by welcoming the attendees, introducing the presenter and the highlighting the importance of Latex at various platforms from reports, articles, thesis writing to more advanced research papers while appreciating the efforts and cooperation of the committee members (Prof. Dr Arbab Nighat, Dr. Farzana Rauf, Dr. Farida Memon, Dr. Shoaib Soomro & Engr. Khuhed Memon) and the resource persons for the arrangements of the series of these webinar during this pandemic time. She then greeted and welcomed Engr Qudsia Memon in ES-FYPC for joining as new secretary. She acknowledged the services of Engr. Mansoor Teevno as former secretary of the ES-FYPC and wished him good luck to peruse his PhD at City University Hong Kong.

After the introduction, Dr. Attiya handed over the session to Prof. Dr. Wajiha Shah. The webinar was based on the Latex software installation, designed, and formulated especially for beginners. The presentation covered various aspects to formulate a document in Latex such as document classes, packages, formatting, graphics, citations, math type setting and commonly occurring errors. All the discussed aspects were orderly briefed by the conveyor.

The final year students attended the webinar keenly considering the software’s importance as a tool in thesis writing. The webinar was concluded by a Q/A session followed by submission of a feedback form. The webinar was put an end by Dr. Attiya by expressing gratitude to everyone for their participation.

Webinar on "Academic Writing Techniques/Strategies and Plagiarism policy awareness (Turnitin)" organized by the Electronic Engineering

6 September 2020

A free webinar on “Webinar on “Academic Writing Techniques/ Strategies and Plagiarism policy awareness (Turnitin)” was organized by the Department of Electronic Engineering Final Year Project Committee on 6th September 2020. The presenter of the webinar was Dr. Farida Memon (Associate Professor, Department of Electronic Engineering & Member ES-FYPC). The coordinators of the webinar were Dr. Attiya Baqai (Convener ES-FYPC) & Engr. Qudsia Memon (Secretary ES-FYPC).

Dr. Attiya formally started the webinar by greeting the attendees, introducing the resource person Dr. Farida Memon, while highlighting the efforts and co-operation of her FYP Committee (Prof. Dr. Arbab Nighat, Dr. Farzana Rauf, Dr. Farida Memon, Engr. Khuhed Memon, Dr. Shaoib Soomro & Engr. Qudsia Memon) and Chairperson Department of the Electronic Engineering Prof. Dr. Arbab Nighat. She informed the attendees and congratulated the ES-FYPC for the accomplishment of all the planned seminars for F16ES Batch for the year 2020 during the critical time of COVID-19. She thanked the committee members and all the resource persons for their cooperation. This was the last scheduled webinar.

Dr. Attiya then invited Dr. Farida memon to start the technical session formally. The webinar was designed especially for the final year students to understand the basic factors while writing their FYP Thesis. The workshop thoroughly covered the aspects of formal academic writing involving the language choices, flow of information in paragraphs, styling, transition, and phrases.

Moving on to the next objective of the webinar, Dr. Farida then introduced the referencing and its importance in academic writing. Moreover, bibliography and the inclusion of that while printing journals/conferences was also discussed. In addition to the above, structure of a paragraphs, formal research report and do’s and don’t for academic writing were introduced. By concluding the presentation, plagiarism and its avoidance techniques were also discussed. As HEC has provided Turnitin software to universities for checking the plagiarism so a run time demonstration for scanning and its interpretation was also explained in the session.

Summing up the webinar, a Q/A session was conducted and the attendees were asked to give their opinion via feedback forms.

Huawei Acknowledges MUET Student for Successfully Completing 6 Huawei Certifications

11 September 2020

An exemplary performance by Huawei ICT Academy's Young Star, Saqib Hussain, from the Department of Telecommunication Engineering at Mehran University of Engineering and Technology

Congratulations on successfully completing 6 HCIA Certifications!

IEEE Xplore CHALLENGE!

12 October 2020

Prize Distribution Ceremony of IEEE Xplore Challenge for Researchers in Pakistan 2019-20 held at Vice Chancellor secretariate of MUET. Mr. Ahsan Rasheed and Mr. Sajjad Hussain were the two winners from Mehran UET, Jamshoro among all other eleven winners through out the pakistan. With this MUET has become the only University who produced two winners in this compitition. Prof. Dr. Mohammad Aslam Uqaili, Vice Chancellor MUET, Prof. Dr. Tauha Husssain Ali, Pro Vice Chancellor MUET congratulated them on their acheivement and presented winning prizes of IPADs to the winners. The prize distribution ceremony was organised by MUET Library & Online Information Centre, Jamshoro.

Visit of NCRA-CMS Lab Team for Research, Development, and Industrial Collaboration

8 October 2020


The research team in CMS is responsible for conducting research and development projects and programs that address railway infrastructure condition monitoring and railway rolling component condition monitoring needs and priorities of state importance. The research team focuses on design, development followed by real-time testing with the innovation of relevant technology and implementation of condition monitoring systems for infrastructure especially railway/road. The team works with leading Pakistani researchers and partners from academia and industries focusing on effectively, efficiently, and safely moving trains on tracks; finding solutions that address various types of defects or damages for equipment condition monitoring; intelligent transportation systems; and vehicle-infrastructure communications.

