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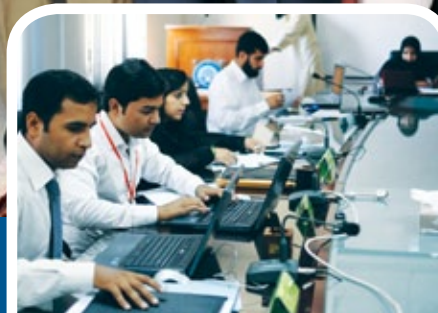
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“The great and glorious  
masterpiece of man is to  
know how to live to purpose.”

Michel de Montaigne



Student Centre, Concordia I

NUSTNEWS

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### Editorial Team

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**Editor:**

Maryam Khalid

**Assistant Editor:**

Faheem Khaliqdad

**Graphics & Layout:**

Kareem Muhammad

**Photography:**

Ghulam Rasool

**Student Reporters:**

Zaid Bin Khamis Butt, Anum Yousaf Khan,  
Taimoor Ahmad

**NUSTNEWS** is a monthly publication, produced by Student Affairs Directorate, covering various events across the entire University. It will be appreciated if the focal persons send reports right after the events so as to give them timely coverage.



## 01 HIGHLIGHTS

# UNSG Ban Ki-moon inaugurates Centre for International Peace & Stability at NUST



In a graceful ceremony held on August 13, Centre for International Peace and Stability (CIPS) was launched at the NUST main campus. Ban Ki-moon, the United Nations Secretary General, graced the occasion as the chief guest and inaugurated the Centre by unveiling the plaque. Established within NUST Institute of Peace and Conflict Studies (NIPCONS), the Centre aims to play its role as an independent think-tank in the areas of peace and stability, development, conflict resolution, regional studies and peacekeeping research. Among the distinguished guests present at the occasion were Sartaj Aziz, Advisor to the Premier on National Security and Foreign Affairs, Federal Minister for Science and Technology Zahid Hamid, COAS General Ashfaq Parvez Kayani, Maj Gen Ashfaq Nadeem Ahmed, DG Military Operations, Ambassadors, educationists, and NUST faculty and students.

The Centre for International Peace and Stability (CIPS) runs academic and research programmes, promoting Pakistan's contribution to peacekeeping around the world. In 2012, it launched the UN peacekeeping courses in Pakistan and is currently planning to introduce postgraduate programmes in the areas of international relations and peace and conflict studies. The presence of Ban Ki-moon at the inauguration was heartening as it underscored the significance of CIPS strategic role in the promotion of regional as well as international peace.

In his address, Ban Ki-moon thanked Rector NUST for inviting

him to the occasion. The UNSG praised the outstanding contribution Pakistan had made to the endeavours for international peace and stability. He said that the UN always acknowledged Pakistan's praiseworthy peacekeeping contribution and continued to remain indebted to it for all the services rendered in this regard. He assured the United Nations' complete support and solidarity for the Government's efforts to combat terrorism and defend the country's institutions and freedom. Terming the establishment of Centre for International Peace and Stability at NUST a landmark achievement, the UNSG reiterated that the ultimate aim of all our efforts should be to ensure long-term and sustainable peace. He specifically linked the regional peace with CIPS future trajectory as a policymaking and training institution in the area of conflict resolution.

Making a strong case for Pakistan's insurmountable sacrifices and contribution to fighting terrorism, he urged international humanitarian, security and political forces to increase peacekeeping efforts in the similar way so as to prevent acts of terrorism from occurring.

On behalf of the Prime Minister of Pakistan, Sartaj Aziz, Advisor to the PM on National Security and Foreign Affairs, extended felicitations to everyone at the much-awaited inauguration of CIPS at NUST. He said that the establishment of such a centre had been long overdue and NUST had once again taken a lead in accomplishing such a task of national and international impor-

tance. Counting upon Ban Ki-moon's meritorious and visionary leadership, he termed his presence at the occasion a precedent of his active role in peacekeeping initiatives.

In his remarks, Chief of the Army Staff General Ashfaq Parvez extended deep gratitude to the UNSG for his esteemed presence at the occasion. He said that Pakistan Army had always

had emerged as a centre of excellence in Pakistan.

Director General Military Operations, Maj Gen Ashfaq Nadeem Ahmed gave a brief presentation on Pakistan Army's contribution to the UN peacekeeping missions. He said that Pakistan Army had been working with the UN for over 52 years and its troops had served in 23 conflict-ridden countries. While essen-



and would continue to extend services for peaceful purposes under the strategic guidance of the United Nations. Pakistan, he added, has been the worst victim of terrorism as it had to bear the brunt in terms of heavy military and civilian casualties. Notwithstanding, the menace has failed to deter our resolve of bringing peace and eliminating terror from the region in general and Pakistan in particular. He viewed the inauguration of CIPS at NUST as a monumental stride forward towards devising peacekeeping strategies and training of manpower for its result-oriented deployment in conflict-hit areas. He also congratulated Rector NUST for heading the university well, which was why it

tially maintaining security in those countries, he said, infrastructural development in war-ravaged areas, provision of health-related services to the underprivileged, timely evacuation of victims to safer places were the areas where the troops were immensely contributing.

Earlier, Rector NUST Engr. Muhammad Asghar welcomed the distinguished guests to the occasion. He apprised the audience of how CIPS aimed at evolving in the future course of time. Later, the chief guest was conducted to different sections of CIPS. He also visited the site of poster display showcasing Pakistani troops selflessly working in the conflict zones.

## Combo Picture of CIPS Launch Ceremony



Chief of the Army Staff General Ashfaq Parvez Kayani arriving at CIPS



Rector NUST receiving UNSG



NUST officers according a warm welcome to UNSG





Plaque-unveiling &amp; Ribbon-cutting



Guests standing in respect of the National Anthem





General Ashfaq Parvez Kayani  
(Chief of the Army Staff)



Mr. Sartaj Aziz  
(Adviser to the PM on National Security & Foreign Affairs)



Engr Muhammad Asghar  
(Rector NUST)



Major General Ashfaq Nadeem Ahmed  
(Director General Military Operations)



Distinguished local and foreign dignitaries witnessing proceedings of CIPS launch



General Ashfaq Parvez Kayani presenting  
souvenir to UNSG Ban Ki-moon



Ban Ki-moon meeting with Pakistani military  
peacekeepers



## Poster Display



Rector NUST conducting the UNSG and other esteemed guests at the site of Poster Exhibition showing Pakistani peacekeepers at UN missions



