



Post Event Report

DICE MEGA EVENT 2016

21-22nd December, 2016



**DICE 2016 Mega Innovation &
Entrepreneurship Event**
National University of Sciences &
Technology (NUST)

December 21 & 22, 2016



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FOREWORD

NUST is certainly one of the new generation Pakistani Universities, with a progressive and innovative outlook. The University is envisaged to grow as a modern centre of excellence for research and development in the fields of science and technology, and we as a part of this elite institution are committed to the provision of intellectual leadership and development of indigenous technology; while remaining cognizant of our responsibilities to community development, nation-building and socioeconomic progress.

At NUST, we strongly hold the belief that seats of higher education cannot operate as isolated islands of knowledge; for knowledge has no value unless it is shared and focused on current needs. Therefore, keeping in view this aspect, these knowledge-islands should be connected to the clusters of industries and the community; we endeavor to build essential linkage between Industry and Academia. Fulfilling this very pursuit; NUST School of Mechanical and Manufacturing Engineering (SMME) and DICE Foundation have jointly commemorated several noteworthy events in the past. DICE Automotive event, held on November 26-27, 2015, at SMME was chain of the same process. Titled as "First International Symposium on Automotive and Manufacturing Engineering (SAME)," the conference focused on all areas of research, innovation and development in the automotive and manufacturing sectors of Pakistan.

Keeping in mind the (IAL), NUST in collaboration with DICE Foundation held another phenomenal DICE Mega Innovation and Entrepreneurship Event. The event composes evaluation of Projects (Four Categories) in terms of Innovation and Entrepreneurship. It is a wholesome event inviting participants and projects from across the country comprising major subjects in showcasing the indigenous talent and building fruitful relations all along.

With our vision firmly embedded in all our practices and our fingers on the pulse of national needs, we are confident that NUST will play a vital role in developing our national economy through its focused Industry-Academia Linkages.

DICE 2016 ORGANIZING COMMITTEE

Patron

Lt. General Naweed Zaman, HI (M), (Retired) (Rector NUST)

Co-Patron

Dr. Khurshid A. Qureshi - Chairman DICE Foundation

Chief Organizer

Dr. Abdul Ghafoor - Principal SMME

DICE Foundation Liaison

Mr. Ubaid Rehman

Chief Coordinators

Engr. Mohammad Sohail

Dr Shahid Ikramullah Butt



NUST takes pride in its collaboration with DICE Foundation, USA to hold All Pakistan DICE 2016 Mega Innovation & Entrepreneurship Event. We are delighted to share the long history of collaboration with DICE Foundation, USA since the occurrence of first event in 2007 and subsequently two other events in 2014 and 2015. This time around, we have collaborated with DICE Foundation in holding All Pakistan DICE 2016 Mega Event. NUST was established in March 1991 for promotion of higher scientific education in the country particularly in fields of Science and Technology. It is the main objective of our university to provide a stable and disciplined academic environment together with need-based research pertinent to Industrial Requirements. Within two decades, NUST has achieved important milestones and gained immense significance in producing high caliber researchers; who are capable of developing indigenous technologies to meet the growing demands of the present era. NUST is particularly working to maintain linkage with industry so as to improvise their requirements through induction of graduates well equipped with essential skills.

NUST has been enduring to meet challenges and needs of Industry and Community simultaneously. This is evident from the fact that we are nurturing our students to acquire entrepreneurial skills by engaging them in related activities and projects. In order to cater to the queries of students we have set up the centre for Innovation and Entrepreneurship here at NUST whose sole responsibility is to make students aware of the entrepreneurial culture and Industrial requirements.

This two-day event involved a session of Guest Speakers, symposium, and stall exhibition competition. It has a broader scope which has brought together all Academic Institutions of Pakistan, Industry and Technology towards a joint collaboration for promotion of innovation culture in Pakistan as the core objective besides collaboration and promotion is to build Industry and Academia Linkages.

RECTOR NUST

Lieutenant General (R) Naweed Zaman, HI (M)



I would like to like to extend my deepest gratitude to Lieutenant General Mr. Naweed Zaman, Rector NUST and whole DICE 2016 Mega Innovation event organizing team at NUST and in USA, for their hard work throughout the year to organize such an outstanding event having large participation from all stakeholders – academia, industry, government and expatriates from all over the country. It was indeed not an easy task. Thank you All!

Since 2007, DICE, a non-profit activity of expatriate Pakistanis, along with thought leaders in Pakistan, has been putting indefatigable effort into promoting innovation, entrepreneurship and indigenous product development in Pakistan. DICE Foundation has established six innovation platforms to make strategic, meaningful and substantial progress in the areas of energy & water, automotive, health, textile, agriculture & food sciences and information & enabling technologies. We as a nation need to embrace innovation culture and use innovation as a tool to generate wealth for the nation. We must build design capacity and need to start developing our own products. We need to start importing intelligently and import only what is absolutely necessary and do downstream processing and value addition within the country, so that we can create jobs in the country. Similarly, we need to be smart about what we export – we must develop value added products - that will help in not only increasing our GDP but will also create jobs, ultimately bringing sustained prosperity in the country.

I am very confident, that if we all work together, following a well-defined strategy, jointly put together by DICE Foundation and thought leaders of Pakistan, we can transform Pakistan into one of the top developed nations of the world, within matter of 10 years Insha'Allah.

Dr. Khurshid Qureshi
Chairman DICE Foundation, USA



SMME takes pride in holding DICE Mega Event 2016. Organizing this event is actually a continuation of two accomplished events held in 2014 and 2015 respectively. I must appreciate the efforts of Dr. Khurshid and his team to mobilise academia and Industry to gather at one platform and bringing close, the students and Industry Professionals with an ambition to make Pakistan notable. It's heartening to know the accomplishments of DICE Foundation in expanding activities. Dr. Khurshid and his team undoubtedly deserve laurels for not only planning but physically managing their objectives. I also extend a gratitude to Federal Minister for Planning and Reforms Professor Ahsan Iqbal, for showing his concern and interest in the displayed projects of students by making his due presence at the event. Decision for holding this event at NUST was taken jointly by Dr Khurshid Chairman DICE Foundation and me which was endorsed subsequently by the Rector. With the joint efforts of faculty from ASAB, S3H, SNS, SCEE and SMME and staff of CAC along with continuous follow up by DICE management, we have been able to attract over 300 students projects and 100 industry products representing universities and corporate sector from all over Pakistan that include Gilgit-Baltistan and AJK. Speakers have travelled from UK, UAE and Malaysia to deliver their speeches. In total more than 600 students and industry leaders have participated in two-day event. Arranging such a big event involves huge resources in terms of funds and administrative support. I am thankful to NUST senior leadership for extending all possible administrative and financial help. In addition, I am thankful to Higher Education Commission, British Council, Pakistan Association of Auto Parts and Accessories Manufacturers, US Educational Foundation in Pakistan and Pakistan Council for Science and Technology for their significant financial contributions towards the events. I would also like to commend the efforts of Dr Khurshid Qureshi and his team holding DICE events and choosing NUST venue in Pakistan for 10th anniversary of DICE Innovation and Entrepreneurship Event. I am very sure that joint exhibitions of academia and industry under one roof will open many vistas for both in collectively addressing the challenges of our society.

PRINCIPAL, SMME
Dr. Abdul Ghafoor

DICE 2016 Mega Innovation & Entrepreneurship Event

DICE NUST Innovation and Entrepreneurship Mega Event was held at National University of Sciences & Technology (NUST), H-12, Islamabad on 21-22 Dec 2016. International Symposium on Advancements in Innovation and Commercialization (ISAIC) 2016 also took place as part of this mega event. The event was organized by NUST School of Mechanical and Manufacturing Engineering (SMME). This year marked the 10th anniversary of DICE (Distinguished Innovations, Collaboration and Entrepreneurship) events in Pakistan. The event was attended by a large number of students, faculty, and industry from all across Pakistan. Besides international Dignitaries like Japanese, French and German Council Generals were also present to witness the Mega Event. The Representative of our collaborating partner British Council; Director Education, Ms. Nishat Riaz has also made her presence at the Mega Event. Students displayed their projects while industry showcased their products. In total, more than 300+ stalls were set up and about 600 participants were present. Federal Minister for Planning, Development and Reforms Prof Ahsan Iqbal was the Chief Guest at the Opening Ceremony, while Prof Dr Mukhtar Ahmad, Chairman HEC was the Chief Guest at the Closing Ceremony and gave out prizes to the winning teams. The Mega Event aimed to bring industry and academia under one roof so they would interact and know each other's strengths, weaknesses and requirements. The event covered the entire spectrum of academia, including Engineering & Technology, Computer Sciences and Information Technology; Physical Sciences and Agricultural Sciences; Arts & Humanities, Business and Social Sciences; and Biological, Medical and Veterinary Sciences. In all four groups the top 3 projects were judged and given cash prizes in each group as well as guidance about converting their projects to commercial products. Senior officials from academia, government departments and R & D organizations attended the event.