For the case of Pakistan railways, the recent performance data shows an increase in rail passengers up to six million travelings in one year from August 20th, 2018 to August 20th, 2019. Since this mode of transportation is widely used, accidents related to it are quite common. According to the National Safety Council, railroad deaths summed to be 841 in 2018, an increase of approximately 2% than in 2017. Pakistan railways have seen the worst number of accidents in 2019 with a total of 74 accidents happening in the starting few months and the number of accidents is still growing today. According to a report submitted to National Assembly last year, Pakistan railways have seen 338 accidents both major and minor over a time of four years. 118 people died in these incidents. It was also reported that a total of 87 derailments, 58 collisions at manned level crossings, and 187 collisions happened at unmanned level crossings. Several major train accidents happened in Pakistan since 2018 such as The fire incident of Tezgam Express at Rahimyar Khan in October 2019, killing 74 people; the collision of a passenger train with a cargo train caused by switching delay at Saqibabad in July 2019, killing 21 people; derailment of 23 bogies of a freight train at Sukkur in June 2019; derailment of 9 bogies of Khushal Khan Khattak Express at Attock in September 2018, injuring 20 passengers; derailment of 11 bogies at Sehwan in September 2018.

Such sudden accidents of trains are important to be addressed as it causes huge damage to human life and property hence, CMS aims to provide national-level solutions in transport area (i.e. Railway and Road) for monitoring several parameters of the plant with emerging non-invasive, non- destructive testing approaches for predictive maintenance before any severity happens. It deals with the comparative analysis of existing approaches, the safety of railway rolling stock by developing early fault detection systems, and implementing high-performance computing algorithms i.e. digital signal processing, machine learning, deep learning, etc for accuracy. Condition monitoring techniques i.e. vibration analysis, oil analysis, infrared thermography, ultrasound testing, acoustic emission testing, etc. play a vital role to analyze the

current condition of machinery so that the precautionary steps can be taken in order to save the lives of people.

In order to facilitate the skilled force with the knowledge of existing railway infrastructure problems and available solutions, visits railway stations are frequently done. The Principal Investigator Professor Dr. Bhawani Shankar Chowdhry and Co-Principal Investigator Professor Dr. Tanweer Hussain of Condition Monitoring System Lab, National Centre of Robotics and Automation, MUET organized a 1-day field visit to Karachi Cantonment Railway Station, Saddar with the support of railway officials to explore the conditions of rail profile, existing rail faults identification system and major causes of rail accidents. We would like to convey our heartfelt appreciation to the railway officials for making this visit possible and their priceless efforts, support, and contribution to ensure a successful visit. The knowledge provided by them has been instrumental in developing automatic technology and all the queries were answered satisfactorily. The visit covers major points required for researchers and team to know about the rails, conditions of the stable track, design, and construction of the track, mechanical behavior of railroad ballast which leads to better design and efficient maintenance, trackbed stresses i.e. dead loads, thermal loads, dynamic loads, longitudinal loads, etc. Track deterioration factors such as track pumping due to continuously applied and released loads, wear of track components caused by differential movement, etc were discussed. Types of ties were discussed and shown such as Timber, concrete, steel, and plastic to transmit axle loads with minimum pressure and hold two rails transversely secure to correct gage. Ties must protect against mechanical damages using Tie plates, premium fasteners, anti splitting devices. Types of rail joints were discussed i.e. Bolted and welded and advantages of continuous welded rail over bolted were discussed. Defects and failures were also elaborated such as bolt hole break, base break, sudden rupture, split web, severe corrugation in track, etc. Rail anchors were shown attached to the rail which provides the homogenous distribution of stress in rail. Frogs permit the wheel flange to cross over opposing rail in turnouts & crossings. Currently, the faults in railway infrastructure are identified by manual inspection methods in which the level of service is dependent on individuals that can lead to error/mistakes. It's a time consuming, expensive, and requires automation to eliminate such limitations. Hence, CMS aims to perform predictive and smart maintenance and onboard surveillance ideas to better operate the railways, move the railway infrastructure from human maintenance to smart maintenance, from failure first fixing later to predicting and preventing the fault from developing, and from simple visual inspections to accurate, detailed and reliable machine diagnostics. With reduced maintenance costs, early warning system, increased lifespan of the machinery, development of a knowledge-base, and non-destructive testing, condition monitoring is the way to a better future for Pakistan Railways and it should be researched, developed, and implemented for the betterment of our country's railway system.

During travel from Hyderabad to Karachi, the prototype developed at NCRA-CMS lab was deployed on the wheel axle of the van to collect the road surface parameters (i.e. acceleration and location coordinates) for further analysis. Road defects are considered a serious worldwide issue that leads to catastrophic human casualties and massive financial losses. Poor road quality also causes mechanical strain for vehicles, increasing the need for repairs hence, a timely inspection of roads and preventive maintenance are considered as two major tasks to keep vehicles safe and operational. Without appropriate inspection and maintenance planning, the risk of failure in vehicles increases where the inspection is the prerequisite of road preventive maintenance, which can help operators and decision-makers to observe the condition of the roads and make them aware of potential hazards. Therefore, the aim and objective of this project are to design an effective low-cost road defect identification system to prevent road accidents and vehicle damages on motorways by applying the Fast Fourier Transform algorithm and notify drivers about road defects using an android application. The prototype consists of NodeMCU (with built-in WIFI module), GY-61 ADXL335 accelerometer, and a power supply. The accelerometer provides acceleration and speed

readings of vehicles and an android application mapped with Google Map is designed to collect location coordinates of vehicles. This data is then sent to the Firebase database using the WIFI module for analysis and stored on the database using HashMap.The same application will be used by drivers where the defects or road cracks are located.

The NCRA, CMS team visited Dawood University of Engineering and Technology, Karachi where they met Professor Dr. Faizullah Abbasi, Vice-chancellor of the university, and discussed technological advancements and joint research collaboration or activities to introduce advanced research activities/workshops by bringing both universities on one platform which help in translation of research into the public benefit and strengthen relationships between both universities. In this way, the promotion of entrepreneurship, technology-transfer, and commercialization activities will be performed that energize and support the local and national economy. Moreover, they made us visit different labs such as the Digital Electronics lab, Computer Programming lab, and introduced many projects/Electronic Kits used in the areas of Robotics, Mobile trainer, and FPGAs.