UNSG leaving his comments in the guest book



Guests attending lunch reception hosted in their honour



## Workshop on Safety Together: Planning, Designing and Building a Healthy and Safe Construction Industry



A pre-conference workshop on 'Safety Together: Planning, Designing and Building a Healthy and Safe Construction Industry' was held on August 19 at NIT, School of Civil and Environmental Engineering. The workshop was a joint collaboration of NUST with Higher Education Commission (HEC), McWhorter School of Building Science at Auburn University in Auburn, Alabama, USA, M.E. Rinker Sr. School of Building Construction at University of Florida in Gainesville, Florida, USA and Civil & Environmental Engineering Department, College of Engineering at King Faisal University (KFU) in Al-Hofuf, Al-Ahsa, Saudi Arabia. The main aim of this workshop was to bring together renowned and qualified health and safety professionals, engineers, con-

The inaugural session was chaired by Mr. Muhammad Baligh Ur Rehman, State Minister for Education, Training & Standards in Higher Education. Several training modules were designed to introduce safety management and OSHA standards and were presented by Pakistani and foreign speakers. Modules presented by Pakistanis included:

- » 'Environmental Health and Safety Issues in NUST' by Dr. Zahir ud din Khan, IESE (SCEE), NUST
- » 'Efforts to Improve Construction Safety and OSHA Standards' by Dr. Rafiq Muhammad Choudhry, PI of the research project from Pakistan'
- » 'Integrated Solution based on BIM and Sensor Technology for Construction Health and Safety Management in Confined Space' by Dr. Zainab Riaz, NUST Business School
- » 'Developing a Safety Culture in Developing Countries' by Dr. Muhammad Irfan Khan, International Islamic University Islamabad
- » 'Achieving Zero Accidents – A Strategic Framework for Continuous Safety Improvement in Construction Industry' by Dr. Rizwan ul Haq Farooqui, NED University of Engineering and Technology, Karachi

Moreover, modules presented by foreign speakers were 'Role of Visualization Technologies in Safety Planning and Management at Construction Job sites' by Dr. Salman Azhar, McWhorter School of Building Science at Auburn University, Alabama, Successfully Addressing 'Multiple Hazards on Construction Sites at the Crew Level' by Professor Jimmie W. Hinze, University of Florida and 'Behavior-based Safety for Construction' by Dr. Dongping Fang, Department of Construction Management, School of Civil Engineering, Tsinghua University, China.

The workshop was attended by over 100 participants including a number of international and national experts from institutions and academia. The workshop provided tools and techniques and familiarized the attendees with the best practice of safety in construction industry of Pakistan. The chief guest of the closing ceremony of the workshop was Dr. Asif Raza, Pro-Rector (Academics) who awarded certificates to the workshop participants.



tractors, project managers, clients and other professionals from all over the world, for the presentation and exchange of their thoughts and experiences on health and safety, engineering, and management issues in construction and related industries. The workshop provided a platform for discussion on real life case studies and presented the status of the construction industry in the view of the participants. The interaction helped to promote the development and implementation of modern health and safety, construction engineering and management practices in developing countries.



## International Conference on Safety, Construction Engineering and Project Management: Issues, Challenges and Opportunities in Developing Countries



NUST, in collaboration with Higher Education Commission (HEC), McWhorter School of Building Science at Auburn University in Auburn, Alabama, USA, M.E. Rinker Sr. School of Building Construction at University of Florida in Gainesville, Florida, USA and Civil & Environmental Engineering Department, College of Engineering at King Faisal University (KFU) in Al-Hofuf, Al-Ahsa, Saudi Arabia organized a two-day conference on 'Safety, Construction Engineering and Project Management: Issues, Challenges and Opportunities in Developing Countries.' The international conference was held from August 20 to 21 at NIT (SCEE) Seminar Hall, NUST.

The conference provided an opportunity to employees of public and private sector organizations, engineers, constructors, consultants, researchers, professionals and practitioners to listen and understand the link between construction safety and project management concepts so that practitioners, both present and future, will be equipped to address the issues pertaining to construction industry. This conference was organized as a part of a research project, 'Establishment of a Center of Excellence to Conduct and Promote Construction Safety Research, Education and Training in Pakistan' under the Pak-US Joint Academic and Research Program being supervised by Dr. Rafiq Muhammad Choudhry, Principal Investigator (PI) of this project. The inaugural session was chaired by Mr. Muhammad Naveed Akram Cheema, Secretary Housing and Works where 62 foreign and local presenters from 19 different countries participated and presented their research publications.

Modules offered in the conference included:

- » 'How much safety matters to a starving construction worker' presented by Dr. Stephen O. Ogunlana, Scotland, United Kingdom
- » 'Strategic model for improvement of construction project management education, research and practice in Pakistan' by Dr. Rizwan Ul Haq Farooqui, NED University of Engineering and Technology, Karachi
- » 'Construction Industry of Pakistan: Challenges, Opportunities and a way forward' by Dr. Attaullah Shah, Allama Iqbal Open University, Islamabad
- » 'Supply and Demand of Construction Safety Measures in Development Countries' by Rita Yi Man Li, Hong Kong University

- » 'Management of occupational safety and health: Challenges of globalization for developing countries' by Dr. Muhammad Irfan Khan, International Islamic University Islamabad
- » 'Disaster management and mitigation strategies' by Dr. Na-seem Baig, MCE, NUST
- » 'Ethics in construction: Moving beyond the corruption debate' was presented by Mr. Amer Zafar Durrani
- » 'Resource Management in construction' was presented by Dr. Liaqat Ali Qureshi and 'Construction safety a cultural perspective' was offered by Dr. Taha Hussain Ali

Research publications were presented by the conference presenters on Health and Safety in Construction, Construction Engineering and Project Management, Design, Engineering and Project Management Issues in Construction & Health and Safety, Design & Project Management Issues in Construction during the conference.

The conference was attended by as many as 130 participants including 51 research publications presenters and a number of international and national experts from institutions and academia. A total of 9 keynote speakers including 5 foreign keynote speakers contributed to the conference. The chief guest for the closing ceremony of conference was Mr. Qamar Zaman, Secretary, Ministry of Interior who awarded certificates to conference presenters and participants.





## NCSC members participate in symposium at Manila, Philippines

Students from NUST Community Service Club attended the 4th University Scholars' Leadership Symposium in Manila, Philippines organized by Humanitarian Affairs. Nida ul Fatima and Danish Munir were the only Pakistani delegates in the week-long event that was attended by about 750 students from over 45 countries. It was indeed an honor for NUST that both these Pakistanis are students at NUST.

Humanitarian Affairs, a non-profit organization from United Kingdom organizes the symposium each year that aims to bring young leaders from around the world to do humanitarian work in the local communities. This symposium gave the students

at NUST an opportunity to share their experiences and motivations. The symposium consisted of motivational talks from speakers that are engaged in community service and humanitarian work including Bam Aquino, Robin Lim and Geraldine Cox among others. A great emphasis was laid on social entrepreneurship and the need to merge community service with the professional life. A field trip was also arranged for the students to visit the poor communities in Calacoon city; where they spent time with the day care children and their parents, cleaned the schools, studied with the children and built a library.