NUST has been organizing this event since 2007 with the collaboration of DICE foundation, USA. DICE Foundation was established as a non-profit organization in Michigan, USA by Pakistani expatriates. NUST has the mission 'To develop NUST as a comprehensive, research-led university with a focus on Technology, Innovation, Entrepreneurship and Community Service'. Bringing this together with the vision of DICE to 'promote a culture of Innovation, and Entrepreneurship in the country' the objectives of DICE 2016 were set as:

- To foster a culture of Innovation and Entrepreneurship in the country and make it part of Nation's DNA.
- To provide platform for academia, industry, government, entrepreneurs and expatriates to interact, share knowledge and collaborate on innovations, commercialization, and indigenous product development for the socioeconomic development of Pakistan.
- To create a positive and favorable image of Pakistan in the eyes of international community, i.e. highly innovative and high-tech nation fully capable of developing innovative products and providing high tech services to the rest of the world.
- To expedite the process of the digital revolution in the country by motivating both academia and industry to acquire, promote and utilize state-of-art digital technologies for the rapid development of innovative products

The first DICE mega event was held at College of Electrical & Mechanical Engineering (NUST) in 2007. In 2014 & 2015 DICE- Automotive was held at the School of Mechanical & Manufacturing Engineering NUST. In DICE Automotive 2015, President of Pakistan, Mr Mamnoon Hussain had inaugurated the NUST DICE Automotive

Innovation Center at NUST which is working to fast track the auto industry indigenization in Pakistan. Now, the tenth anniversary of DICE Mega event was again planned at NUST with the efforts of SMME.

NUST will continue its collaboration with DICE for its objectives to fast track innovation in the country.

The Idea Conception

Mega Innovation and Entrepreneurship event is one of the major initiatives of the DICE Program and has been conducted every year since 2007. The idea behind the event is to motivate academia, industry, government, entrepreneurs and expatriates to come to a common platform to showcase innovations and technologies, share knowledge and further collaborate with each other for the rapid development of innovative products, necessary for the socio-economic development of the country. These highlighted objectives gave the insight about DICE foundation.

DICE Foundation, is a non-profit, tax-exempt organization, registered in Michigan, USA. DICE Foundation in collaboration with its domestic and international partners, is pursuing a DICE Program in Pakistan, to foster a culture of Innovation and Entrepreneurship in the country and transform Pakistan into an innovation-driven economy. The partners of the DICE Program in Pakistan are: PCST, British Council, ISESCO, FPCCI, British Council, NUST, NEDUET, COMSATS, IST, UET-KPK, UET-Taxila, UOG, IBA Karachi, UAF, LUMS, DUHS, NTU, Sukkur IBA SMEDA, PSF, ICT R&D Fund.

Besides, DICE Mega event, there are several other focused annual events such as DICE-Automotive at NUST, DICE-Energy at NED, DICE-Health at DUHS, DICE-Textile at NTU, DICE Agricultural & Food Sciences at University of Agriculture, Faisalabad and DICE Information & Enabling Technologies at CIIT conducted under the DICE Program. In addition, there are numerous intra-university events conducted as well.

In addition to annual innovation events, DICE Foundation has also launched Innovation centers at several universities to turn concept ready innovations into implementation and commercial ready products and there are several strategic projects currently being worked on the auspices of these centers.

Objectives

These particular ideas venture for some of the major objectives of DICE Mega Event 2016 as mentioned below:

- To foster culture of Innovation and Entrepreneurship in the country and make it part of Nation's DNA.
- To provide platform for academia, industry, government, entrepreneurs and expatriates to interact, share knowledge and collaborate on innovations, commercialization, and indigenous product development for socio-economic development of Pakistan.
- To create a positive and favorable image of Pakistan in the eyes of international community i.e. highly

innovative and high-tech nation fully capable of developing innovative products and providing high tech services to the rest of the world.

- To expedite the process of digital revolution in the country by motivating both academia and industry to acquire, promote and utilize state-of-art digital technologies for the rapid development of innovative products.

Participation Criteria

Following Participation criteria was devised for prominent participation in the DICE Mega Event 2016.

- Student teams from HEC recognized degree awarding university/institute.
- Each team had three to five members. Each team also had one member from industry as per the criteria.
- Each university submitted their most innovative projects from various disciplines.

The innovative projects were from the following four (4) groups of disciplines:

- **Group A:** Engineering & Technology, Computer Sciences and Information Technology
- **Group B:** Physical Sciences and Agricultural Sciences
- **Group C:** Arts & Humanities, Business and Social Sciences
- **Group D:** Biological Sciences, Medical Sciences and Veterinary Sciences

Registration Process

- Online registration portal was created as <http://dice.smme.nust.edu.pk/>
- Besides all team members for each project had to register themselves and their project on DICE Innovation Portal as well. (<http://www.diceinnovationportal.com>)
- The contact information of DICE Foundation was also inscribed for participants' assistance. (info@dicefoundation.org) <http://www.dicefoundation.org>.

Project Requirements

Keeping in view the significance and magnitude of the Mega Event, some Project Requirements were formulated and participants were asked to abide by them. The project requirements are as follow:

- Participating teams have to submit an innovative project idea, one page project description, and team membership at the time of registration.
- Teams should utilize state-of-art technologies/software to design the innovative product concept.
- Projects having strong potential to benefit local industry/economy will be given special consideration.
- Teams have submitted the complete project report including business plan prior to the final event before given deadline (report template was made available on the (dice.smme.nust.edu.pk) website).
- Teams had displayed and presented their projects on the final day of the event.

Judgement and Evaluation

Panel of Judges consisting of experts, from both academia (majority of judges from outside of host institution) and industry was exclusively invited for the judgment. Each team has equal number of judges from academia and industry. Team of judges had 4 members in each team; with 2 judges from each, industry and academia.

The following Evaluation Criteria was planned to evaluate the projects. Project scoring by judges on the day of event had following distribution with a weightage of 60%.

- i. Degree of Innovation (20%)
- ii. Potential Impact on local industry and economy (20%)
- iii. Readiness for commercialization (prototype, business plan) (50%)
- iv. Presentation (10%)

Prizes & Shields

In order to acknowledge the considerate efforts of students, Cash Prizes and shields were awarded to the most coveted participants. First, second and third prize was given in each of four groups of disciplines:

- **Group A:** Engineering & Technology, Computer Sciences and Information Technology
- **Group B:** Physical Sciences and Agricultural Sciences
- **Group C:** Arts & Humanities, Business and Social Sciences
- **Group D:** Biological Sciences, Medical Sciences and Veterinary Sciences
- Cash Prize of Rs 100, 000 along with DICE 2016 shields was awarded to the winning team in each category.
- Cash Prize of Rs 50, 000 along with DICE 2016 shields was awarded to the 1st runner-up team in each category.
- Cash Prize of Rs 25, 000 along with DICE 2016 shields was awarded to the 2nd runner-up team in each category.
- All Participant teams were awarded certificates of participation.
- Industry participants (those having booths) were given DICE 2016 shields.
- All invited speakers, judges, chief guests were awarded DICE 2016 shields

Finances

The main responsibility of raising funds was with NUST and these were raised through industry sponsorships, HEC, British Council, PCST, PAPAAM, USEFP and other donor agencies, etc. to at least meet minimum criteria for a successful event. Higher Education Commission, British Council and PCST however, partially sponsored the event with Rs 1.2 million, 1.0 million 0.2 million, respectively.

Sponsors:

We are obliged to the following sponsors for providing sponsorships for DICE Mega Event and International Symposium.

1. National University of Sciences & Technology (NUST)
2. HEC (Higher Education Commission)
3. DICE Foundation, USA
4. British Council
5. US Educational Foundation in Pakistan
6. PAPAAM (Pakistan Association of Automotive Parts & Accessories Manufacturers)

Sponsors

We are obliged to the following sponsors for providing sponsorships for DICE Mega Event and International Symposium.

Sponsors of DICE Innovation and Entrepreneurship Event	
1.	National University of Sciences & Technology (NUST)
2.	HEC (Higher Education Commission)
3.	DICE Foundation, USA
4.	British Council
5.	US Educational Foundation in Pakistan
6.	PAPAM (Pakistan Association of Automotive Parts & Accessories Manufacturers)

Governance

The steering team meetings were held on a monthly basis to track the progress of the event.

Logistics and Protocol for all Dignitaries

- NUST improvised local hospitality arrangements for all dignitaries of the event visiting Pakistan from abroad and within the country.
- DICE Foundation chairman, British Council delegate, HEC, PCST and other delegates were given due protocol.

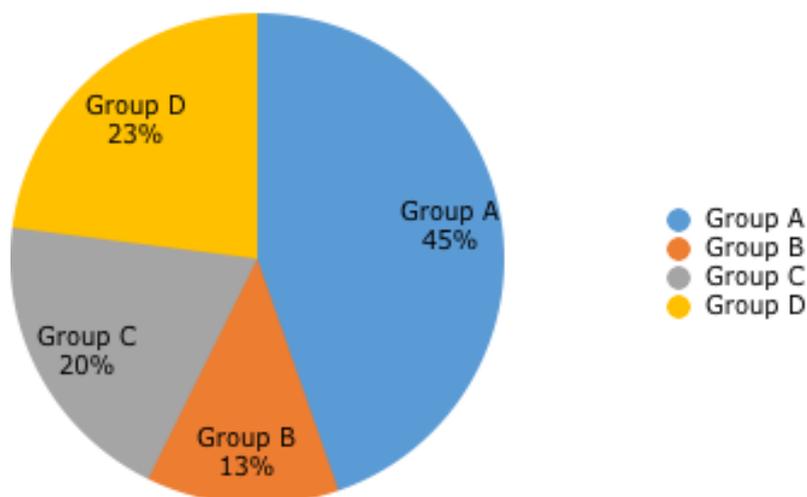
Prominent Participation

NUST DICE Mega Event turns out to be the largest Innovation and Entrepreneurship Mega events in the history of South-East Asia. Student teams from all universities in Pakistan have participated and exhibited their innovative ideas / concepts / products in the professionally designed exhibition. All major universities from all provinces were in attendance. Special effort was solicited in extracting innovations from non-engineering disciplines. The aimed target was that of display of at least 300 innovations from academia and for the said purpose, at least 44 exhibition booths from industry and technology vendors displaying their products and technologies were set up. Industry-Academia booths were displayed in four mentioned categories. A minimum of 300 industry participants/executives from various industrial sectors were invited to take part in the event. Several renowned speakers (domestic & international) from academia, industry and government have also appeared in symposium sessions and shared their notable experience on various topics. Several guests of honor from Government (such as Secretaries from ministry of education, science & technology, industry, technical & vocational training, etc.), Academia (VCs, Rectors, HEC officials), Industry (Top industrialists) and representative from British, Chinese, Japanese, French and other embassies made their due presence at the event. Judges at the final event were strictly from both academia and industry (50/50). Both domestic as well as international media provided coverage for the event and exhibition. Through media coverage, the event/exhibition should be able to create a huge excitement and desire to innovate in the nation. A conference proceedings CD is produced for domestic / international distribution.

