

Issue 08 | Oct-Dec 2018

Syed Babar Ali School of Science & Engineering

Newsletter



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INAUGURATION OF THE LUMS ENERGY INSTITUTE

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SMART METERING**

In collaboration
with K-Electric

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CEREMONY 2018**

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brightest students

**NUCLEAR MAGNETIC
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A state-of-the-art
research facility

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Parents proudly attending the Ceremony of Dean's Honour List 2018

WIT Organised Focus Group Discussions on Sindh and Punjab Agriculture

Achievements

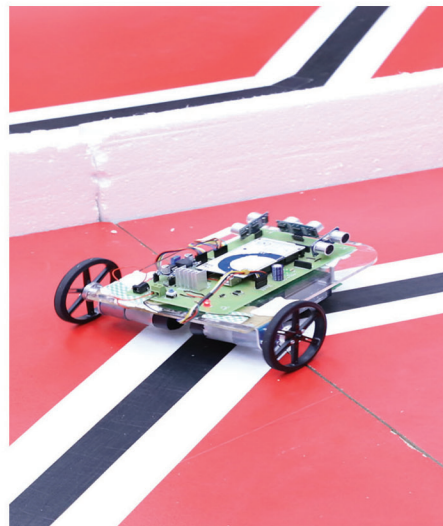
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Nuclear Magnetic Resonance (NMR) Lab - Research Facility



Computer scientists competed at Codinguru 2018



Robotic Competition



GRE Physics Exam

INAUGURATION OF THE LUMS ENERGY INSTITUTE

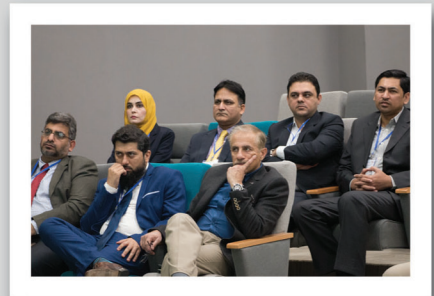
The energy related challenges in Pakistan need to get addressed and for that a number of propositions and strong steps have to be taken up along with sustainable policies and well grounded strategies. The Government as well as private sectors need to step forward and take such initiatives to solve this energy crisis and deal with the critical situation. Lahore University of Management Sciences (LUMS) has taken a step forward towards addressing these energy issues as it is highly crucial not only for mass urbanisation and advancement in technology but also for addressing national energy concerns.

LUMS recently inaugurated the Energy Institute on November 29, 2018. The inauguration ceremony was hosted at the Syed Babar Ali

School of Science and Engineering (SBASSE). Prominent guests included Federal Parliamentary Secretary of Power Division, Mr. Zahoor Hussain Qureshi and Syed Babar Ali, founder and Pro Chancellor of LUMS. It was graced by the presence of many prominent members from the government and power sector, including GMs, CEOs and Directors from K-Electric, NEPRA, LESCO, IESCO, TESCO, USAID, PITC, Planning Commission, MEPCO, Ministry of Energy, NTDC etc.

This Energy Institute at LUMS will serve as a think tank, centre of technical excellence, knowledge network, and capacity building ground for the nation to institutionalise a renewable rich future for Pakistan in the most sustainable and cost-effective way possible. The

mission of the LUMS Energy Institute is to carry out interdisciplinary research, development and capacity building in power and energy planning, renewable energy technologies, and grid modernisation. Dr. Naveed Arshad, Associate Professor, Department of Computer Science at SBASSE and founding member of the Energy Institute, shared his vision and the purpose of this institution during the event.



A SYMPOSIUM ON SMART METERING IN COLLABORATION WITH K-ELECTRIC

Syed Babar Ali School of Science and Engineering (SBASSE) conducted a Symposium on 'Smart Metering' in Collaboration with K-Electric on November 29, 2018 at CS Smart Lab, Lahore University of Management Sciences (LUMS). The event was attended by different renowned electric companies including K-Electric, LESCO, MEPCO, IESCO, TESCO, PESCO, NEPRA, NTDC, USAID, Tetra Tech, Alter Consulting, PITC, KICS, BarqBox, Techlogix Pakistan, Hassan & Hassan Advocates. Considering diversity of angles within the electrical and technological domains, the conference discussed and threw light on number of terms and concepts in order to discuss the bigger picture, from 'Smart Metering' to 'Advance Metering,' many applications were talked about.