## Talks on Psychotherapies at DBS

Department of Behavioral Sciences (DBS) organized talks on Psychotherapies on August 30. Dr. Derek Farrell, an accredited Cognitive Behavior Therapist and Senior Lecturer in Psychology at University of Worcester presented his talk on 'CBT with Complex Mental Health Conditions'. Dr. Saleem Tareen, a Consultant Psychiatrist, from Northern Ireland, UK talked about 'Solution Focused Brief Therapy'. Both experts shared their experiences of using these psychotherapies in their clinical practice. Dr. Ambreen A. Ahmad, a senior Child and Adult Psychiatrist and Dr. Naeem A. Tariq, a senior Professor in Psychology attended the talks. A number of psychologists from NGOs like Rozan, Sahil and students from ASAB found the interactive sessions quite helpful. The feedback from the participants was very encouraging and they expressed it by sharing their knowledge and experiences during the interactive sessions, which helped enhance their clinical skills.

Dr. Salma Siddiqui, HoD of Behavioral Sciences in her welcome speech, shared her vision for Department of Behavioral Sciences and her commitment with delivering quality education and training to students of Psychology from this platform.

Dr. Ashfaq H. Khan, Principal and Dean, NBS and School of Social Sciences attended the sessions and passed valuable remarks. In the closing session he appreciated the efforts of Dr. Salma Siddiqui, DBS faculty members and staff, for successfully launching their first MS in Clinical Psychology Program in Sep, 2013.





## NUST delegation visits China

A high-level NUST delegation headed by Engineer Muhammad Asghar, Rector NUST visited China from 31st August till 3rd September, 2013, to explore the opportunities for furthering collaboration between NUST and key Chinese universities and knowledge-producing organizations. In this regard, Rector NUST met the Presidents of Tsinghua University and Chinese Academy of Sciences as well as the Vice-President of Peking University and discussed issues of mutual interest.



## Students from NBS represent Pakistan at HPAIR in Dubai

Three students from NBS, Alizeh Hameed, Maryam Gul and Mehick Ahmed of BS Eco 2k11 had the honor of representing Pakistan at the Harvard Project for Asian and International Relations (HPAIR) in Dubai this August. This conference was funded by NUST.

HPAIR is Harvard's largest student outpost in Asia, welcoming a wide variety of distinguished speakers and future leaders. It is a partnership between students and faculty of Harvard University, offering a sustained academic program and a forum of exchange to facilitate discussions of the most important economic, political and social issues relevant to Asia-Pacific region in specific and the world in general. The conference theme was 'extending horizons: Charting Asia's flourishing future'.

Mehick Ahmed participated in the panel 'Energy and environment' and she presented the paper on 'Asia's Energy Policy,' which revolved around providing sustainability and growth for development of the continent. She touched upon the topics of Global energy and environment crisis, developing policies for the environment among others. The energy panel was taken on a field trip to the TRANSGULF ready mix company limited. They were given a tour of the factory where they learnt different tactics for environmental protection.

Alizeh Hameed participated in the media panel and presented the topic, 'Change in the making: Keeping up with media's expanding frontiers in Asia.' Maryam Gul participated in the panel 'Security and Diplomacy.' The paper she presented was, 'The changing face of Security; Asia's growing instability.' The Pakistani delegation consisting of 11 delegates was invited to the Counsel General's residence for lunch on August 26. Students from NUST were applauded for their efforts at the conference by Mr. Tariq Wazir.





## First Pakistan-Turkey Municipal Services Management workshop at NUST

The Institute of Environmental Sciences & Engineering (IESE), NUST, Pakistan and Aqwadem Academy, Turkey jointly established the Centre for Waste Management (CWM) at IESE, NUST premises in January 2013. In this regards an event entitled '1st Pakistan-Turkey Bilateral Workshop on Municipal Services Management' was held from August 27-29 at IESE, NUST. Dr Nasir Javed CEO, Urban Unit, was the chief guest on the occasion.

The objective of this first Pakistan - Turkey bilateral training workshop was to shed light on the provision of municipal services in both the countries. The presentations were facilitated by experts from Turkey and Pakistan, focusing on issues pertaining to availability of drinking water, waste water treatment and solid waste management. "In Pakistan less than 50 percent of people have access to safe drinking water but more than 70 percent have access to mobiles. This is not due to the dearth of resources but due to lack of institutional capacity and political will", said Dr. Nasir on the occasion. General Manager Konya Water and Waste Water Management, Turkey Mr. Selim Uzbass further reinforced the improper utilization of resources rather than their scarcity as a dominant factor in the mismanagement of municipal services.

Turkish Cooperation and Coordination Agency's (TIKA) representative Mr. M. Samil Emin advocated that more of these events should be organized which will provide a platform for future alliance between the two countries towards capacity building in social sector.

A total of 120 participants from different parts of the country gathered at this event representing their respective organizations. The audience appreciated the importance of collaboration between Pakistan and Turkey regarding Municipal Services Management. Different case studies were presented to serve as a model for improving municipal services in various cities of Pakistan. Lahore Waste

Management Company (LWMC) and Sanitary Landfill Project in Multan have strived to play their part in ameliorating the municipal management services in their respective cities.

The workshop was successful in disseminating and sharing information regarding Municipal Services Management, problems in its implementation and solutions to improve the municipal administration in Pakistan. Turkish Cooperation and Coordination Agency, TIKA supported the event through its generous financial support. The country coordinator Mr. M. Samil Emin showed interest in further improving ties between Pakistan and Turkey.



## Nustians attend International Science Olympiad, Iran

This year NUST was invited to the International Scientific Mathematics and Chemistry Olympiad held in Tehran, Iran, in August and the task of team selection was given to NUST Science Society (NSS). Hence NSS held screening procedures to choose five lucky participants for the Olympiad.

For Mathematics, the selected students were Zainab Mubasher, Sadia Khalid and Hassan Nadeem while for Chemistry, Maria Majeed and Usman Salahuddin were chosen.

The team not only had the honor of representing NUST but also to become the face of Pakistan in the Olympiad since the members were endorsed by the Government of Pakistan. Students of 2nd, 3rd and 4th year of the respective subjects, Chemistry, and Mathematics, were eligible to apply for the Olympiad. This particular Olympiad has been taking place since the last thirteen years with participants from over twenty countries from all over the world.