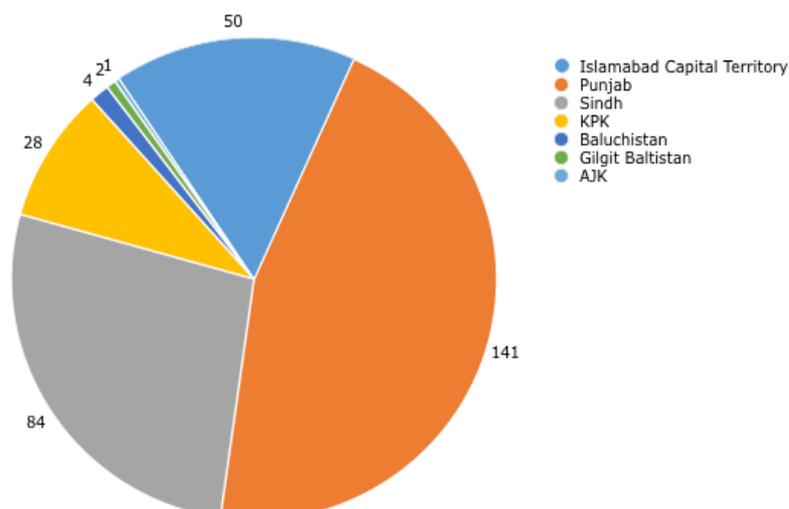
Fact Sheet

Participating Industries	44
Participating Universities	50+
Academic Projects	300+
Foot Count	2000+
International Speakers	23

Registered



Geographical Region Wise Projects Participation



International Symposium on Advancements in Innovation and Commercialization (ISAIC)

21-22 Dec 2016

The 2016 International Symposium on Advancements in Innovation and Commercialization (ISAIC) was held at the National University of Sciences and Technology (NUST), Islamabad, Pakistan on December 21-22, 2015. The organizing committee comprises of Professor Dr Abdul Ghafoor (Principal SMME), Engr. Muhammad Sohail (Vice Principal SMME), Dr Mushtaq Khan as Symposium and Publication Chair and Dr Syed Husain Imran as Editor in Chief. ISAIC has focused on all areas of research, innovation and commercialization in the fields of Engineering & Technology, Sciences, Business and Arts. The Symposium was scheduled to run two full days, starting at 9:30 AM on Wednesday 21st December and ending at 5 PM on Thursday 22nd December, 2016. In parallel to the symposium, NUST School of Mechanical and Manufacturing (SMME) has also organized DICE Mega Event 2016 with student project exhibition & competition and Industrial exhibition from the leading industries across Pakistan.

ISAIC has covered wide range of topics which are directly related to the Advancements in Innovation and Commercialization in the fields of Engineering & Technology, Sciences, Business and Art. A number of renowned academicians and industrialists from Pakistan and abroad were invited as guest speakers to share their research, innovation and experiences.

All speakers have submitted an outline of their talk which was later on published as Abstract book for the Symposium. The book was given an ISBN number and was duly published by NUST Publishing. It has been attached therein annexures.

DICE NUST Student Chapter

DICE marks the confluence of Industry and academia; where minds meet mazuma; where innovation meets implementation; where entrepreneurship is topic du jour; where mantra is 'innovate irrespective of affluence or deep pockets and become integral to thriving economy. DICE's vision is to foster an innovation & entrepreneurship culture in Pakistan and help it achieve innovation-driven rapid socio-economic development. Bringing 'digital revolution' at all levels to Pakistan is among their basic motives.

NUST Societies! What really are they and what for?

This year too, hundreds of applications poured in for participation in this 2-day long DICE Mega event. Students hailing from all over Pakistan turned up with innovative projects and business plans.

Housed at the occasion were the project stalls and demonstrative setups depicting innovation and technology. With ebullient evidence that industry should meet innovators (often considered aloof from each other); industry-academia alliances got proved as indispensable therein DICE.

Sessions and symposia kept the days on the go. Industry-academia linkages and collaborations were vowed. Words of wisdom were hurled on young entrepreneurs and wannabes by some of the finest industrialists and entrepreneurs.

Some documentaries were shown at the seminars, featuring interviews of people including Dr. Arshad Ali (Executive Director, HEC), Dr. Abdul Ghafoor (Principal SMME, NUST) and many other notables including Dr. Khurshid Qureshi, President DICE Foundation USA.

In his speech, Dr. Khurshid hinted at initiating "Innovation basket", an online platform for novel ideas-sharing which could do wonders in bringing a digital revolution in Pakistan. Some famous media houses covered the event. Scrumptious dinners and lunches were also key features of the event.

The filler events including Enterprise and the Sufi Night were splendid. Enterprise, a quiz show being one filler, filled colors in the all-technology and erudite event in which prizes were imparted to some of know-it-all-guys on answering some simple questions from domains esp. Engineering, Medicine, Humanities and Entrepreneurship.

After a thorough process of presentations, soliciting, grilling, and discussions between the upstanding panel of judges and the participants, winners were announced. Girls from HEJ Karachi bagged 1st prize for 'heart attack detection device' and COMSATS Islamabad team stood 1st for enhancing the efficiency of infrared solar cells using Nano rods in group B. UVAS Lahore also made it to the top with their 'fast mechanical services'. Similarly a budding entrepreneur and a SEECsian Hamza Afridi also introduced one of the most promising startups at NUST, CYKIQ, and won first prize in group A.

Some projects from renowned industries were also on the display with representatives to guide the students, marking the concordance between Industry and varsity individuals. The event was all in all a great success and a step towards better and innovative Pakistan. Following the series of activities, 'Road to Entrepreneurship' was also planned. Mr. Ather Imran was invited over to share his experience with the potential entrepreneurs. Besides a Masters from Purdue, he has over 15 years of professional experience with various IT and ITES organizations. He is currently the CEO at Sybrid Private Limited. He is also known for creating platforms for professionals and active volunteer for educational and health welfare organizations. Hence the entire team at NUST was on toes to make this event a huge success. Kudos to all the volunteers and organizing committee of DICE '16 Mega Event for putting all this in order! From accommodation to smooth execution of all escapades, our team kept it all in fine fettle.

Media Coverage

Dice Mega Event wouldn't have been a success and recognition until it was provided the Media Coverage. The renowned Media Channels such as PTV News, Dunya News, Hum TV and several others were exclusively invited to cover the mega event. The sole purpose was to make this event and efforts of participating students and universities to get acknowledgement and international recognition, so as to propagate the positive side of our country.

Media persons have also interviewed students, expatriates, entrepreneurs and industry professionals to get a wholesome feedback of the mega event. Besides telecasting, the event made it to the headlines of some of the renowned newspapers as attached in annexures. The students' endeavors in putting up stalls and exhibiting their projects appealed to a large number of audience.

The potential of our future generation undoubtedly pins hope towards the better and progressive Pakistan. Dice Mega Event 2016 stands out as the major evidence in this regard.

Industry Participants

Industry, the core area of participation and contribution for the mega event 2016 made their prominence noteworthy. It was heartening to see the Industry Professionals focusing their interest and future prospects towards the projects. It was actually the objective accomplished i.e. amalgamation of academia and industry. Some of the following Industry Participants have attended the event, it was not only the presence but a promise to provide projection and finances to the coveted projects and students.