Prof. Dr. BS Chowdhry gets another Feather in the Cap

8 October 2020

Prof. Dr. Bhawani Shankar Chowdhry Former Dean and Meritorious Professor Faculty of Electrical, Electronics, and Computer Engineering, Mehran University of Engineering & Technology, Jamshoro has become the first Professor from Pakistan who has become an Editorial Board member of the Prestigious "Springer International Journal of Wireless Personal Communications" along with distinguished professors of USA, Finland, Singapore, France, Denmark, China, Norway, Bulgaria, India, Thailand, UK, South Korea, Japan, Spain, Portugal, Netherland, Turkey, and Luxembourg.

International Springer Wireless Personal Communications is an archival, peer-reviewed, scientific, and technical journal addressing mobile communications and computing. It investigates the theoretical, engineering, and experimental aspects of radio communications, voice, data, images, and multimedia. A partial list of topics included in the journal is propagation, system models, speech and image coding, multiple access techniques, protocols performance evaluation, radio local area networks, and networking and architectures. Prof. Chowdhry is also the Project Director if ICTED-SD.

We congratulate Prof. Chowdhry on getting this honor and making the country proud with his contributions.

Visit of HEC delegation led by Mr Naveed Shah at NCRA-CMS Lab MUET.

15 October 2020

A delegation of the Higher Education Commission led by Mr. Naveed Shah visited the National Center of Robotics and Automation Society, Condition Monitoring System Lab, Mehran University University of Engineering and Technology.

Prof. Dr. BS Chowdhry, Co-PI NCRA-CMS Lab briefed the delegation about the performance of the lab; ongoing projects, future plans, research, and academic activities during the meeting. Prof. Dr. Tanweer Hussain, Co-Pi NCRA-CMS Lab was also present on the occasion. The delegation also had an interactive session with researchers of NCRA-CMS Lab.

IEEE Day Celebrations

17 October 2020

Token Funding for Sustainability NCRA-CMS MUET Lab

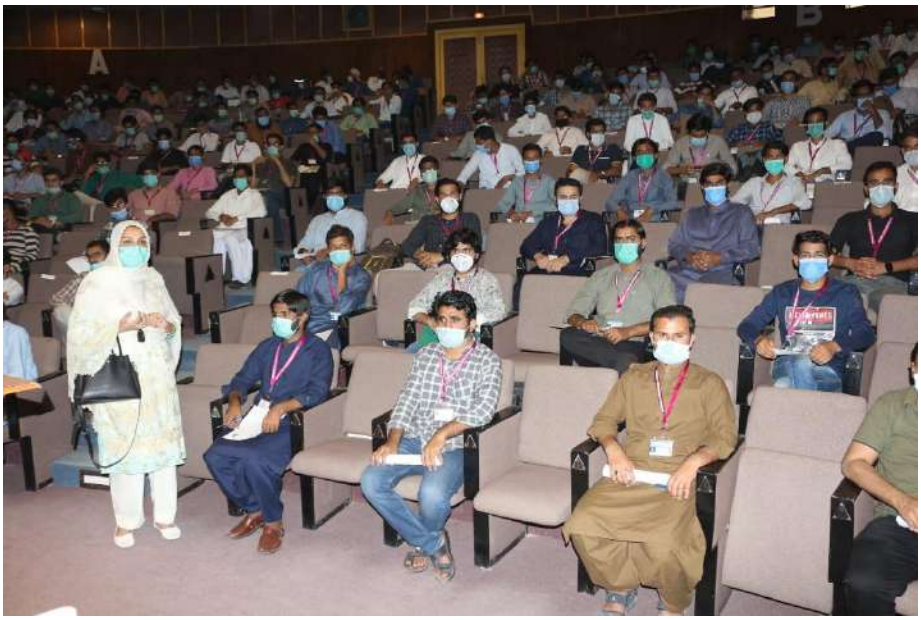
18 October 2020

NCRA-CMS Lab, MUET is pleased to receive a donation funding of PKR: 50000 towards sustainability of lab, on behalf of Engr. Feroz Baig who is Alumni of MUET. NCRA-CMS Lab has been working with different industries to support research and development in the region. This donation will pave the way for developing systemic empowerment of the lab's profitability and sustainability.

NCRA- CMS MUET lab's diagnostic research work published earlier this year may lead toward a successful transformation program to mitigate some of the issues related to the growing number of railway accidents.

Recruiment Drive

20 October 2020



Office of the Advisor Students Affairs organised an on-campus recruitment drive, conducted by one of the leading cement manufacturer of Pakistan, Power Cement, for fresh graduates of Electrical Engineering, Electronics Engineering, Mechanical Engineering and Chemical Engineering of Mehran University of Engineering & Technology, Jamshoro. Team of Power Cement headed by Mr. Sohail Anjum Khan, Sr. Deputy Manager HR, persented their company profile to students and conducted the test.

IEEEP Quarter Monthly Meeting

27 October 2020

IEEEP Quarter Monthly Meeting & Introduction of Ganjeen-e-Shifa (Treasure of Cure) A compilation based on Quranic Verses by Engr. Mohammad Yaqoob was held at Senate hall of Mehran University of Engineering & Technology Jamshoro. CEO HESCO was Chief Guest of the Event organised by IEEEP Local Centre Hyderabad in Collaboration with Mehran UET, Jamshoro. Prof. Dr. Mohammad Aslam Uqaili was the chief guest of the same held on 27 Oct, 2020.

Department of Electronic Engineering Organizes FYP Exhibition

2 November 2020

The Final Year Projects evaluation of F16ES batch was held at the Department of Electronics Engineering, MUET, Jamshoro on November 2, 2020. Five Labs of the department were used for the demonstration of Projects, maintaining strict Covid-19 SOPs. The viva sessions were held in parallel in Power Electronics Lab and the Chairperson office.