## Sri Lankan Defence Services C&SC delegation visits NUST

A 34-member delegation from Sri Lankan Defence Services C&SC led by Commodore A. A. P. Liyanage, Chief Instructor Navy Wing visited NUST on August 19. The delegation was received by Pro-Rector Acad, Dr Asif Raza. Briefing was given to the delegation about establishment, constituent institutions, academic programs, strategic thrusts, research initiatives and future plans of NUST followed by a detailed question and answer session. Sri Lankan delegation appreciated NUST's infrastructure and facilities provided for its faculty and students to ensure quality teaching, learning and research. The delegates showed keen interest in possibility of admission of Sri Lankan students at NUST. Dr Asif briefed the



delegation about the admission requirements and assured facilitation to the prospective Sri Lankan students regarding tuition fee and institutional support. The delegation also visited research labs of School of Electrical Engineering and Computer Science and learnt about the collaborative research projects being undertaken by the School.

## Seminar, Exhibition on Alternative Energy and Energy Conservation at CAE

A seminar and exhibition titled 'Alternative Energy and Energy Conservation' was organized at College of Aeronautical Engineering (CAE), Risalpur. The objective of the Seminar was to discuss the modern trends in Alternative Energy and Energy Conservation, to share the R&D efforts made at CAE, and to identify the potential avenues in which CAE can contribute in this area. Moreover, local vendors were invited to display and showcase the modern products related to alternative energy and energy conservation.

The opening address was delivered by Dr. Jahangir Kayani, Dean CAE. He welcomed all the participants and discussed the importance of Seminar in the context of prevailing energy crisis situation. Dr. Ali Javed Hashmi delivered a talk on the 'Energy Conservation Methods for Common Man'. His presentation focused on the importance of energy conservation methods, and simple yet effective measures which can substantially enhance the energy savings in a common household. In the presentation, audiences were also briefed about the modern gadgets that can be useful for energy generation and efficiency. His presentation was followed by the presentations on 'Run of the River Power Generation' by Engineer Khalid Ameer and 'Solar Pond and Heat Pump' by Dr. Ahmed Aizaz. Both the speakers highlighted theoretical aspects, utility, and details of ongoing projects at CAE. The Seminar also included futuristic talks on 'Solid State Illumination Sources' and 'Energy Harvesting through Rectennas' by Dr. Muddassir Iqbal and Dr. Shahzad Arshad, respectively. An expert from industry, Engineer Asif Jah was also invited to give a presentation on the 'Future of Alternative Energy in Pakistan'. Mr. Asif Jah is the Chairman of Electro-Control Industries, which is actively working in the area of Alternative Energy. In the end, Dr. Jahangir Kayani, Dean CAE, discussed about the Alternative Energy potential in Pakistan and future of HBLED illumination



sources. He also gave an overview of the R&D projects completed and in progress at CAE. At the end of the presentations, a Q&A session was held in which the audience asked many relevant questions, which helped in understanding the subject in a better way.

The Seminar was attended by a large number of participants from various organizations and industry. Audience included representatives from Air Headquarters, Pakistan Aeronautical Complex Kamra, and Engineering Depots of PAF. Guests from academic institutions, such as Air University also attended the Seminar. Other notable dignitaries from industry and private sectors included the President of Renewable Energy Association of Pakistan (REAP), and CEOs of M/S Sky green and M/S ECI Ltd. A notable aspect of the activity was an Exhibition on 'Alternative Energy and Energy Conservation' at CAE. R&D projects completed at CAE were also displayed. Various products displayed in the stalls included the Solar home solutions, PV panels, charge controllers, batteries, Solar based common user products, Solar water pumps, Solar runway lights, Solar air conditioners, Hybrid solar lighting based on fiber optics, LED slim boards, and LED lights. The event was extremely fruitful in spreading awareness about the issue and discussing their probable solutions.



## NUST bids farewell to Principal SCEE

A farewell lunch in the honor of Dr. Muhammad Nasrullah Khan, Principal SCEE was arranged by SCEE on July 9, 2013 at NUST Faculty Cafeteria. The Lunch was attended by all the faculty members of NUST Institute of Civil Engineering (NICE), Institute of Environmental Sciences & Engineering (IESE), Institute of Geographical Information Systems (IGIS) and other NUST Higher authorities.

After the lunch, a brief overview of Dr. Muhammad Nasrullah Khan's career and dedication to NUST was given by Dr. Jamil in which he highlighted Dr. Nasrullah's role in national growth and economy and also appreciated his remarkable contribution to the development of NUST H-12 campus. Dr. Muhammad Nasrullah Khan thanked his colleagues and professors for their invaluable support and trust throughout his career at NUST and he also declared Dr. Jamil as Acting Principal of SCEE. At the end, Dr. Nasrullah was presented with farewell souvenirs and gifts as a token of gratitude for his services.



## Dr. Mazhar Ali Bari visits CES

Dr. Mazhar Ali Bari, CEO and Co-founder of Solar Print Ltd visited Centre for Energy Systems on August 7. Principal CES-NUST, Dr. Mohammad Bilal Khan introduced the faculty members and gave an overview of CES-NUST. The applied research projects currently undertaken by CES-NUST were highlighted during the meeting. Dr. Bari shared his vision of Pakistan becoming self-sufficient in the Energy sector in the next 5 years. He stressed that Pakistan should focus on Local coal to address the rampant energy crisis.

Dr. Bari is a successful entrepreneur who has built a successful technology start-up company bringing an advanced nanotechnology for solar technologies starting from the lab to the market, and in the process raised over €6M since Nov 2008. He said that 'Solar Print' is a leader in Dye Sensitized Solar Cells (DSSC) photovoltaic technology bringing the leading indoor energy harvesting platform to market. Dr. Bari demonstrated a version of the DSSC to the audience, which is based on a thin film sandwiched between Borosilicate glass slides. This version finds wide spread applications to energize a wide variety of sensors including wireless sensors. He further asked NUST to collaborate with Solar Print Ltd to develop DSSC technology in Pakistan.





## 02

## UPDATES FROM SCHOOLS

## Underground Space Utilization and Tunnelling Course at NICE

NUST Institute of Civil Engineering (NICE), SCEE organized a four day short course on 'Underground Space Utilization and Tunnelling' from August 26 to 29 at SCEE Auditorium. The course aimed at covering important aspects in the field of underground space utilization and tunnelling including specialized training for policy makers, project managers and engineers to provide safe environment to the community at large. The focus was on planning and utilization of underground space adjacent to the available space at the surface and study of selection techniques keeping in view the strata usage and requirements. Moreover, it allowed the attendees to understand the state-of-the-art tunnelling techniques, use of explosives tunnel/cavern execution problems, seepage, temporary and permanent support systems and tunnel ventilation.