Key points of the symposium were; Smart metering is about consumer-end, which if not

covered as an essential goal, it will not do justice to energy sector improvement policies. Therefore, consumer must be the centre of attention. Lots and lots of data will help in proper segmentation of consumers to determine their behaviour and consumption requirements. Second important section in energy chain development is Networking i.e. proper networking must be applied so that the data availability to field is before time.

According to a case study at K-Electric, bill recovery increases as the accuracy in billing improves. Components of Advance Metering Infrastructure (AMI) are Smart Meters, Communication platform, Head-Ends, Billing Engines, Meter Data Management (MDM) unit and Analytics.

Symposium concluded with exchange of a number of new ideas along with multiple proposals for solutions.



SYED BABAR ALI SCHOOL OF SCIENCE AND ENGINEERING HONoured ITS BRIGHTEST STUDENTS AT DEAN'S HONOUR LIST CEREMONY 2018

The annual Dean's Honour List Ceremony for the undergraduate students of Syed Babar Ali School of Science and Engineering, was held on Friday, November 16, 2018. Students, parents and faculty members from all the departments of the school participated in the event. The ceremony was arranged by Dean's Office, and was held in the school lawns.

The ceremony commenced with the recitation of the Holy Quran, followed by the opening address of Dr. Shahid Masud, Dean SBASSE, who congratulated the students on their outstanding performance and for making it to Dean's Honour List. In his address, he urged students to thank Almighty for giving such an opportunity and platform in life to display the best of their abilities. He encouraged students to acknowledge the support and guidance they receive from their parents in general and the instructors at LUMS in particular. Afterwards, Dr. Muhammad Sabieh Anwar, who was Master of the ceremony, called each student on the stage to receive their certificates from the Vice Chancellor, Dr. Arshad Ahmad, Mr. Shahid Hussain (Member LUMS board of

trustees) and Prof. Shahid Masud, Dean SBASSE, while the parents beamed with pride. 33 students from SBASSE Batch 2019, 32 from Batch 2020 and 53 from Batch 2021 were awarded the certificates.

Dr. Sabieh then requested VC to address the students and their parents. VC commended students for their accomplishments and parents for their right upbringing. Dr. Ahmad narrated few inspirational success stories of students; starting from a rather humble background and

have reached the Dean's Honour List of this esteemed institution. Chief guest of the ceremony, Syed Babar Ali, also addressed the students and congratulated on their commendable effort. He encouraged students to expand the horizon of their learning and threw light upon taking full advantages of interdisciplinary programmes which can help keeping them conscious and well informed about everything. He encouraged the students to make the most of the facilities available in the LUMS Library. The ceremony concluded with a hi-tea.



UK EDUCATIONAL DELEGATION VISITED SBASSE TO ENHANCE FUTURE LINKAGES

The Lahore University of Management Sciences (LUMS) was delighted to welcome prominent educational leaders from across the United Kingdom on Thursday, November 29, 2018. At the Syed Babar Ali School of Science and Engineering (SBASSE), Dean, Dr. Shahid Masud introduced the school, and the different centres housed there including the Centre for Water Informatics and Technology, and an Energy Centre just inaugurated the same morning. He also took the delegation to the National Incubation Centre and introduced students working on entrepreneurial projects at par with international standards. The SBASSE faculty shared their diverse research projects and initiatives to address different issues the country is facing at the moment, including water scarcity, energy crisis, and other challenges and how the School is contributing towards addressing these issues in more effective and efficient ways. Liz Dempsey,

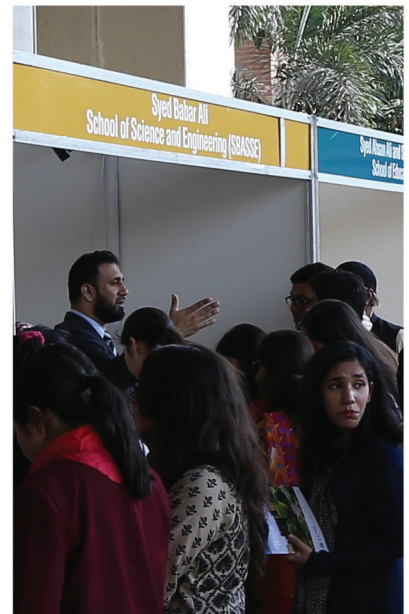
British Council Manchester, appreciated the School and said that the enthusiasm and the academic confidence is manifest. She expressed the desire to work on student exchange programmes.