Industry Participants	
Future Composite, Rawalpindi	Pakistan Council of Scientific and Industrial Research (PCSIR) Labs Complex, Karachi
Kounter Intuitive Technologies (KIT)	Pakistan Agricultural Research Council, BZU, Multan
Creatrixe, Islamabad	National Bank of Pakistan, Regional H/Q, Rawalpindi
System Technologies International (STI)	Punjab Small Industries Corporation, Lahore.
Universal Systems Engineering Networks (USEN), Rawalpindi	SMEDA Lahore
Talk2Home, Islamabad.	SciFi and Comics, CIE Building, Innovation Drive, NUST
Teresol Pvt. Ltd., Islamabad, Pakistan,	Boston Cardio, EP Division & MaviG, Ferozsons Laboratories Limited, Rawalpindi
Assistant Manager Incubation, Punjab Information Technology Board, Lahore Address: Room 12, 9th Floor, Arfa Softwaree Technology Park, 346 - B Main Ferozepur Road, Lahore	Shirazi Trading Pvt. Limited, Karachi
Trillium Energy, Islamabad	ZnTi care pharmaceuticals, Islamabad

Industry Participants	
Welt Konnect Pvt. Ltd, Islamabad.	Simplicity Labs (Private) Limited, CIE Building, NUST, Islamabad.
Renewable Energy Consultant, Reenergia-Enhar, Islamabad.	Macter International Limited, Karachi
Siemens Pakistan, Islamabad	Rastgar Engineering Co. (Pvt.) Ltd., Islamabad
Hollingberry Pakistan Abu Dhabi, United Arab Emirates	Trillium Information Security System Rawalpindi
TEOCO Corporation Islamabad, Pakistan	Trade Ally International, Multan Road, Lahore
JumpStart Pakistan	IT Intellisense, Peshawar

Prize Winners

Position	Name	Institution	Title	
1	Hamza Afridi	NUST – School of Electrical Engineering and Computer Sciences	CYKIQ – Pakistan’s first automated bicycle hiring system	Group A
2	BILAL GHAFOOR	Institute of Space Technology	Sustainable Energy from Biomass: Rice Husk Stove	
3	waleed maqsood	NED University of Engineering and technology karachi	Superhydrophobic Coatings	
1	Ahson Jabbar Shaikh	COMSATS,Abbotabad	Enhancing the efficiency of infrared solar cells using metallic nanorods	Group B
2	Dr Muhammad Tahir	ASAB-NUST	DEVELOPMENT OF RESISTANT SUGARCANE VARIETY AGAINST SUGARCANE MOSAIC VIRUS (SCMV)	
3	Umair Ahmed Khan	University of Karachi	Gels: As a source of energy, for recovery of organic solvent from industrial waste and for recycling of oil from oil spills in Ocean:	
1	Usama Maqsood	University of Veterinary and Animal Sciences, Lahore	fast mechanical services for vehicles on one call.	Group C
2	kiran zafar	university of management & technology-lahore	paper recycling from trash	
3	Shehar Yar Ali	University Of Gujrat	Medical Simulators for Minimally Invasive Surgery (MIS) and interventional procedures	
1	Saba majeed,	HEJ Karachi	Heart Attack Detection Device	Group D
2	Muhammad Faizyad Ali	LUMS, UET Lahore	Insilco Cancer Theater Next Generation Modeling And Simulation Platform	
3	Syeda Zainab Abbas	Kinnaird College Lahore	Nutro pasta	

Glimpses of the Event



**Drama Play “Ye Main Nahi Hoon”
by NUST Dramatics Club in collaboration with DICE
NUST**









ANNEXURES

DICE INNOVATION AND ENTREPRENEURSHIP MEGA EVENT

Day 1

0900 Hrs Entrance Open for Guests
0950 Hrs Guests to be Seated (Jinnah Auditorium)
1000 Hrs Opening Ceremony
1055 Hrs Visit to Stalls
1125 Hrs Refreshment & Networking
1230 Hrs Symposium - Session-1 (NBS Auditorium)
1400 Hrs Lunch & Prayer Break
1500 Hrs Symposium - Session-2 (NBS Auditorium)
1930 Hrs Dinner

Day 2

0930 Hrs Symposium - Session- 3 (NBS Auditorium)
1135 Hrs Refreshment & Networking
1200 Hrs Symposium - Session-4 (NBS Auditorium)
1400 Hrs Lunch & Prayer Break
1445 Hrs Guest to be Seated (Jinnah Auditorium)
1450 Hrs Road to Entrepreneurship
1515 Hrs Closing Ceremony & Prize Distribution
1635 Hrs Refreshment



**MEGA INNOVATION &
ENTREPRENEURSHIP
EVENT 2016**



DiCE NUST
STUDENT CHAPTER
DISCOVER THE SPIRIT

OPENING CEREMONY

EVENTS

TIMELINE

Guests to be Seated	0950 Hrs
Arrival of Chief Guest	1000 Hrs
Recitation from Holy Quran	1002 Hrs
Welcome Address by Principal SMME	1005 Hrs
Address by British Council Representative	1015 Hrs
Address by DICE USA - Dr Khurshid Qureshi	1020 Hrs
Address by Rector NUST	1035 Hrs
Address by Chief Guest	1045 Hrs
Visit to Stalls	1055 Hrs
Refreshments	1125 Hrs
Chief Guest Departs	At his own Convenience

CLOSING CEREMONY

EVENTS

TIMELINE

Guests to be Seated (Jinnah Auditorium)	1445 Hrs
Road to Entrepreneurship (Interactive Session)	1450 Hrs
Arrival of Chief Guest at Display Area	1450 Hrs
Arrival of Chief Guest at Jinnah Auditorium	1515 Hrs
Recitation from Holy Quran	1520 Hrs
Welcome Address by Principal SMME	1525 Hrs
Address by DICE USA - Dr Khurshid Qureshi	1535 Hrs
Address by Rector NUST	1545 Hrs
Prize Distribution	1555 Hrs
Address by Chief Guest	1625 Hrs
Refreshments	1635 Hrs
Chief Guest Departs	At his own Convenience

DETAILED SYMPOSIUM PROGRAM DAY 1

EVENTS	TIMELINE
Registration/ collection of badges for the participants for the SYMPOSIUM (Jinnah Auditorium)	8:30 AM - 9:30 AM
OPENING CEREMONY	9:50 AM - 11:25 AM
TEA / REFRESHMENTS	11:25 AM - 12:30 PM
SESSION - I Venue: NBS Auditorium	
Role of Telenor in building entrepreneurship and Digital eco - system Mr. Irfan Wahab	12:30 - 12:50 PM
Pakistan: The Missing Links in the Innovation Value Chain Mr. Syed Ahmad Masud	12:50 - 01:10 PM
How to Fund Your Social Enterprise Mr. Naeem Zamindar	1:10 - 1:30 PM
Tech Startup Financing in Pakistan Mr. Yusuf Hussain`	1:30 - 1:50 PM
LUNCH/ PRAYERS BREAK	2:00 PM- 3:00 PM

EVENTS

TIMELINE

SESSION -2

Venue: NBS Auditorium

Innovating Pakistan

Mr. Amer Zafar Durrani

3:00 - 3:20 PM

War on Terror Cells

Dr. Naveed A Khan

3:20 - 3:40 PM

A Journey with Innovation and
Commercialization of Biotechnology

Dr. Kauser Abdulla Malik

3:40 - 4:00 PM

Engineering Nanoparticles for Biomedical
Applications

Dr Irshad Hussain

4:00 - 4:20 PM

Biotechnology as an engine for
socio-economic development

Dr. Shahid Mansoor

4:20 - 4:40 PM

Problems Facing Innovative Research In
Pakistan

Dr S.M. Saqlan Naqvi

4:40 - 5:00 PM

Rapid Synthesis of Bioactive Bioceramics
and their Applications to Coat Metallic
Implants

Dr Nida Iqbal

5:00 - 5:15 PM

DICE & SYMPOSIUM DINNER

7:30 PM



DiCE NUST
STUDENT CHAPTER
DISCOVER THE SPIRIT

DETAILED PROGRAM DAY 2

EVENTS

TIMELINE

SESSION -3

Venue: NBS Auditorium

Innovation in Graphite Bricks for Advanced Gas Cooled Reactors for Power Generation Dr. Muhammad Fahad	9:30 - 9:50 AM
Advancements in Product Design and Development using 3D Intelligent Modeling Techniques Dr. Muhammad Ejaz Siddiqui	9:50 - 10:10 AM
Biomaterials; An Interdisciplinary Approach to Translational Research Dr. Ihtesham ur Rehman	10:10 - 10:30 AM
Use of Process/Performance Maps in Manufacturing Research and Industry Dr. Mahmood Abdullah Saif Al Kindi	10:30 - 10:50 AM
Additive Manufacturing: Trends and Perspectives Dr Muhammad Fahad	10:50 - 11:10 AM
Innovation - A Physicist's Perspective Mr. Shaukat Hameed Khan	11:10 - 11:30 AM



DICE NUST
STUDENT CHAPTER
DISCOVER THE SPIRIT

EVENTS	TIMELINE
TEA / REFRESHMENTS	11:35-12:00 AM
SESSION -4 Venue: NBS Auditorium	
Decentralized on-grid solar photovoltaic generation for Pakistan Dr Hassan Abbas Khan	12:00 - 12:20 PM
Virtual Engineering: A Key Enabler for Configurable and Collaborative Automation Systems Dr. Izhar Ul Haq	12:20 - 12:40 PM
Genetic Transformation and Commercialization of Crop Plants Dr. Tayyab Husnain	12:40 - 1:00 PM
Productivity – Matter of Survival Mr. Tariq A Khan	1:00 - 1:20 PM
4.0, challenges and Opportunities for Industry and Entrepreneurs Mr. Muazzam Arsalan Bhatti	1:20 - 1:40 PM
Threat Intelligence - National Impact and Need for Threat Intelligence Mr. Mahir Mohsin Sheikh	1:40 - 2:00 PM
CLOSING CEREMONY	2:45PM- 4:30 PM
REFRESHMENT	4:35 PM
SYMPOSIUM DINNER FOR GUEST SPEAKERS	7:30 PM



International Symposium on Advancements in Innovation and Commercialization (ISAIC) December 21-22, 2016