Speakers for the course were Dr. S. M. Jamil, Dr. Kamran Akhtar and Professor M. Naseem Khan from School of Civil and Environmental Engineering (SCEE). Guest speakers included Lt Gen (R)

M. Zubair, CEO of Neelum Jhelum Hydropower Project who presented a case study on his project; Lt Gen M. Ahsan Mahmood, Chairman POF Wah, Syed Naseem Raza, Chief Executive Wah Noble Group who explained modern blasting techniques used by Wah Nobel Group and Michael Knabe, Herrenknecht AG Tunneling System, Germany who gave an overview of use of Tunnel Boring Machine (TBM) and other latest equipment in tunnelling.

Increasing global demand for space related energy crisis and traffic hazard are a growing concern for the global, regional and national stakeholders. The increase in urban population does not commensurate with the development work, thus creating congestion and shortage of land. Several tunnelling projects are underway in Pakistan to mitigate these negative effects. Offering this course, NICE made an effort to bring the present day tunnelling knowledge in pace with the modern techniques available globally.



## SCME faculty receives project grant of Rs. 48 Million

Dr. Arshad Hussain, Head of Chemical Engineering Department at the School of Chemical and Materials Engineering (SCME) has received research grant worth Rs. 48 million for his project on 'Development of Polymeric Membranes for CO<sub>2</sub> Capture from Natural and Flue gases' under Pakistan-Norway Institutional Cooperation Programme. SCME will have a dedicated experimental facility on membrane based gas separation and this facility will help to train the students/researchers and impart knowledge of membrane based gas separation process. The successful completion of this work will persuade the process industry to employ membrane based CO<sub>2</sub> capture technology to reduce the CO<sub>2</sub> emissions.





## National Conference on Emerging Materials and Processes at SCME

School of Chemical and Materials Engineering organized a Conference on Emerging Materials and Processes which was held from August 22 to 24. Salient themes of the conference were: Membrane Technology, Energy and Environment, Biomaterials and Metallic Materials, Nanotechnology, Polymer and Composites, Simulation and Computation and Catalysts and Catalytic Reactions.

From more than 100 abstracts and 48 posters received, 45 were selected for oral presentations and 40 for poster presentations. The conference provided an excellent opportunity to the participants to share knowledge on the emerging materials and processes and related cutting-edge technologies.

Pro-Rector NUST, Engr. Muhammad Shahid inaugurated the conference which was later held in sessions commensurate with the salient themes. Dr. Mukhtar Ahmed, Executive Director HEC addressed the inaugural session followed by 5 keynote lectures delivered by eminent speakers and professors. Each of the selected presentations was followed by a Q&A session. Keeping in view the importance of nanotechnology, a parallel session for the same was organized during the last 2 days of the conference. Posters were evaluated by a panel of experts for top 3 positions and the awards were won by participants of Quaid-e-Azam University, Islamabad.

There were about 200 participants from academia and industry. Closing address of the conference was delivered by Principal SCME, Dr. Mohammad Mujahid, who distributed shields and certificates among the participants. Addressing the audience, he acknowledged the efforts of the organizing committee, headed by Dr. Arshad Hussain and also thanked the sponsors. He shared his desire of making the conference an annual feature of the School.



## Lecture on Integrated, Contextual and Modular Curriculum at AM College

Dr. Muhammad Luqman, MBBS, M.Phil, FCPS, MCPS-HPE from Yusra Medical and Dental College delivered an interactive lecture on Integrated, Contextual, and Modular Curriculum on August 26 at Army Medical College, NUST. The entire senior faculty and the Principal AMC, Salman Ali attended the lecture. The lecture was organized by the Department of Medical Education Army Medical College as a part of faculty development program.

The lecture focused on implementing a dynamic curriculum at the University and latest modalities of teaching/learning were discussed to help improve the persisting education system. Integration of curriculum is meant to make teaching and learning activities more meaningful. Many medical colleges find it hard to change the existing traditional curriculum to integrated curriculum mainly because of lack of will, infrastructure or vague understanding of the process of change. Principles of integrated

curriculum discussed in the lecture included Scope and the levels of integration, Curriculum frameworks and maps, planning integrated curriculum, Process of curriculum integration, developing a pre-clinical science module and developing a clinical clerkship module. Principals, scope process, national perspective and different models of curriculum were also discussed, after which the question & answer session ensued.





## BMAS at NIPCONS

Third batch of 7th Semester of Bachelors in Military Art and Science (BMAS) commenced at NIPCONS from August 19. A total of 200 young officers are enrolled in this programme in the MAS Department of NUST Institute of Peace and Conflict Studies (NIPCONS).



Principal NIPCONS, in his opening address to the young officers emphasized on the quest to acquire knowledge which could help them in refining their personality and professional skills as they progress in the service. He also mentioned transition of NIPCONS to an almost paperless environment where all teaching and reference material is available online through Learning Management System (LMS). Furthermore, all tests are also being conducted simultaneously from NIPCONS. The examination system based on the LMS has been extremely successful and has fully matured.

In order to broaden the intellectual horizon of the students, a series of lectures by eminent speakers were arranged. The first in the series of lectures by an officer from Military Operations Directorate was transmitted live to all HRDCs through video conferencing. The quality of questions by the students indicated a high level of understanding and assimilation. Moreover, the opening lectures of various courses continue to be delivered on-line through video conferencing.

## Lecture on Biomechanics, Rehabilitation Robotics and Biomechatronics at CAE

A guest lecture was conducted at CAE on August 29 by Dr Kamran Iqbal, Professor of Systems Engineering at the University of Arkansas at Little Rock, USA. He delivered a very engaging lecture to the faculty and students of CAE on Biomechanics, Rehabilitation Robotics and Biomechatronics. Among the audience were the Dean and faculty members from all departments of the College.

The lecture introduced the audience to the ground breaking research that is being carried out in the field of Biomechatronics; the construction of prosthetic limbs, exoskeletons and rehabilitation robotics in MIT and John Hopkins Universities, USA. Although this technology may appear as a replacement for human limbs, however, it is primarily directed at improving and enhancing the lifestyle of people through proper engineering. Biomechatronics may have a far-reaching impact on future advancements taking place in various engineering disciplines.



During the question and answer session, Dr Kamran Iqbal responded to the idea of beginning an indigenous research in the field of Biomechatronics in affirmative, and showed his willingness to help students in Pakistan to become a part of this technological advancement which he termed as the 'next big thing to look out for'.

## C<sup>3</sup>A conducts effective student handling workshop for teachers

Teaching is a profession that helps build other professions. It is dynamic and challenging, more so now because there is a glut of information out there and reaching out to students is not easy. The teacher has to remain a consistent learner to influence the students in a positive way. Realizing the need to reach out to the teachers, Centre for Counseling

and Advisory, NUST conducted an interactive session with experienced teachers of Army Medical College, Rawalpindi. The Principal AMC along with HoDs, senior teaching faculty and company commanders attended the session. The significant role of a teacher and its impact on a student's life was highlighted in the interactive session. The various aspects that influence teaching, mainly knowledge, experience, expertise and above all passion were discussed by the psychologists in detail.