The event was honored with the presence of dignitaries including Dr. Ahmed Mudasir Khan, Dean FEST Faculty of Engineering, Science and Technology , Indus University, Karachi, and Dr. Abdul Aleem Jamali, Associate Professor, Department of Electronic Engineering QUEST, Nawabshah, as worthy External Examiners to assess the final year projects.

In addition, Prof. Dr. Mukhtiar Ali Unar, Dean, FEECE and Prof. Dr. Bhawani Shankar Chowdhry, Professor Emeritus, MUET also graced the event and visited the projects exhibited in various laboratories and attended the presentations. The Event was organized by the FYP Committee and Event Management committee led by Dr. Attiya Baqai, Associate Professor and Convener FYPC, Department of Electronic Engineering, MUET, . She and her team put in exemplary efforts to materialize the successful event.

The support and presence of the Chairperson, Prof. Dr. Arbab Nighat, and the entire faculty encouraged the final year students to effectively demonstrate their hard work and efforts throughout the year specially in tough circumstances posed by Covid-19.

The morale of the students was further raised by the massive praise they received from the External Examiners based on the work they presented in the event. Tremendous technical suggestions were also offered by the externals, dignitaries, and faculty to each group. The F16ES Thesis Abstract booklet of the projects was also presented to external examiners as well as shared with Alumuni, Industrial collaborators and employment providers through the following link to gain visibility for future industrial collaboration.

https://ictefs-aid.muet.edu.pk/final-year-projects-abstract-booklet-of-f16-batch-of-electronic-engineering-department-muet/?fbclid=IwAR3_FD5GAwGVIYdjcjYr_uNxZBhhAc-Qs3YzI6glSgzbvLicQp-YRKYEL74

Three Pak universities host GCWOT'20 at University of Malaga

1 November 2020

Three Pak universities host GCWOT'20 at University of Malaga

University of Malaga (UMA), Spain, Mehran University of Engineering & Technology (MUET), Jamshoro, Pakistan, Sir Syed University of Engineering & Technology (SSUET) Karachi, Pakistan, and Riphah International University, Islamabad, Pakistan, jointly organized online GCWOT'20 (Global Conference on Wireless & Optical Technologies) and universities from Europe, Korea, Malaysia, and India have also contributed to the success of this conference.

In his inaugural message Prof Dr MA Uqaili, Vice Chancellor MUET mentioned that three editions of the Conference have already been jointly organized by the University of Malaga, Spain, Mehran University of Engineering & Technology, and Sir Syed University of Engineering & Technology with a travel grant sponsorship support for Pakistani researchers by the Higher Education Commission of Pakistan. The same troika of UMA, MUET, and SSUET is successfully running International European Commission Credit Mobility Programs under Erasmus Plus. This year, the Riphah International University of Pakistan has also been included in the league as the fourth co-sponsor of the conference.

Chairs of the conference, Prof Pablo Otero and Prof BS Chowdhry informed that GCWOT'20 has become an international forum for researchers to exchange information regarding novel aspects of technology, application, and service development within the multidisciplinary framework of Wireless, Optical, and Underwater Communications Technologies. GCWOT aims to facilitate a creative environment for the promotion of collaboration and knowledge transfer.

Appreciating the hard work of the organizers for holding this online Global Conference on Wireless and Optical Technologies in view of the new outbreak of COVID-19 globally, Chancellor SSUET Mr Jawaid Anwar said that it is the year of the COVID-19 pandemic. This tragic circumstance has prevented the Conference from being held in person, as was the wish of the organizers, who are convinced that the live exchange of ideas is irreplaceable in the universe of scientific and technological research.