S/No	Name	Company
1	Dr M. Ejaz	Director, Quality Solutions, UAE
2	Dr M. Fahad	Research Fellow, University of Manchester, UK
3	Dr Ihtesham-ur-Rehman	Professor, University of Sheffield, UK
4	Dr Naveed A Khan	Professor, Sunway University, Malaysia
5	Dr Izhar Ul Haq	Associate Professor, UET, Peshawar
6	Dr Hassan Abbas Khan	Professor, LUMS, Lahore
7	Dr Muhammad Fahad	Assistant Professor NED, Karchi
8	NAEEM ZAMINDAR	Pakistan Country Director and CEO Acumen, Karachi
9	Dr. Tayyab Husnain	Professor, University of the Punjab, Lahore
10	Dr Irshad Hussain	Professor, LUMS, Lahore
11	Dr Shahid Mansoor	Director, NIBGE, Faisalabad
12	Prof. Dr Kauser Abdullah Malik	Professor, F.C College , Lahore
13	Mr. Tariq A. Khan	Senior Director, Technical, Indus Motors Co. Ltd. Pakistan
14	Mr. Muazzam Arsalan Bhatti	Founder & CEO, Alfoze Technologies Pvt. Ltd, Islamabad
15	Mr. Mahir Mohsin Sheikh	CEO, Trillium Information Security Systems, Rawalpindi
16	Mr. Amer Zaffar Durrani	MD & CEO Reenergia (Pvt.) Ltd
17	Shaukat Hameed Khan	Coordinator General COMSTECH, Islamabad
18	Mr. Irfan Wahab	CEO, Telenor Pakistan
19	Syed Ahmad Masud	Managing Director, Channel 7 Communications (Pvt) Ltd and CEO Change Mechanics
20	Yusuf Hussain	Founder, Dual Matrix Ventures (DM Ventures)
21	Dr Saqlain Naqvi	Professor, Dean Faculty of Sciences, University of Arid Agriculture, Rawalpindi
22	Dr Nida Iqbal	Assistant Professor UTM Malaysia

S/No	Title and Presenter
1	Advancements in Product Design and Development using 3D Intelligent Modeling Techniques Dr. Muhammad Ejaz Siddiqui
2	Innovation in Graphite Bricks for Advanced Gas Cooled Reactors for Power Generation Dr. Muhammad Fahad
3	Biomaterials; An Interdisciplinary Approach to Translational Research Dr. Ihtesham ur Rehman
4	War on Terror Cells Prof. Dr. Naveed Khan
5	Use of Process/Performance Maps in Manufacturing Research and Industry Dr Mahmood Abdullah Saif Al Kindi
6	Virtual Engineering: A Key Enabler for Configurable and Collaborative Automation Systems Dr Izhar Ul Haq
7	Decentralized on-grid solar photovoltaic generation for Pakistan Dr Hassan Abbas Khan
8	Additive Manufacturing: Trends and Perspectives Dr Muhammad Fahad
9	How to Fund Your Social Enterprise Mr. Naeem Zamindar
10	Genetic Transformation and Commercialization of Crop Plants Dr. Tayyab Husnain
11	Engineering Nanoparticles for Biomedical Applications Dr Irshad Hussain
12	Biotechnology as an engine for socio-economic development Dr. Shahid Mansoor
13	A Journey with Innovation and Commercialization of Biotechnology Dr. Kauser Abdulla Malik
14	Productivity – Matter of Survival Tariq A Khan
15	Role of Telenor in building entrepreneurship and Digital eco – system Mr. Irfan Wahab
16	Pakistan: The Missing Links in the Innovation Value Chain Mr. Syed Ahmad Masud
17	Tech Startup Financing in Pakistan Mr. Yusuf Hussain
18	Innovating Pakistan Mr. Amer Zafar Durrani
19	Problems Facing Innovative Research In Pakistan Professor Dr S.M. Saqlan Naqvi
20	Threat Intelligence - National Impact and Need for Threat Intelligence Mr. Mahir Mohsin Sheikh
21	4.0, challenges and Opportunities for Industry and Entrepreneurs Mr. Muazzam Arsalan Bhatti
22	Public Policy and Entrepreneurship in Pakistan Dr Shaukat Hameed
23	Rapid synthesis of bioactive bioceramics and their Applications to Coat metallic implants Nida Iqbal and M. R. Abdul Kadira

Advancements in Product Design and Development using 3D Intelligent Modeling Techniques

By

Dr. Muhammad Ejaz Siddiqui

Quality Solutions UAE

In the last decade, the traditional work of archaeologists, art historians, archivists has been progressively transformed owing to the development of three-dimensional (3D) reverse modelling techniques and virtual reality. 3D virtual models of archaeological sites, monuments, finds, exhibits, paintings, etc. have become more and more required and common, since they offer a powerful tool for conducting in-depth analyses, testing different hypotheses, creating databases and archives in a way that was unimaginable some time ago. Moreover, digital models make human Cultural Heritage accessible to a worldwide public and represent an invaluable means for documentation, education and preservation purposes. The advent of the Cultural Heritage digital era is strictly linked to the development and integration of 3D survey and modelling techniques. BIM is a designing method that utilizes spatial, geographic, and object information to produce 3D intelligent models. BIM could also be considered the next 6 evolutionary step for all designing disciplines. Numerous researches and published works give evidence of the scientific and technological progress in this sector that allowed the realization of models more and more complex and detailed. Image-based and range-based modelling techniques are often combined together for achieving the desired results in terms of accuracy, costs, time of acquisition and data processing.

Reverse engineering is the process that identifies an object, a device, or a system technological properties by performing a comprehensive analysis of its structure, functions and operations. In mechanical engineering, this process aims to create a virtual 3D model from an existing physical object to duplicate or to enhance it. The product design process, made to create new products, is a very broad concept that begins with the generation and development of new ideas and leads to the manufacturing of new products. In the industry, the process of managing the lifecycle of a new product from inception, through engineering design and manufacturing, is called the product lifecycle management (PLM). Reverse engineering stands among all engineering processes involved in the PLM.

Innovation in Graphite Bricks for Advanced Gas Cooled Reactors for Power Generation

By
Dr. Muhammad Fahad
University of Manchester, UK

The advanced gas-cooled reactor (AGR) is a second-generation gas-cooled reactor that is unique to the UK. The AGR uses graphite as the neutron moderator and carbon dioxide as the coolant. The graphite also plays an important structural role providing channels for the fuel stringers and ensuring that fuel is adequately cooled under all normal operating and fault conditions. The graphite moderator also has interstitial channels to provide access for control rods for controlling the reactor. The structural integrity of the graphite bricks, and the channels that they form, is of prime importance to AGR safety. The need to ensure safe shut down and fuel cooling is the essential safety requirement of any nuclear reactor.

Over the lifetime of the AGR there is a significant degradation of the graphite. In carbon dioxide-cooled AGR, graphite moderator bricks are subjected to fast neutron and radiolytic oxidation during reactor operation and these significantly alters dimensional and material properties of graphite. Fast neutron irradiation causes internal stresses which are high enough to crack graphite fuel bricks. However, irradiation induced creep relieves these stresses, and this is the reason why most of the AGRs are still in operation. The stress pattern during the life of the AGR graphite brick shows complex behaviour. During its lifetime, a graphite brick undergoes two different phases of stress (i.e. tensile and compressive) at the bore and periphery. The tensile stresses are believed to have a detrimental effect on the integrity of the nuclear graphite bricks. The bore surface experiences tensile stress during a particular time frame early in its life, while the periphery of the brick undergoes compressive stress. After this time period the behaviour of the stresses is reversed, and during the later time the bore is subjected to compressive stresses while the periphery of the brick experiences tensile stresses. The time when the stresses are reversed is called stress reversal. Before stress reversal there is a high possibility of bore initiated cracks or cracks initiated from coolant access hole drilled axially through the brick (known as methane holes); and post stress reversal it is believed that the possibility of cracks stems from the corners of keyways machined into the periphery of the brick (known as keyway roots).

Biomaterials; An Interdisciplinary Approach to Translational Research

By

Dr. Ihtesham ur Rehman
University of Sheffield, UK

An increased demand of medical device and implants has been alleged to be a major cause of rising healthcare expenditure. Medical companies around the world are trying to keep costs down, new research and focusing new materials and technology in exciting and new medical device and implant industry. Though innovation is, never completely good or bad and it is not easy to analyse the net effect. Theories and empirical research on materials, technology and innovation have been produced more than 100 years. In this, the diffusion of materials chemistry, biomaterials, bioceramics, and innovations of medical device and implant industry has attracted the most interest, while other areas, such as the integration of technologies, medical device market, medical company life cycle and regulatory process have been thoroughly developed over the years. In this talk, role of chemistry in development of biomaterials and regenerative medicine will be addressed and how this can help in developing a model of existing and new medical device and implant industry. The suggested model is to build on fundamentals of translation research: (1) materials chemistry, technology and innovation processes, and (2) examination of on-going materials, regulatory and technology processes. This is a combination of the required knowledge in different biomedical materials and innovation research traditions, and exploitation of these in the medical device and implant industry. The aim is to give a comprehensive picture of the materials chemistry, technology, regulatory process and innovation and how these can be of help in building a bridge between universities and industries, especially new medical device and implant industry in Pakistan. In Pakistan, capacity in meeting the patient requirements is insignificant. While providing an effective solution for many patients, the outcome is often time limited. As a consequence, there is an increasing need to innovate biomaterials and universities can play a pivotal role in this important development. Therefore, it is important to understand, what type of materials are required for hard tissue replacement and what technologies can be employed that will enhance the product performance, features, and functionality of medical implants and devices.

War on Terror Cells

Naveed Ahmed Khan¹, Salwa Mansur Ali¹, Ayaz Anwar², Muhammad Raza Shah², Peter Heard¹, and Ruqaiyyah Siddiqui¹

1Sunway University, Malaysia

2University of Karachi, Pakistan

With the worsening trends of drug resistance, there is a need for newer and more powerful anti-parasitic agents. The search for new compounds originating from natural resources is a promising research area. We hypothesized that animals living in polluted environments are potential source of novel anti-parasitic molecules. In support, our studies identified potent antimicrobial properties in the lysates of cockroaches, locusts, Black cobra, crocodile that intrigued the scientific community. Tissue lysates had no cytotoxic effects on human brain microvascular endothelial cells suggesting that the putative target/s is not present in eukaryotic cells. We hope that the discovery of antimicrobial activity in the tissue lysates of animals living in polluted environments will stimulate research in finding antimicrobial agents from unusual sources, and has potential for the development of novel strategies in the control of infectious diseases.