## Eid celebrations at PNEC, Karachi

Eid Milan party was held at PNS Jauhar Gunroom Lawn on Eid day, August 9 for Naval Officers and their families. A large number of serving / retired Naval officers and their families attended the event. Chief of Naval Staff Admiral Mohammad Asif Sandila NI(M) was the chief guest on the occasion.



## CAE faculty presents paper at conference in Singapore

Dr. Ali Javed Hashmi from College of Aeronautical Engineering presented a paper titled 'Optimization of an Optical Array Receiver for Deep-Space Optical Communication during Earth-Mars Conjunction Phase' at Photonics Global Conference held in Singapore. Dr Hashmi completed his PhD from Georgia Institute of Technology and his research interests include 'Deep Space Optical Communication between Earth and Mars' and 'Radar Digital Signal Processing'. Dr Hashmi is one of very few international researchers working in the area of Deep Space

Optical Communication. The paper was co-authored by researchers from Georgia Institute of Technology and Jet Propulsion Laboratory, NASA.





## Independence Day celebrations at PNEC

The 66th Independence Day of Pakistan was celebrated with fervor at PNS Jauhar , Pakistan Navy Engineering College, Karachi. In this context, a simple and splendid ceremony was held at the college parade ground. The ceremony started with recitation from the Holy Quran followed by Commandant's address to the staff officers, student officers, Civilian Students and Ship's Company on the significance of the day. National Anthem was also sung after the address. Additionally tree sappling was planted by the Commandant in order to have a green Pakistan. Afterwards a speech competition on Independence Day was also held in PNS Jauhar Auditorium, where PN officers and civilian students participated in the competition. In the end Commandant awarded prizes to the winners of speech competition and addressed the gathering.



## Workshop on Risk Assessment & Incident Investigation at PNEC

Professional Development Centre (PDC)-PNEC arranged a one day workshop on 'Risk Assessment & Incident Investigation' in collaboration with Fire Engineering Design Solution (FEDS) on August 31. The workshop focused on grooming students to foster their engineering skills. A large number of students and faculty members attended the workshop.





## EC-Council's Certified Secure Computer User (CSCU) Training & Certification Exam at MCS

The Department of Information Security at Military College of Signals organized the third training session of 'EC-Council's Certified Secure Computer User' from August 19 to 20. With the successful completion of first three sessions, training participants from varying professional backgrounds including IT professionals, network and technical managers, senior information security executives, marketing executives, armed forces personnel, software developers, academicians and students from various government and private sector organizations like Ufone GSM, SUPARCO, NRTC, NESCOM, NUST, Alachisoft, Del-tasoft Technologies, Zaztek International and Pak Army, have become EC-Council's Certified Secure Computer Users. The Department of Information Security planned eight sessions of the CSCU training for 2013-2014, out of which three were held on September 21.

The two-day training provided the participants with the necessary knowledge and skills to protect their information assets through proper usage of computers. It was designed to provide the participants with an interactive environment where they could acquire fundamental understanding of various computer and network security threats, risks and potential losses involved.

With a dedicated team of trainers, comfortable venue and an environment conducive to learning, the training is a valuable learning opportunity for every computer user who uses computing devices to study, work or play. The full details and schedule of upcoming sessions are available at [cscu.mcs.edu.pk](http://cscu.mcs.edu.pk).



## Zong Assessment Test conducted at NBS

A team of Zong Cmpak Limited visited NUST Business School on August 6 to conduct Online Assessment Test for the previously shortlisted students of NBS and NUST. The key personnel from Zong team included Mr. Muhammad Waqar Bashir, HR Manager, Ms. Sadaf Riaz Ahmed, Talent Acquisition Specialist, Mr. Muhammad Ali Jaffer and Ms. Hina Iqbal.

A total of 30 business students (shortlisted by HR Zong at NBS Job Fair held on July 5, 2013) and 55 engineering students appeared in the Graduate Trainee Assessment. Zong team gave a presentation about the recruitment process of the company to the students to clear any ambiguities. The web based online test took two hours to complete. The students were then entertained by a behavioral activity conducted by the team of Zong. The team then paid a visit to Dean NBS and discussed future proposals. The team also showed interest in carrying out



different student development sessions and recruitment drives, hence increasing prospective jobs offerings for students. Ms. Javeria Saleem, Coordination Officer CIL, presented shields on behalf of NBS to Mr. Muhammad Waqar Bashir, HR Manager and Ms. Sadaf Riaz Ahmed, Talent Acquisition Specialist of Zong.





## NUST participates in COMTECH'13, Indonesia

A two member delegation from NUST including faculty head NUST Community Service Club, Dr. Syed Irtiza Ali Shah and Assistant Manager Athar Mushtaq attended the Community and Technology Camp 'COMTECH' held in Surabaya Indonesia from August 25 to September 5.

As many as 50 participants from 24 different countries participated in this camp.

Some training courses and site visits related to community engagement and technology were conducted during the two weeks. The training courses concentrated on areas including language and culture, roles and challenges of student

movement in Indonesia, disaster management, waste management, Eco-city, Community Involvement, bio-gas and Eco-campus management. The participants were taken to disaster sites including Mount Bromo whose volcanic eruption had disrupted the surrounding areas; and to Lapindo, a manmade drilling disaster where proper drilling SOP were not followed which resulted in excessive mudflow.

At the end, group presentations were held in which the participants were asked to present their thoughts on various aspects that were touched during the course. The team consisting of Athar Mushtaq stood runners-up in project presentations on Eco-campus. Bon-Fire and camp night were also arranged in order to provide leisure time to the participants and also presented a chance to interact with the foreign community. In the closing ceremony Dr. Irtiza received an 'Inspiring participant' award.



## SCME delegation attends conference in Russia

A group of four students from School of Chemical and Materials Engineering namely; Qassam Sarmad, Maryam Adhami, Nadia Naseer and Moiz Butt accompanied by their faculty Sponsor, Nadeem Ehsan, participated in the 'Engineers of The Future Conference' at Irkutsk, Russia near Lake Baikal. The visit was sponsored jointly by the National University of Sciences and Technology and SCME Alumni Association who took the initiative to send students to this prestigious conference.

The Third International Youth Industrial Forum 'Engineers of the Future 2013' was a conference arranged by The Union of Russian Engineering. The SCME group attended various lectures by renowned scientists, economists, and industrialists including a lecture on International Experience Exchange in the Machine Building Industry. One of the highlights of the event was a lecture presented by Kuzmin Alexey S., a philosopher, mathematician, and an economist. His lecture was based on engineering and its correlation with economics and innovation.