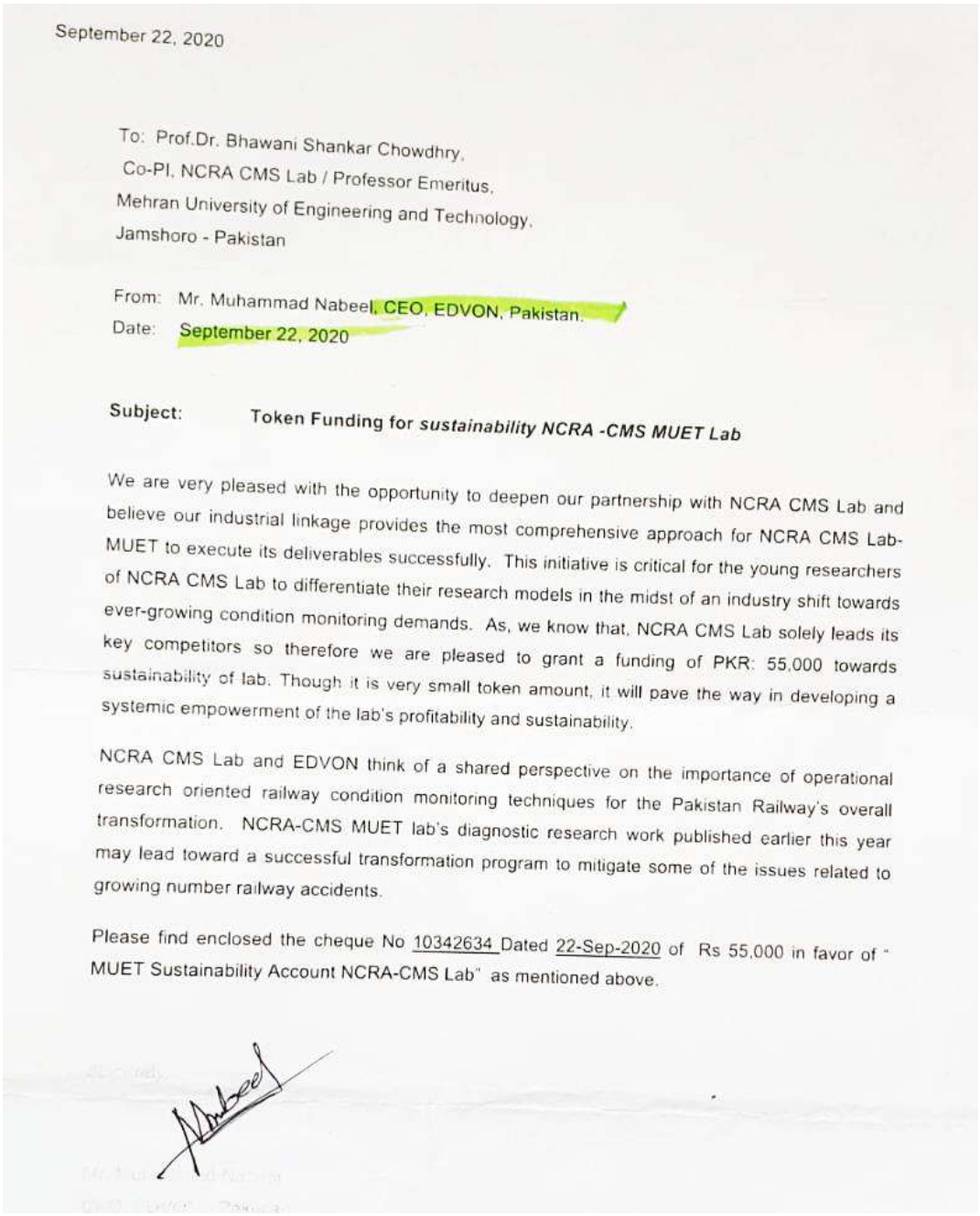
Technical Program Committee Chairs Prof Enrique Nava and Dr Mohammad Aamir informed that 44 research papers have been presented in 8 technical sessions among which 11 were presented by Sir Syed University. The conference had a total of 119 submissions with an acceptance ratio of almost 37 percent shows the high quality of accepted papers and all presented papers will become part of the I triple E Digital Library. Steering Committee Member Prof Jameel Ahmed of Riphah International University advised the authors that they should try to publish extended versions of their contributions in the impact factor journal linked with the conference and that they should continue their hard work after getting published on the IEEE platform.

Recalling the valuable services of Professor Poncela, SSUET Chancellor Jawaid Anwar and MUET Vice Chancellor Dr MA Uqaili said, "Mr. Poncela had helped us a great deal in achieving internationalization with the partnerships in the European Union Projects and by offering technical support to many Ph.D. scholars from Pakistan. The Conference organizers have rightly dedicated this edition of the Conference in his memory. Credit goes to Dr. Pablo Otero, Prof. Dr. Vali Uddin, Prof. Dr. Bhawani Shankar Chowdhry, Professor Dr. Enrique Nava and Prof. Dr. Muhammad Aamir, for the success of the event."

The GCWOT Conference is a scientific meeting between researchers mainly from two countries, Pakistan and Spain. The desire of the organizers is to open the range to other countries; so we would be very grateful to the participants if they could help to spread the conference among their colleagues from institutions in third countries. They pointed out that the conference was held under the auspices of the Institute of Electrical and Electronic Engineers (IEEE) and the papers presented at this Conference will be archived in the well-known and prestigious IEEE-Xplore database. Professor Jaime Loret, from the Polytechnic University of Valencia, Spain, delivered a lecture on "Group-based sensor networks for underwater monitoring". ■

NCRA-CMS Lab Receives Token Funding for the Sustainability from EDVON Pakistan

19 November 2020



September 22, 2020

To: Prof.Dr. Bhawani Shankar Chowdhry,
Co-PI, NCRA CMS Lab / Professor Emeritus,
Mehran University of Engineering and Technology,
Jamshoro - Pakistan

From: Mr. Muhammad Nabeel, CEO, EDVON, Pakistan.
Date: September 22, 2020

Subject: **Token Funding for *sustainability NCRA -CMS MUET Lab***

We are very pleased with the opportunity to deepen our partnership with NCRA CMS Lab and believe our industrial linkage provides the most comprehensive approach for NCRA CMS Lab-MUET to execute its deliverables successfully. This initiative is critical for the young researchers of NCRA CMS Lab to differentiate their research models in the midst of an industry shift towards ever-growing condition monitoring demands. As, we know that, NCRA CMS Lab solely leads its key competitors so therefore we are pleased to grant a funding of PKR: 55,000 towards sustainability of lab. Though it is very small token amount, it will pave the way in developing a systemic empowerment of the lab's profitability and sustainability.

NCRA CMS Lab and EDVON think of a shared perspective on the importance of operational research oriented railway condition monitoring techniques for the Pakistan Railway's overall transformation. NCRA-CMS MUET lab's diagnostic research work published earlier this year may lead toward a successful transformation program to mitigate some of the issues related to growing number railway accidents.

Please find enclosed the cheque No 10342634 Dated 22-Sep-2020 of Rs 55,000 in favor of " MUET Sustainability Account NCRA-CMS Lab" as mentioned above.

CPD Workshop

24 November 2020

Department of Industrial Engineering in Collaboration with NCRA-Condition Monitoring Systems LAB organized a Two Days CPD Workshop on Condition Monitoring (Vibrational Analysis) with Product Dimensions & Product Alignment held at newly constructed building of New Academic Block (Research Enclave) MUET, Jamshoro. Prof. Dr. Khanjee Harijan, Dean Faculty of Engineering was the guest of honor of the closing ceremony.