Use of Process/Performance Maps in Manufacturing Research and Industry

By

Dr Mahmood Abdullah Saif Al Kindi
Sultan Qaboos University, Oman

Studies conducted on sustainability of machining processes have identified electricity consumption of the machine tools as the major source of its environmental burden. Moreover, the depleting energy resources and their fluctuating prices have compelled the process owners to explore energy efficient techniques for processing the materials and components. Therefore, the reduction and optimization of energy consumption in manufacturing setup is of importance. Emerging machining trends like high speed machining (HSM) in conjunction with energy analysis have not been thoroughly explored. This presentation is aimed at understanding the energy consumption during manufacturing at industrial level through the use of process/ performance maps.

Virtual Engineering: A Key Enabler for Configurable and Collaborative Automation Systems

By

Dr Izhar Ul Haq

University of Engineering and Technology (UET) Peshawar, Pakistan

Presently manufacturing industry is facing enormous pressure due to global economic downturn and ever changing customer demands. Both, agility and reconfiguration are widely recognized as important attributes for manufacturing systems to satisfy business needs of competitive global markets. To facilitate and accommodate unforeseen business changes within the automotive industry, a new proactive methodology is developed to design, build, assemble and reconfigure automation systems. Such methodology provides more process-efficient and robust design, build and implementation of automation system via standard library of reusable mechanisms and associated new engineering tool and services.



Decentralized on-grid solar photovoltaic generation for Pakistan

By

Dr Hassan Abbas Khan

Lahore University of management Sciences (LUMS), Pakistan

The electricity demand supply deficit in Pakistan is likely to increase further unless drastic steps such as decentralized generation through net-metering/feed-in-tariffs is used in an optimal manner. The distributed nature of sunlight and lowering costs of solar panels has a huge potential in Pakistan for local electricity generation. This alternative in which the onus is shifted to consumers rather than the government to produce electricity is growing. However, optimal strategies must be introduced to minimize power quality related issues from a utility perspective. Similarly, many critical barriers from consumer perspective must be overcome to ensure higher consumer investment in local generation of electricity. This talk will therefore outline several inverter topologies for on-grid generation with focus on high return-on-investment and reliability. This talk will further elaborate grid-tied systems in residential environments for maximizing output by reducing losses for wide growth of the technology.

Additive Manufacturing: Trends and Perspectives

By

Dr Muhammad Fahad

NED University of Engineering and Technology (UET), Pakistan

The concept of additive manufacturing (AM) emerged in the form of rapid prototyping (RP) processes in mid-1980s. These processes were focused towards directly producing parts/components using computer aided design (CAD) data without the need of any additional tooling. The main objective of these RP processes was to rapidly produce new product designs especially for concept evaluation and/or functional testing of products. The term 'rapid' referred to reduced time to market for launching a new product while using the RP processes. Although, the cost of materials and equipment associated with RP were high relative to those associated with conventional manufacturing processes (e.g. CNC machining, injection molding), the elimination of tooling cost and time, liberty of producing complex geometries and reduced cycle times and the growth in technology led these processes to gradually ascend from simply prototyping to the manufacture of intermediate tooling (i.e. rapid tooling) and ultimately, to produce end-use items (i.e. rapid manufacturing). In order to eliminate the ambiguity in the use of these terms, American Society for Testing and Materials (ASTM) formed a committee (F42) and in collaboration with ISO technical committee 261 and Society of Manufacturing Engineers (SME), agreed to use additive manufacturing as the standardized term. Additive manufacturing (AM), therefore, is a new class of manufacturing processes that produce the shape of a desired component by gradually adding layers of material rather than by subtracting (i.e. machining) or manipulating (i.e. forming, forging) the material. The standard definition of AM, provided by ASTM is: "A process of joining materials to make objects from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing methodologies".

This presentation will discuss commonly used AM processes in detail. These processes include selective laser sintering (SLS), stereolithography (SLA), fused deposition modelling (FDM) and three dimensional printing (3DP). The operating principal, materials used and the capabilities of the commonly used AM processes along with their limitations will be discussed. Global trends related to the use of AM will also be addressed. The potential areas of interest related to research in the field of AM will be detailed and a discussion of prospects of using AM in Pakistan will be presented. The presentation will address the potential of this emerging technology as the future of manufacturing technology (i.e. a disruptive technology).

How to Fund Your Social Enterprise

By
Mr. Naeem Zamindar
Acumen, Pakistan

Social entrepreneurship is the use of startup company-style business venture techniques to develop, fund and implement innovative solutions to social, cultural, or environmental issues. This concept may be applied to a variety of organizations with different sizes, aims, and beliefs. This talk will cover the trends in social entrepreneurship globally and how it has benefited nations over the period of time. As social enterprises thrive on social problems and the need to fill these gaps, Mr. Naeem will share with us how Pakistan can be a perfect breeding ground for social enterprises.

Acumen raises charitable donations to invest in companies, leaders, and ideas that are changing the way the world tackles poverty. Acumen believes that solving the problems of poverty starts by standing with the poor. Their manifesto serves as a compass for the kinds of leaders we hope to be and a reflection of the values required to take on the world's biggest problems. Mr. Zamindar will share Acumen's experience with investing in over 16 social enterprises, the opportunity to leverage disruptive innovation to eliminate poverty and create a society where all people can have dignity of life.

Genetic Transformation and Commercialization of Crop Plants

By
Dr. Tayyab Husnain,
University of the Punjab, Pakistan

Genetic transformation means alteration of a cell resulting from direct uptake and incorporation of exogenous genetic material i.e., DNA from its surroundings through cell membranes. Transformations occur naturally in bacteria but in biotechnology transformation can be made in plant and animal cells. There are two methods of transformation direct and indirect. Indirect methods use bacterial mediators such as *Agrobacterium* species while direct methods use chemical Polyethylene glycol (PEG) micro projectile bombardment (gene gun). The direct method is limited to a few species involve protoplast regeneration and can cause somaclonal variations. *Agrobacterium*-mediated transformation is less-expensive, transfer the DNA with defined ends, has lower incidence of gene silencing, capable of transforming >150kb with single copy insertion .

There are various kinds of cloning vectors which can be used for transformation of gene of interest. The basic mechanism is well studied which involve vir genes of *Agrobacterium* and transfer of T-DNA to host plant cell.

We have developed *Agrobacterium*-mediated transformation method that use a local cotton variety. We have introduced one, two and three genes. CEMB-2 was developed containing cry1Ac and cry2A. The plants were evaluated in the greenhouse as well as in the field. In 2011, CEMB-2 was evaluated in spot

examination showed higher micronaire, did not approved by Punjab Seed Council. It was further improved by crossing as CEMB-33 and finally in 2015 it was approved by Punjab Seed Council on the conditions that NBC approve this variety. In 2016 it was approved by Punjab Seed Council, a commercialization certificate was issued by the Pakistan Environmental Protection Agency in 2016. From the same material another variety was developed designated as CA-12. This is the journey of approval process from NBC started in 2006 and ended in 2016. On the same lines a three genes variety “Klean Cotton” was developed which can save upto Rs.15000/- per acre to farmers. CEMB-33 is being marketed by a public-private joint venture. There are fifteen other varieties being developed at CEMB containing various genes.



Engineering Nanoparticles for Biomedical Applications

By

Dr Irshad Hussain

Lahore University of Management Sciences (LUMS), Pakistan

Metal/metal oxide nanoparticles and nanoclusters have been recognized as an important class of materials with unique and tunable properties by controlling their nanoscale features. A control over their size, shape and surface chemistry is, however, vital to use them for any potential applications in biomedical sciences. In this regard, we have developed and demonstrated a battery of reproducible protocols to prepare metal nanoparticles from subnanometer to over 100 nm in aqueous/organic media with a fair control over their size, shape, and surface chemistry. These metal nanoparticles have been used as building blocks to design/synthesize new nanostructured materials such as composite thin films, porous metal foams, inorganic oxide – metal nanoparticle hierarchically porous composites (heterogeneous catalysts), nanowires, porous microwires, porous nanoballs, nanochains, and nanoscale circuit patterns etc. using template-based and template-less strategies. The functionalized metal/metal oxide nanoparticles/ nanoclusters possess interesting optical, recognition and catalytic properties and we are now focusing more on their applications in bio-sensing (especially bacterial detection), multidrug resistance, bio-imaging, controlled pharmacokinetics, oral bioavailability of drugs and their targeted delivery, solar/fuel cells, environmental remediation, H₂ production and catalysis. This talk would thus be an overview of our interdisciplinary research activities to synthesize metal nanoparticles/nanoclusters with controlled nanoscale features and surface chemistry, possessing unique chemical and physical properties, and their diverse applications in biomedical sciences.

Biotechnology as an engine for socio-economic development

By

Dr. Shahid Mansoor

National Institute for Biotechnology and Genetic Engineering, Pakistan

Biotechnology has been identified as one of the six key technologies for socio-economic development of Pakistan. Biotechnology is finding novel applications in food security, bioenergy, health, environment and industry. Several institutions have developed capacity to do research in areas that have potential to contribute to socio-economic development. However, regulatory framework to commercialize research and practical models are required on how to take innovations to end-users. Several practical examples will be discussed where research carried out by scientists of NIBGE is reaching end-users and what regulatory frame-work are required to expedite the process.