The Forum brought together more than 2000 young specialists, academicians and students from 291 industrial companies and 52 univer-

sities who represented 56 regions of the Russian Federation, as well as participants from 32 foreign countries. Most notable foreign delegations came from China, Pakistan, Brazil, India, Italy, Germany, France, Slovakia, Latvia, Poland, Ukraine, Hungary, Austria, Spain, Holland, Ireland, Slovenia, Macedonia and Venezuela.





## E&ME College organizes National Engineering Robotics Contest

The 11th National Engineering Robotics contest was held at NUST College of E&ME. This mega event, that took place in June 2013 hosted 163 teams from 40 universities and institutes from all over Pakistan.

NERC 2013 presented the competition in 2 categories: the 'indigenous category' specific to university students and the 'Modular' category which is for school children. The 4 day event started on June 26, when the College warmly welcomed the participating teams for registrations and measurements. The qualifying rounds were held the next day in which all the teams were given a chance to compete. The best 32 teams out of these were chosen on basis of the points they earned in the qualifying rounds.

The closing ceremony of NERC 2013 was held on June 29. The chief guest, Lt Gen Muhammad Haroon Aslam, HI (M), SBT, Chief Of Logistics Staff, Colonel Commandant Of Azad Kashmir Regiment, Pakistan Army, awarded the winners with cash prizes and certificates of performance. A large number of guests attended the event from all over Pakistan, including senior military officers, representatives of renowned industries, deans and other faculty members from several different universities and members from print and electronic media.

Team of 'Usman Shareef' from NUST, College of E&ME was the Winner of NERC 2013 bagging a prize of Rs. 1,25,000. 1st Runner up, Team 'Iron Hyde from', College of E&ME was given a prize of Rs.75,000. Team 'Blatoroid' from NUST SEECS was the 2nd runner-up receiving a prize of Rs.50,000. The 3rd runner-up of NERC 2013 was Team 'Obeyaa'n from NUST, College of E&ME which received a prize of Rs. 30,000.

In the 'Modular' category, the Winner was team 'Legend' from Roots School System bagging a prize of Rs. 25,000/- and team 'Rabot E' from NUST, College of E&ME was the 1st runner-up receiving a prize of Rs. 15,000. Various prizes amounting to Rs. 1,50,000 were also given in other categories which included Best Engineering Design Award, Participation Awards and EME Award.





## 03 ACHIEVEMENTS

### Engine Blow-by Monitoring System earns national acclaim

In the 'Invention to Innovation Summit 2013', Engine Blow-By Monitoring System was recognized as the best product and was awarded the 'Innovation Award'. This system has been developed at The Automotive Research Center (The ARC) School of Mechanical and Manufacturing Engineering by the team comprising Dr. Riaz Ahmad Mufti, Mr. Mian Ashfaq Ali and Mr. Muhammad Usman Bhutta. The technologies presented in the summit are also supported for funding, commercialization and further developments.

The Engine Blow-By Monitoring System developed by SMME is a successful commercial product. It is probably the first time in Pakistan that a public sector university has developed a commercial product. More than a dozen systems have been sold to major automotive companies in Pakistan including Millat Tractors and Power Vision, to army workshops and to other independent suppliers such as United Traders. Due to the high reliability, durability, efficiency & portability of the system, SMME is getting a very

positive feedback and is receiving more orders of the Blow-By System without even properly marketing it. In view of its high success the team involved in its designing, development and manufacturing is constantly upgrading the Engine Blow-By System by making it more user friendly & durable. So far three models have been developed; RAM-BB3 is the latest model developed in July 2013 incorporating fiber optics. RAM-BB3 is a standalone system with a built-in touch-screen specially designed for field applications. A patent has also been filed for the Engine Blow-by Monitoring System.



### Team SEECs shine in entrepreneurial challenge

The business plan entitled 'SMART SurgiSol,' developed by a team of professionals working on the SEECs project 'Development of a Tele-Surgical Training Robot and Simulator (TSRS)', won 1st Prize of Rs. 175,000/- at 'IBA-INVENT- The Entrepreneurial Challenge' in August 2013, in Techno-entrepreneurship category.

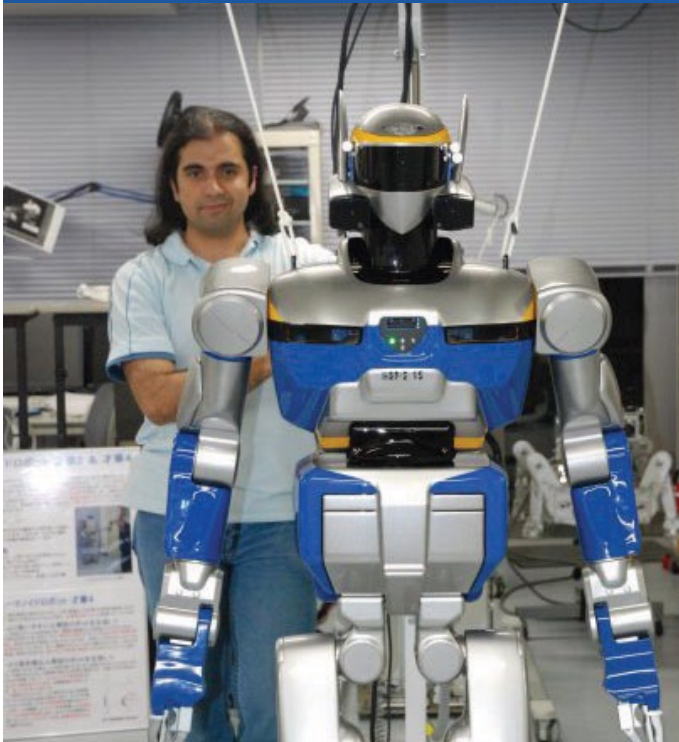
The business plan of SMART SurgiSol is intended for the commercialization of the product "Al-Zahrawi", being developed at the SMART Lab in SEECs. Al-Zahrawi™ is a surgical training solution for surgeons performing manual and robotic laparoscopy. The project is being executed in collaboration with Holy Family Hospital and funded by National ICT R&D Fund. The team is being mentored by Dr. Osman Hasan (EE) and Mr. Shamyil Bin Mansoor (CS).

According to an IBA spokesperson, INVENT is one of the largest business plan competitions in Pakistan, the aim of which is to encourage ethical and sustainable entrepreneurial ventures among students across the

country. Comprising over six months of rigorous training and workshops across Pakistan, students honed their entrepreneurial skills and developed feasible business plans for their ideas. Initially 350 teams participated in the competition, after scrutiny at four rounds, only 16 teams managed to qualify for the finals at IBA, Karachi. Several of top entrepreneurs and leading professionals were part of the panel of judges for the competition.