A two days academia and industrial collaborative CPD workshop on Condition Monitoring (Vibrational Analysis) with product dimensions and product alignment is being held at department of Industrial Engineering Mehran UET, Jamshoro. Prof. Dr. Tanveer Phulpoto Professor Mechanical among MUET faculty and Mr. Umar Aftab from ChemTech representing industrial side delivered talk on above mentioned topic.

At the closing of event participants were awarded with achievement certificates as a mark of appreciation.

CS FYP Winners Awarded

25 November 2020

Award Distribution Ceremony held at the office of Prof. Dr. Mukhtiar Ali Unar (Dean FEECE, MUET), Jamshoro among the winning teams of F16CS for the Final Year Project / Poster Exhibition.

Workshop on "Startup Challenges: How to Start & Manage Your Business"

30 November 2020

SMEDA in collaboration with ORIC MUET and NCRA-CMS MUET Organized workshop on "Startup Challenges: How to Start & Manage Your Business"

Prof. Dr. BS Chowdhry, Professor Emeritus, and Co-PI National Center for Robotics and Automation (NCRA) -Condition Monitoring System Lab (CMS Lab), Dr. Inam Bhatti, Director ORIC, Mr. Mukesh Kumar, Provincial Chief of SMEDA were also present in the workshop. Dr. Mir Dost, PhD scholar from Lasbela University, Balochistan conducted session on Business Development Plan". At the end of the workshop Prof. Dr. Tauha Hussain Ali Pro Vice Chancellor Mehran UET Jamshoro presented Shields to resource persons and certificates among participants of workshop. Session was organized by Dr. Pervaiz Hameed Shaikh Manager ORIC.

Digital Transformation towards the Industrial Revolution 4.0

Professor Dr BS Chowdhry,

Prof Dr. Kashif Nisar, Malaysia

Industry 4.0 is the common name used to describe the current trend towards a fully connected and automated manufacturing system, or Smart Factory. Conceived in Germany, so also written as Industry 4.0, it is being internationally hailed as the latest, or Fourth, Industrial Revolution. All production decisions are optimized based on real-time information from a fully integrated and linked set of equipment and people. The Fourth Industrial Revolution is distinguishable from the third because it is where humans meet the cyber world; where technology and people are not distinct, not separate. Now, the introduction of the Internet of Things and Services into the manufacturing environment is ushering in a fourth industrial revolution. Cyber-Physical Production Systems (CPPS) is the name for the connected machines in a Smart Factory, where they are centrally controlled and where the status and actions of one piece of equipment affect the others. Sensors are used for the data collection on each machine that is analyzed and used to provide information on the performance and condition of the overall production system. As a result of the increased use of digital technologies, the boundary between the real and the virtual world is increasingly blurring, giving birth to what is known as cyber-physical production systems. Cloud Computing has enabled the Industry 4.0 environment to be fully connected, using the internet, with data security and large storage facilities. This remote centralization of business information provides the ideal platform for Digital Manufacturing. We had the PC and we had a life – today our devices and sensors will become an extension of us. Facebook is an extension of us. Our phones are extensions of us. Our smartwatches are extensions of who we are and what we do. The smart factories that are already beginning to appear to employ a completely new approach to production. Smart products are uniquely identifiable, may be located at all times, and know their own history, current status, and alternative routes to achieving their target state. The embedded manufacturing systems are vertically networked with business processes within factories and enterprises and horizontally connected to dispersed value networks that can be managed in real-time – from the moment an order is placed right through to outbound logistics. In the manufacturing environment, these Cyber-Physical Systems comprise smart machines, storage systems, and production facilities capable of autonomously exchanging information, triggering actions, and controlling each other independently. This facilitates prevention of bottlenecks. A Smart Factory is the implementation of Industry 4.0 technology, where large volumes of data, at a very detailed level, can be analyzed and modeled to produce plans and schedules that provide an immense competitive advantage.

The vision: Industry 4.0 as part of a smart, networked world

In a "smart, networked world", the Internet of Things and Services will make its presence felt in all of the key areas. This transformation is leading to the emergence of smart grids in the field of energy supply, sustainable mobility strategies (smart mobility, smart logistics), and smart health in the realm of healthcare. In the manufacturing environment, vertical networking, end-to-end engineering, and horizontal integration across the entire value network of increasingly smart products and systems is set to usher in the fourth stage of industrialization (Fraunhofer IRB Verlag, Stuttgart, Germany 2007). Providing global access to services and information offered by billions of heterogeneous devices (or things), ranging from resource-constrained to powerful devices (and/or virtualized everyday life objects) in an interoperable way (Source: K. Nisar, IEEE TENCON 2017).

Internet of Things (IoT) term encompasses the connection of smart devices that can

fundamental improvements to the industrial processes involved in manufacturing, engineering, material usage and supply chain and life cycle management. The move to Digitization has allowed Industry 4.0 and the connected factory to develop, facilitating a fully integrated supply chain from a product's development right through to its final distribution. With all information being in a format that can be understood by a computer, systems and machines can interact in a way that provides highly efficient operation. This fourth revolution has the same triggers as the third revolution, but its cyber meets human this time. It's the same in businesses. Everything gets integrated, customized, and smart-automated. The Industrial Revolution 4.0 automates complex tasks; it's the age of the Internet Of Things (IoT) and Cloud computing (Source: Report Federal Ministry of Education of Research, Germany).

Industry 4.0 operations rely on digitally connected devices, with a large volume of high-quality data being recorded, processed, and stored at any point in time. Big Data Analytics has enabled the Smart Factory to examine these huge data sets to make associations and spot patterns and trends. These can be used for purposes such as production scheduling, planning predictive maintenance, and the

Digital Transformation towards

communicate and exchange information. Applied in the manufacturing context, this intelligent connectivity is used to collect data and optimize the production line in terms of quality, cost, and throughput. More than 5,000 (IoT) patent applications were filed in 2016 at the European Patent Office (EPO). This marks a growth rate of 34% over the last three years. Compared to the 8% growth rate for all patent applications, IoT technologies are rapidly attracting inventors (Source: European Patent Office).