OPEN DAY 2018

An Open Day was organised at LUMS on Sunday, November 18, 2018. The Open Day 2018 gave students a comprehensive insight into diverse opportunities that they can avail at LUMS. The team of SBASSE Academic Affairs Office offered full support and individual counselling to all the prospective students.

Separate information sessions for MS and BS programmes were also arranged throughout the day. Addressing the audience during the SBASSE Undergraduate session, Prof. Shahid Masud, Dean said, "LUMS shapes its programmes in such a way that it becomes convenient for students to work across diverse disciplines with a flexible approach. It is our priority to ensure that numerous doors are opened for our students."



WIT ORGANISED FOCUSED GROUP DISCUSSIONS: PUNJAB AGRICULTURE DISASTER RISK MANAGEMENT

Centre for Water Informatics and Technology (WIT-SBASSE) in support with Food and Agriculture Organization (FAO) and the Department of Agriculture held a day-long Focused Group Discussion on, 'Provincial Agriculture Disaster Risk Management Operational Plan' (ADMOP) for Punjab on October 18, 2018, organised at the Lahore University of Management Sciences (LUMS). Under the supervision of Dr. Mahmood Ahmed, LUMS team included, Dr. Abubakar Muhammad, Dr. Sanval Nasim, Dr. Saher Asad and Dr. Asif Khan. The objective of the group was to develop a comprehensive Agriculture Disaster Risk Management Operational plans and propose implementation structures and guidelines for the Province. An enthusiastic and tremendous participation of approximately forty representatives was witnessed from not only

the social sector but also academia, industrial, public and welfare sectors from all over Pakistan. The process of Focus Group Discussions (FGD) brought a clear idea of main building blocks of strategic options that were:

- Understanding of main hazards and their

implications on agriculture

- Institutional and farmer capacity to cope with agriculture DRM
- Adaptation and mitigation measures (planned and in practice) in DRM
- Identification of strategic goals and plans



SINDH AGRICULTURE DISASTER RISK MANAGEMENT

Centre for Water Informatics and Technology (WIT-SBASSE) in support with Food and Agriculture Organization (FAO) and the Department of Agriculture held a Focused Group Discussion on, 'Provincial Agriculture Disaster Risk Management Operational Plan' (ADMOP) for Sindh on October 25, 2018 organised by the US-Pakistan Centre for Advanced Studies on Water (USPCAS-W) at Mehran University, Jamshoro, Sindh. Under the supervision of Dr. Mahmood Ahmed, LUMS team included, Dr. Abubakar Muhammad, Dr. Sanval Nasim, Dr. Saher Asad and Dr. Asif Khan. The objective of the group was to develop a comprehensive Agriculture Disaster Risk Management Operational plans and propose

implementation structures and guidelines for the Province. An enthusiastic and tremendous participation of approximately thirty

representatives was witnessed from not only the social sector but also academia, industrial, public and welfare sectors across Pakistan.



SBASSE FACULTY WON THE SHAHID HUSSAIN FOUNDATION RESEARCH GRANT

Dr. Shaper Mirza, Department of Biology at the Syed Babar Ali School of Science and Engineering, won The Shahid Hussain Foundation (SHF) research award for the selected projects under Public Health Research Grant 2018 (PHRG) of PKR 1 million. SHF, a Lahore-based organisation working to support education and health access in Lahore, launched the Public Health Research Grant 2018/19 to support innovative research in Pakistan. This was an exciting research opportunity for multidisciplinary academic and professional teams affiliated with LUMS and Shalimar Institute of Health Sciences (SIHS) working in the subject of public health, health policy, and socio-economic research.