## SMME faculty among Top 100 Educators



The International Biographical Center based in Cambridge, England (UK) has recently included Dr. Yasar Ayaz of NUST School of Mechanical and Manufacturing Engineering, in their list of Top 100 Educators 2013. Of the many thousands of biographies from a wide variety of sources investigated by the research and editorial departments of the IBC, a selected few individuals who have made a significant contribution in their field to engender influence on local, national or international basis are named as members of IBC. Dr. Yasar's work has not only been noticed but recognized as outstanding by IBC. Dr. Yasar is currently working at SMME as the Head of Department of Robotics and Artificial Intelligence. He has developed Pakistan's first MS and PhD programs in the area of Robotics and Intelligent Machine Engineering which are currently being offered at SMME. Students working under his supervision at NUST frequently published and presented research papers in top international forums and have also secured a number of foreign funded scholarships for higher studies / research abroad. Particularly, his research work on Humanoid Robot Footstep Planning, Navigation and Control has been cited by leading universities in more than 11 countries including USA, Japan, France, Germany, Hungary, South Korea, China, Iran, Croatia, Singapore, and Pakistan. It may be also mentioned here that in January 2013, the biography of Dr. Yasar Ayaz has also been published in the Pearl Edition of 'Who's Who in the World 2013' in recognition of his extraordinary international contribution to research and academics in the field of Robotics.

## Medical students from NUST stand out at International Forum

Institute for Advancement of Dental Sciences and Research (IADSR) hosted an International Conference, at the Jinnah Convention Centre in Islamabad, on 16-18 August with the title, 'Cosmetic Dentistry-Where Art Meets Science'. The Conference was supported by World Health Organization (WHO), Dental Tribune International, European Society of Cosmetic Dentistry (ESCD) and the Journal of Pakistan Dental Association. Army Medical College and Undergraduate Research Foundation members represented the college in the event among the renowned international speakers like Prof. Philip Lewis, Director of British Academy of Cosmetic Dentistry; and Prof. Wolfgang Richter, Chairman for International Postgraduate Education at ESCD. As many as 34 Dental Colleges of Pakistan participated in the event.



A team of students from Army Medical College, namely M. Yasir Ishaque, Fatima Javed, Maaiza Ahmad Sindhu, Rabeeha Malik, Minha Mubashir, Komal Imran and Zainab Hayat Raja participated in the competition and won first prize in table clinic competition with the topic, 'Outlook of cross infection control if saliva is coloured', under the supervision of Col Azad Ali Azad and Dr. Shoaib Rahim (Armed Forces Institute of Dentistry, AFID). This was followed by a second prize in Quiz Competition, won by Fatima Javed, Maaiza Ahmad Sindhu and Rabeeha Malik of AMC College at NUST. The conference also covered Hands-on Workshops on Direct Veneers, Bleaching and Rotary Endodontics and a Career Counselling Seminar on Life after graduation and concluded with a symposium on Oral Cancer organized by World Health Organization (WHO).



## SCME scholars defend PhD theses

Pakistan Atomic Energy Commission nominee and SCME Chemical Engineering student, Mr. Nadeem Ahmad successfully defended his PhD thesis titled 'Viscoelastic Properties of Polyurethanes with particular reference to Morphology, Thermal and Mechanical Behavior'. Polyurethanes are versatile multiphase polymeric materials used in automobiles, sports gear and specialty composites. The thesis focuses on how to resolve a problem of long-standing nature encountered by the strategic composites industry. The thesis records significant enhancement in mechanical properties and much reduced sensitivity to vibration induced temperature rise in the composite. Consequently, the composite is safer to deploy with much improved shelf life. Part of the work was performed in China under the HEC split PhD Program. The work has resulted in two ISI indexed Impact Factor Journal publications, two ISI indexed conference proceedings and one international conference paper.

HEC Scholar Mr. Nadeem Iqbal, incidentally the first Materials Engineering PhD candidate successfully defended his PhD thesis titled 'Ablatives based on Elastomeric Composites for Aerospace Applications'. Dr. Nadeem pulled out an excellent thesis on an otherwise illusive subject, investigated for the first time in Pakistan. The work resulted in eight ISI indexed impact factor publications and several international conference papers. Ablatives are ultra-high temperature heat-shielding materials used in space shuttles, re-entry vehicles and ballistic missiles. The Nano-composites designed, fabricated and tested in this work yielded the highest performance (ablation rate and back face temperature) unmatched by contemporary materials. The research was previously acknowledged by HEC and also reported in the National Press.

The thesis was supervised by Dr. Mohammad Bilal Khan, founding Dean SCME and currently Principal/Dean CES NUST. The thesis by Nadeem Iqbal was reviewed by Prof. Paul Hogg, Vice Principal and Dean of Sciences, Royal Holloway, University of London and Dr. Daryl Williams, Director Space Discovery Program, Imperial College London. Thesis by Nadeem Ahmed was reviewed by distinguished Prof. B.J. Briscoe (FRS), Prof. Emeritus and formerly Dean Imperial College London, and Dr. T. Ahsan, Henkel Corporation, Electronic Materials USA.

## NUST faculty members receive Civil Awards

The Civil Awards have been bestowed upon two faculty members of NUST on August 14. Dr Mohammad Mujahid, Principal NUST School of Chemical and Materials Engineering and Dr Sharifullah Khan, Head of Computer Science Department in NUST School of Electric Engineering and Computer Science have been awarded president's Pride of Performance and Tamgha-e-Imtiaz, respectively. Both the faculty members have been recognized on the basis of their outstanding contribution in the areas of academic management in their respective institutions, lead role in research activities and publications, and active involvement in establishing international collaborations of NUST with foreign universities and research organizations. Rector NUST Engr Muhammad Asghar has felicitated both the faculty members on award of the coveted medals and hoped that they would continue working with same zeal and dedication and bring more laurels for themselves, their families and NUST.



## THE NUSTIAN-2013

Students and Faculty of all the campuses of NUST are requested to send their essays, poems and caricatures for inclusion in the current issue of the magazine.

It is a bilingual annual issue of the University.  
Contribute in the language of your choice  
(Urdu, English)

**First come, first served.**

Phone: +92-51-90851363  
e-mail: [studentaffairs@nust.edu.pk](mailto:studentaffairs@nust.edu.pk)

Mail your contributions to the  
DD Student Affairs, Ehsan-ul-Haq,  
SA Dte, NUST, Sector H-12, Islamabad.

“Your chances of success in any undertaking can always be measured by your belief in yourself.”

Robert Collier

“Leadership is the capacity to  
translate vision into reality.”

Warren Bennis



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**National University of Sciences & Technology**  
H-12, Islamabad, Pakistan

**Tel:** +92-51-90851368 **Fax:** +92-51-90851362 **Email:** [nustnews@nust.edu.pk](mailto:nustnews@nust.edu.pk) **Website:** [www.nust.edu.pk](http://www.nust.edu.pk)