A Journey with Innovation and Commercialization of Biotechnology

By

Dr. Kauser Abdulla Malik

Forman Christian College, Pakistan

Biotechnology is generally defined as the use of biological processes to solve problems or make useful products. Applied nature of biotechnology is evident in its definition. The history of development of biotechnology is full of examples of entrepreneurship by accomplished scientists fueled by innovation. In view of the potential of this technology, Government of Pakistan has been investing liberally for developing infrastructure and human resource. We have now more than 30 biotech institutes and biotech programs in virtually all the universities with more than 200PhDs trained in this area. However as a result of R&D in biotechnology, there are few products which have been commercialized. With my experience of working at NIAB and NIBGE, PARC, PAEC HQ and then as Member, Planning Commission of Pakistan, I will be sharing some of the developments related to commercialization of biotech products and some of the pitfalls and obstacles in the process. Some of the issues related to Academia-Industry linkages will also be discussed.

Productivity – Matter of Survival

By
Tariq A Khan
Indus Motors, Pakistan

In the coming years, the world would be facing security threats, economic stresses and nuclear proliferation also the future challenges for the developed countries are, ecological foot prints, and depletion of conventional oil and global warming. One is the new technology and the other is population increase forces behind the global challenges in the coming days. In today's world, technology is becoming very popular in almost every aspect of our lives it is continuously shaping itself as the backbone in the growth and development of this world. We can refer to the current developments and trends in the mobile phone technology. Let's have a look at the video showing the wonders of the latest mobile phone concepts & technology. Another wonder is genetic engineering and cloning. Genetic engineering is the direct human manipulation of an organism's genome using modern and technology. Major population increase takes place in the less developed regions. Most of them happen to i.e. in Asia like China, India, Pakistan, Indonesia, Bangladesh etc. This however also means that Asia has lot of opportunity as it's working level population is on the increase, and most of these are basically Asians as Pakistan, India, and Bangladesh, china, Indonesia etc. More developed region; there is no increase in population of the working people or working class. While in the less developed region, there is a major rise in the population of working level. Also see that in case of china, which is one of the major players in the region, the working population is not increasing as much as compared to other countries like Pakistan & India. Population of Pakistan which is 160 million by the end of 2011 will be 240 million in 2030, the working population, which was 70 million in the year 2005 will is expectedly to touch the level of 160 million by the end of year 2030. We cannot go for a technology race because of the limited resources we are far behind the developed countries in technological advancement. The question is "do we have that quality of human resource in order to achieve our strategic objectives?"



Role of Telenor in building entrepreneurship and Digital eco – system

By
Mr. Irfan Wahab
CEO Telenor

In the digital era of today, innovation and entrepreneurship are the engines of the economic growth globally. Technology is connecting everything around us, making everything smarter and augmenting our experiences. Being the 6th largest population in the world, it is no surprise that the telecom industry in Pakistan has seen significant growth in the past years. Here at Telenor Pakistan, we understand the need for constant innovation and evolution to stay ahead of the game. That is why our mission is to become our customer's most preferred Digital Service Provider.

Telenor is at the forefront of digital and entrepreneurial evolution in Pakistan. From the setup of Telenor Velocity, Pakistan's 1st go-to-market Startup Accelerator, to our global employee incubation program ignite, our work in Mobile Agriculture, Mobile Advertisement, and Internet of Things, the company is focused on unparalleled digital growth of its partners as well as the entire ecosystem.

Telenor Pakistan possesses agility and a forward leaning attitude. With our network agnostic platform business models, innovative contract management openness, and potential regional & group scale opportunities, there is no doubt that Telenor Pakistan is the partner of choice for anyone working in the Digital Eco-system!

Pakistan: The Missing Links in the Innovation Value Chain

By
Mr. Syed Ahmad Masud
Director Chanel 7

Economies are fueled by innovation, when inventions are successfully commercialized and as a result, form the foundation for strong economic growth. Innovation requires out of the box thinking (also referred to as ideas) targeting the most pressing problems human being are facing at that time or in near future. When such ideas are supported by knowledge and cutting edge research, their success is inevitable. In recent years, Government of Pakistan has recognized the need for innovation to achieve the medium and long term goals of Pakistan's Economic Policy. The process of innovation is rigorous where commitment from several parties is required at a constant rate. Innovation is never possible in isolation, and hence, it depends on an ecosystem, where each participating member adds value.

Over the past few years, several initiatives have been initiated by the Government of Pakistan to establish a sound innovation value chain. Such initiatives involve great commitment from industry, universities and government. Also, these initiatives require a learning curve, where the roles of universities, government and industry are sorted out over the period of time before any fruitful results are seen. As Pakistan is new to this aspect of successful partnerships, we have a long way to learn about the needs and how to make these partnerships successful. The purpose of this talk is to identify the missing links in the innovation value chain, and how these missing links can be built.

Tech Startup Financing in Pakistan

By
Mr. Yusuf Hussain
Dual Matrix Ventures (DM Ventures)

Tech Startups are accelerating economic growth and generating employment in developed as well as emerging economies. Availability of funding is necessary for the survival and success of tech startups. The mechanics of tech startup funding are different from other kinds of funding. While this key area has shown impressive growth in the past two years, it has done so from a very small base, and it is essential to sustain the growth trajectory.

Innovating Pakistan

By
Mr. Amer Zafar Durrani
Reenergia-Enhar, Pakistan

What will make Pakistan a center for innovation that underpins Pakistan's progress amongst the comity of nations in the 21st century? The answer to this question has two further dimensions. What does it mean to innovate for Pakistan? What will it take to make Pakistani youth innovative? Innovating Pakistan means using innovation to provide solutions (a) for Pakistan's key development challenges in the 21st century, (b) that use ICT as a tool towards solving these problems rather than being an end in itself or tackling developed country issues, and (c) which will have a rapid uptake capacity in Pakistan. The talk will define the key development challenges for Pakistan in the 21st century and discuss reasons for why innovation in Pakistan needs to focus on innovating Pakistan. Innovation is easier talked about than done. The second part will talk about the pre-conditions for an innovative environment. This will be discussed at a national and an academic level. The talk will use a preferred existing innovation framework to build upon this thesis.

Problems Facing Innovative Research In Pakistan

By
Professor Dr S.M. Saqlan Naqvi
PMAS Arid Agriculture University Rawalpindi

The only way to drive innovation is research. In this talk I am not going to present any research, rather would talk about our own views about the status of research. Research itself is the second major step in the pathway to innovation, where the first step is a question or a problem to be researched. Although we learn this subject in HSSC level, but it becomes a part of memorization exercise. By the time a student reaches the stage of actual research, he neither remembers that philosophy nor there generally exist an environment where s/he is made to recall all that knowledge. The pressure on researchers makes production of theses and research papers, and increasing impact factor the major objective. These quantitative parameters may have resulted in improvement in National R&D, but have simultaneously generated "technologies" for improving these parameters for fulfilling job requirements and gaining promotions and rewards. Now when the stress of the HEC/Government has changed from "Impact Factor" to "Impact" there are serious barriers. Although it is very simple and correct to suggest that the fake or low impact research can be weeded out by incorporating "qualitative parameters" in addition to these "quantitative parameters", it is the most difficult aspect to implement it in our society. The presentation is aimed to bring this isolated discussion to this august forum for a wider discussion.

Threat Intelligence - National Impact and Need for Threat Intelligence

By

Mr. Mahir Mohsin Sheikh

Trillium Information Security Systems

Can you defend your business if you don't know what threats are coming your way? The answer to this is plain and simple, no. In today's highly dynamic and ever-changing technology landscape, you cannot just rely on the traditional cybersecurity approach to protect your information. Instead of a reactionary approach of waiting until you know you have been breached, organizations need to take a more proactive approach to cybersecurity and this is exactly what TRIAM's Threat Intelligence Platform T-Eye is all about. While there are numerous companies that are providing threat intelligence services around the world, Trillium Information Security Systems is the first company in Pakistan to have taken such an initiative and our T-Eye is the first threat intelligence service of Pakistan. It offers an increased situational awareness to organizations and enables them to get a better understanding of the attacker's motive and weapons of mastery. T-Eye produces actionable threat intelligence in the form of threat feeds that aids in the detection and prevention of malicious activities. From Security Analysts to basic IT literates anyone can use this information for proper incident handling. It can also dig-out attack patterns and predict future threats by continuously monitoring, correlating and analyzing the attacker's activity. It provides feeds that are carefully tailored for your organization and reduces the amount of false positives and other irrelevant data, allowing your organization to make effective defense strategies without expending unnecessary resources.

Challenges and Opportunities for Industry and Entrepreneurs

By

Mr. Muazzam Arsalan Bhatti

Alfoze Technologies Pvt. Ltd

Industry 4.0 or the fourth industrial revolution is the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things and cloud computing. Industry 4.0 creates what has been called a "smart factory". Within the modular structured smart factories, cyber-physical systems monitor physical processes, create a virtual copy of the physical world and make decentralized decisions. Over the Internet of Things, cyber-physical systems communicate and cooperate with each other and with humans in real time, and via the Internet of Services, both internal and cross-organizational services are offered and used by participants of the value chain. It represents a new level of organization and control of the entire value chain, across the life cycle of products. Major Topics in presentation will include: General Overview / Architecture of Industry 4.0 Impact of Industry 4.0 on Business, Role of Big Data and Analytics, Opportunities for local Industry and Entrepreneurs, Key Challenges.