"We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before".

Education institutions to integrate this information into smart data would result in intelligent decisions regarding the delivery of customized education and personalized learning experience for students.

The challenges ahead

Altering higher education is more necessary than ever before. However, the challenges ahead have to be considered in order to ensure effective and immediate transformation. With the reduced public financial support for higher education; universities need to think strategically regarding methods to utilize their experience in credentials, trust, and identity to offer new services. Furthermore, higher education leadership needs to be less risk-averse especially in this world of disruptive change. It is no longer an option to keep doing things the old way; innovation and accepting change are now prerequisite for survival.

Inequality would still be a concern for digital higher education since more than 4 billion people are still offline without access to the internet according to a study by McKinsey & Company. Most of those people are marginalized families who live in developing countries with no access to affordable education. Although digital higher education can be more affordable compared to other education options, higher education institutions need to consider the best ways to reaching underserved populations where education can serve as a strong empowerment and change tool.

Risk, privacy, and security are other challenges facing higher education. Collaboration, integration, and aligning security process are keywords for scaling higher education efforts and bringing sustainability. During the World Engineering Education Forum 2015, professor Sabina Jeschke from RWTH Aachen University said "the complexity of the systems developed to meet the demands of the fourth industrial revolution necessitate interdisciplinary and collaboration as a precondition for innovation."

This is the time to ask whether the global higher education community will only react to how the business world is shaping the Fourth Industrial Revolution or if it will be among the key players of shaping the Fourth Industrial revolution! Furthermore, the annual meeting of the World Economic Forum happening in Davos, 2016 is the place to investigate and explore further the previously mentioned question and challenges.

The Fourth Industrial Revolution will change everything.

The new technologies, and the interaction between them, will offer new ways to create and consume, will transform how we deliver and access public services, and will enable new ways to communicate and govern. Almost every aspect of our lives will be touched: jobs, business models, industrial structures, social interactions, systems of governance. The Fourth Industrial Revolution will even challenge the very concept of what it means to be human.

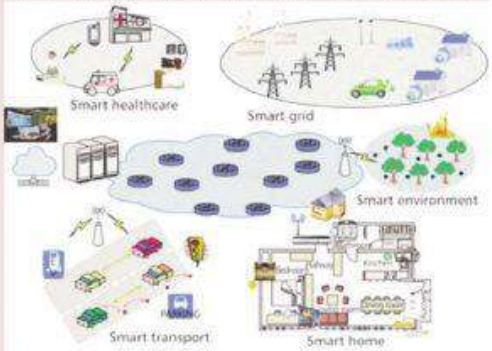
Accelerating pace of change

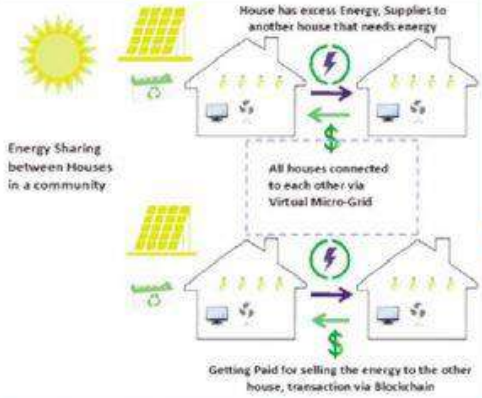
New technologies are emerging faster, being adopted more quickly, and delivering greater impact than ever before. Fixed-line telephones, first developed in 1878, took 75 years to reach 100 million users. Mobile phones, which emerged in 1979, took 16 years to reach 100 million users. The internet, which was launched to the public in 1990, took six years to reach 100 million users. The Apple App Store, unveiled in 2008, took just three years to reach 100 million users.

Fourth Industrial Revolution Innovation Proposal for Remote Areas.

Global Himalayan Expedition, an Indian social enterprise, is working towards providing energy access to remote mountain communities. They are moving villages away from kerosene (pre-Industrial Revolution) to the technology of the Fourth Industrial Revolution, using decentralized microgrids to power up houses with the latest LED lighting technology. Compared to cities, the villages are technologically more advanced. Utilizing DC (direct current), the villagers are able to generate electricity with a small solar panel and battery; enough energy to power up 10 LED lights, one street light, 1 LED TV, 2 fans, and mobile charging points. This load is less than a single tube light shining in a New York subway station. That tube light illuminates a small area in the subway station, whereas the Himalayan villager is lighting up his or her entire house, between six and eight rooms, and the streets outside with the same energy consumption.

With the focus on renewable energy and a more sustainable way of feeding our energy needs, net metering comes along as a very viable option to promote renewable energy usage and the microgrids in the urban scenario. Net metering allows people to feed energy back into the grid system, if generated using renewable energy, thereby causing the electricity meter of the house to run backward, resulting in less expenditure on energy consumption. This reduces the stress on grid infrastructure and incentivizes the use of renewables, given the recent solar innovations and drastic price reduction in the cost of energy generation using this source. India has been able to achieve a smaller price per watt for solar than coal. Who could have imagined that 10 years ago? (Source:, Proposal Implemented the Himalayan Villages, World Economic Forum). ■