Public Policy and Entrepreneurship in Pakistan

By
Dr. Shaukat Hameed Khan
COMSTECH, Islamabad

Numerous public announcements have been made regularly in Pakistan about moving towards a knowledge economy. These appear to be wishful thinking in the absence of any coherent policies about the role of technology and its spillovers as a major driver of development and growth. In addition, Pakistan has not really been able to buy into the major organisational changes brought about by the techno-information revolution in the 21st Century, with the result that our competitiveness is falling, organisational changes are slow, and workforce skill levels are inadequate, all of which have caused a stalling in productivity and innovation.

Pakistan is now faced with a serious risk of de-industrialisation, unless the dynamics and disruptive nature of modern technology are better understood and embedded as a key pillar of public policy which alone can lead to enhanced productivity and innovation.

This article examines the role of public policy in promoting productivity growth and entrepreneurship through technology management, especially in the SME sector. Examples are provided from the development of the laser cluster in Islamabad.

Rapid synthesis of bioactive bioceramics and their Applications to Coat metallic implants

By
Nida Iqbal and M. R. Abdul Kadira
Universiti Teknologi Malaysia

Metals such as Stainless steel and titanium (and their alloys) are commonly being used as orthopedic implants because of their good mechanical properties and formability. However, they are prone to corrosion when in contact with bodily fluids, with subsequent release of toxic metallic ions causing damage to the surrounding tissues. Moreover, some alloys are not bioactive resulting in poor adhesion between the implant and the surrounding tissue, requiring surface treatment of the implant to increase bioactivity and osteointegration. Coating of metal implants with bioceramics, such as hydroxyapatite (HA) or bioactive glass encourages new natural bone growth at the interface with the prosthetic device and thus diminishes the need for gross surface design geometries which are required for metallic implants. Currently, plasma spraying is the only widely used method for coating metallic implants with HA, but due to high temperatures during application

(followed by rapid cooling), HA can go through phase change and surface deformation. Electrophoretic deposition (EPD) is a flexible, rapid, low cost process capable of rapid deposition rates (seconds to minutes) with a high degree of control over deposition thickness and morphology.

In this research work Microwave refluxing setup was used as a simple, efficient and cost effective method to controllably produce the Composite (biphasic) mixtures of two of the most important inorganic phases of synthetic bone applications—namely, calcium hydroxyapatite ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ (HA)) and tricalcium phosphate ($\text{Ca}_3(\text{PO}_4)_2$ (TCP)) within 5-7 mins. These synthesized bioceramics were used to coat the stainless steel plates using low temperature electrophoretic deposition technique.

Parameters such as particle size, coating voltage, time and different electrolytes were optimized to achieve homogeneous crack-free surface and adhesive coating. Composition of the synthesized powder and coating was studied using FTIR, phase purity of the coating material was investigated by XRD and surface morphology of the samples was studied by a SEM.

Federal Minister - Mr Ahsan Iqbal urges entrepreneurs to align goals with CPEC

December 22, 2016

Islamabad-The Minister for Planning Development and Reforms, Ahsan Iqbal Wednesday said that China-Pakistan Economic Corridor (CPEC) would be a game changer for the country and the organizations providing entrepreneurship must align their goals with it.

Ahsan was speaking at an event organized at National University of Science & Technology (NUST), by Distinguished Innovations, Collaboration and Entrepreneurship (DICE) Foundation to promote entrepreneurial spirit in the country.

“Pakistan is the 3rd biggest E-lancing country and has experienced digital economic boom in the last decade,” he said.

He commended the efforts of DICE Foundation in promoting the entrepreneurial spirit in the country through providing a platform for academia, industry, government, entrepreneurs and expatriates.

He also stated that government has planned to open up a university in each district of Pakistan and to establish a Pak-US Knowledge Corridor.

In which, the minister said, 10,000 scholarships will be provided to Pakistani students at top US universities in the next 10 years.

This news was published in The Nation newspaper.

<http://nation.com.pk/islamabad/22-Dec-2016/ahsan-urges-entrepreneurs-to-align-goals-with-cpec>

On this occasion, Rector NUST Lt Gen (rtd) Naweed Zaman said that NUST takes pride in partnering with DICE and was taking steps to foster a culture of producing job providers than job seekers.

He added that course on entrepreneurship was mandatory for every undergraduate student at NUST.

He apprised the audience that over 36 start-ups are currently housed in the University’s Technology Incubation Centre, while 20 companies have already graduated from TIC and are generating revenue to the tune of \$5 million per year.

Talking about the future plans, he said NUST was fully poised for the establishment of National Science and Technology Park (NSTP), which would prove to be a catalyst for industrial revolution in the country.

Chairman DICE Foundation Dr Khurshid Qureshi, USA, vowed to take DICE forward to college and school students and eventually to the masses at large.

The DICE-2016 will include projects from the categories such as engineering & technology, computer sciences, information technology, physical sciences, agricultural sciences, arts and humanities, business, social sciences, biological sciences, medical sciences and veterinary sciences.

Prize distribution ceremony held at NUST

December 24, 2016

Islamabad

The prize distribution ceremony of the DICE NUST Innovation and Entrepreneurship 2016 was held here on the NUST main campus.

The two-day event was meant to promote a culture of innovation and entrepreneurship at the grassroots levels in the country.

Speaking at the occasion, HEC Chairman Dr. Mukhtar Ahmad commended the initiatives of NUST Rector Lieutenant General Naweed Zaman and the organising committee of the DICE for providing a platform to all stakeholders including academia, industry, government, entrepreneurs and expatriates where they had ample opportunities in interacting and collaborating on innovations, commercialization, and indigenous product development for socio-economic development of Pakistan.

He said one-third of the universities around Pakistan participated in the event. The HEC chairman emphasized on putting forward the joint efforts to acquire the heights of glory within sciences and technology.

Earlier, Dr. Abdul Ghafoor, principal of the School of Mechanical and Manufacturing Engineering, and the DICE chief organizer shared some of the highlights of the event.

He said the event was indeed a great landmark achieved as 60 universities across Pakistan proactively participated while 300 display stalls were set up. As many as 500 students and 150 faculty members participated while 25 research papers were presented during the event. He emphasized the urgency of connecting the idea of National Innovation Basket put forward by DICE Chairman Dr Khurshid Qureshi with the China-Pakistan Economic Corridor.

He thanked and lauded the initiatives of all the sponsors including British council, USEFP, HEC, PCST and PAAPAM.

Later, the HEC Chairman Dr. Mukhtar Ahmed along with NUST rector distributed the prizes in the category of engineering technology. A team from NUST SEECs won the first prize for designing Pakistan's first automated bicycle hiring system. While in other categories, projects from COMSATS Abbottabad, University of Veterinary and Animal Sciences, Lahore and University of Karachi clinched first prizes.

The participants coming from distant corners of Pakistan especially Pakistani professionals from USA and other participants from UAE, UK and Malaysia appreciated the arrangements made by the DICE team.

<https://www.thenews.com.pk/print/174055-Prize-distribution-ceremony-held-at-NUST>

Universities Participation

Air university

Bio-Hacking Space, Biotechnology Company, Peshawar

BUIITEMS, Balochistan

BZU, Multan

Capital University of Sciences and Technology, Islamabad

CECOS University of IT and Emerging Sciences Hayatabad Peshawar

COMSATS Institute of Information Technology, Abbottabad

COMSATS Institute of Science & Technology, Islamabad

Dawood University of Engineering and Technology, DHA

Dept. of Agriculture and Agribusiness Management, University of Karachi

DHA Suffa University, Karachi

Dow University of Health Sciences

Dr Panjwani Center For Molecular Medicine & Drug Research, University Of Karachi

Forman Christian College, Lahore.

Foundation for Advancement of Science & Technology University (FAST) - NU

Hazara University Dhodial, Mansehra

HEJ Research Institute of Chemistry, Karachi

IMCB G - 10/4 Islamabad

Institute of Business Administration, University of The Punjab

Institute of Environmental Studies, University of Karachi

Institute of Space Technology

International Center for Chemical and Biological Sciences, Univ of Karachi

International Islamic University, Islamabad

Islamia University Bahawalpur, Bahawalpur

Kinnaird College Lahore

LUMS Lahore

Muhammad Nawaz Shareef University of Agriculture (MNSUAM), Multan

National Agricultural Research Centre, Faisalabad

National College of Arts Lahore

National Institute for Biotechnology & Genetic Engineering, Faisalabad

National University of Computer and Emerging Sciences, Islamabad

National University of Science and Technology
NED University of Engineering & Technology
Preston University Islamabad
Sarhad University of Science & Technology Peshawar
Sir Syed University of Engineering & Technology, Karachi, Pakistan.
Sukkur Institute of Business Administration
Telecommunication Engineering Department, Sukkur IBA, Sukkur, Sindh
UAF Faisalabad
University of Central Punjab, Lahore
University of Engineering & Technology, Lahore
University of Engineering & Technology, Peshawar
University of Engineering & Technology, Taxila
University of Management & Technology MT Lahore
University of Karachi
University Of Gujrat
University of Sind
University of Veterinary and animal science
Usman Institute of Technology, Hamdard University, Karachi



ROAD TO ENTREPRENEURSHIP

GUEST OF HONOR



Ather Imran, with a Masters from Purdue, has over 15 years of professional experience with various IT & ITES organizations. He is currently the CEO at Sybrid Private Limited. Besides, Ather is an active blogger and a mentor. Known for creating platforms for professionals and active volunteer for educational and health welfare organizations, he regularly speaks at various varsities. He serves as Chairman of the Board for OPEN Islamabad chapter