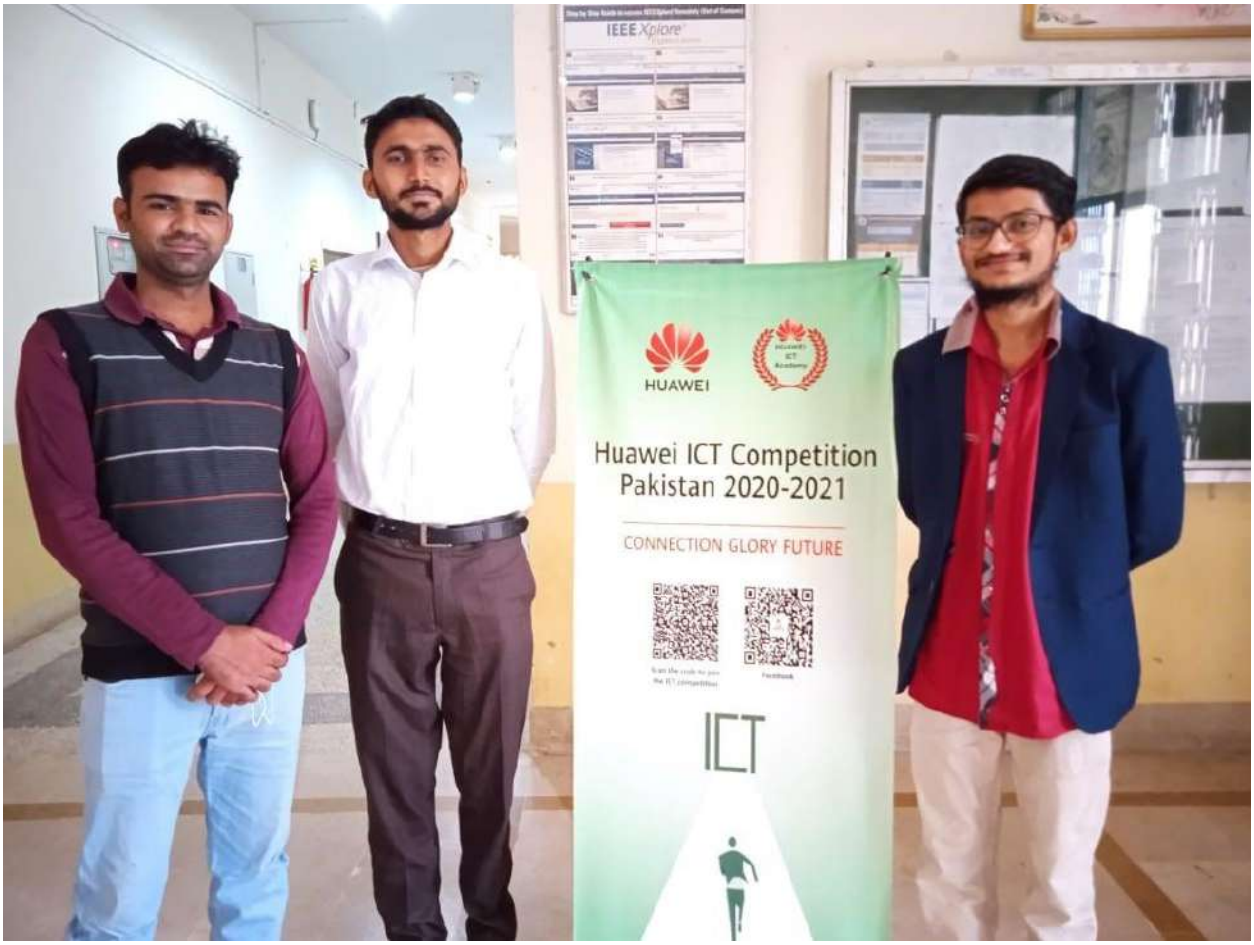
Klaus Schwab, President of the World Economic Forum, Industrial Revolution 4.0.

Education for You IR4.0

Data analysis and automation help companies not only to survive but also to thrive in the future. Similarly, Higher Education institutions are embracing data mining in order to gain a better understanding of student performance and deliver "Education for you" that is tailored to meet the demand of the job markets while considering the students' needs. Alan Blinder, an economist at Princeton University, argued in "Education of the Third Industrial Revolution" that for students to adapt to the information age, a great focus should be on the type of education students receive rather than the quantity they receive. Education is increasingly becoming "just in time" rather than "just in case"; it is more about what you need to know for a certain time than compiling knowledge that may never be needed. Data regarding student performance, behavior, development, and interaction inside classrooms and on the online platforms of MOOCs as well as data from smart campuses would create diverse and fast-changing data. The ability of Higher

Huawei ICT Competition 2020

11 December 2020



3 GEMS of TL Representing Sindh in the Huawei ICT Competition 2020.

Huawei is promoting the technology of ICT industry by introducing a competition in which students compete with one another. Technologies covered in Huawei ICT competition are Routing and Switching, Security, WLAN, AI, 5G, Cloud Computing and Storage.

It is a matter of pride for all Sindhi community, and for Mehran University that the students of the Telecommunication Department competed and won all the rounds. They are going to be representing Sindh and Mehran University in the Regional Finals which will be held remotely in the Headquarter of Huawei, Islamabad.

These three gems are the students of the Telecommunication Department, Mehran University of Engineering and Technology Jamshoro. Engr. Saqib Hussain, Engr. Asadullah Qureshi and Engr. Munawar Ali are the only students who are selected from the whole Sindh competing from all universities of the Pakistan.

The selection process was carried in the following format:

- 1st Round: 12,000 students from all over Pakistan participated in this competition.

- 2nd Round: Top 500 students were selected from 12,000 for the Preliminary Round.
- 3rd Round: 30 students were selected from the top 500 for the Interview.
- 4th Round: 10 students were from MUET Jamshoro who cleared the HCIA Certification Exam, competing with all the provinces of Pakistan.
- 5th Round: 8 students from the whole of Pakistan were selected for the Regional Finals, out of them 3 were from Sindh, Mehran University, Telecommunication Department.

From the team of Pakistan, a 40% ratio was of students from Telecommunication Department, Mehran University, representing Sindh on the National Platform as well as on the Global Platform.