“Investigation of hyperglycaemia mediated inflammation on risk of cardiovascular disease in type 2-diabetes”, is a collaborative research project by Dr. Mirza and Dr. Bilal bin Younas from the Diabetic Center, SIHS. Dr. Mirza

said, “This grant opportunity will allow us to explore an important relationship between diabetes and heart disease. Using a multidisciplinary approach our goal is to understand how inflammation, a characteristic of type 2-diabetes leads to heart disease. The study will identify biomarkers that will be used for developing therapies to reduce inflammation thereby reducing the risk of comorbidities, such as heart disease in type 2-diabetes.”



ELECTRICAL ENGINEERING FACULTY PRESENTED RESEARCH AT INFORMS ANNUAL MEETING, USA

Dr. Hassan Jaleel, Assistant Professor at the Department of Electrical Engineering (EE), Syed Babar Ali School of Science and Engineering (SBASSE), presented his research at INFORMS Annual Meeting, which was held on November 3, 2018, in Phoenix, AZ, USA.

Dr. Jaleel received his MS and PhD degrees in Electrical and Computer Engineering (ECE) with specialisation in Systems and Control from the Georgia Institute of Technology, Atlanta, Georgia.



INFORMS Annual Meeting is one of the most prestigious gathering in the area of Operations Research (OR) bringing together over 5,000 experts in OR domain from academia and industry. In his talk titled, “Path to Stochastic Stability,” Dr. Jaleel presented a novel framework for analysing different stochastic learning dynamics in games.



SBASSE AND MGSBSS FACULTY WON THE FACEBOOK INTEGRITY FOUNDATIONAL RESEARCH AWARD

Dr. Ihsan Ayyub Qazi, Associate Professor of Computer Science at Syed Babar Ali School of Science and Engineering (SBASSE) and Dr. Ayesha Ali, Assistant Professor of Economics at Mushtaq Ahmad Gurmani School of Humanities and Social Sciences (MGSBSS), have won the highly competitive Facebook Integrity Foundational Research Award worth \$50,000 for their proposal, "Understanding the Impact of Digital Literacy on Misinformation in Pakistan."

As part of their research, they will study the growing phenomenon of misinformation (or fake news) on social media platforms, such as Facebook and WhatsApp, in Pakistan. In particular, their work will focus on the relationship between digital literacy and the spread of misinformation on social media platforms and evaluate potential solutions for countering misinformation through a randomised control trial. Misinformation is a

challenging problem in developing countries where lower levels of literacy and limited exposure of users to technology can exacerbate the negative consequences of misinformation such as polarisation and conflict.

facebook research

SOE EDUSPEAK 2018 - COMMUNICATING PHYSICS: FROM THE CLASSROOM TO THE PLAYGROUND - CONDUCTED BY PHYSICS FACULTY

Syed Ahsan Ali and Syed Maratib Ali School of Education (SOE) organised an EduSpeak 2018 Session on November 16, 2018 with Dr. Sabieh Anwar, Associate Professor, Department of Physics, Syed Babar Ali School of Science and Engineering (SBASSE). The session revolved around an experiment of liquid nitrogen, which was performed to demonstrate the need for classroom experiments. Through the session and the experiment, Dr. Anwar emphasised upon the importance of analytical skills gained through experiments along with text book

theoretical knowledge. He mentioned how the sole focus on theoretical concepts in the Pakistani curriculum does not leave room for any creativity, and that for concepts to be communicated in an engaging manner, they need to tell a story which can only happen through class room experimentation. Dr. Anwar completed his DPhil from the Department of Physics, Oxford University in 2004, where he studied as a Rhodes Scholar from Pakistan. Dr. Anwar is also the Joint Secretary and one of the founders of the

Khwarizmi Science Society, a non-profit organisation aiming at developing a science culture in Lahore's educational institutions. He is also a recipient of ICTP Physics Prize for the year 2008 as well as Aizaz-e-Sabqat from the Government of Pakistan. The event was attended by the Founder and Pro Chancellor LUMS, Syed Babar Ali, Dean, SOE, Dr. Tahir Andrabi, Associate Dean, SOE, Dr. Mariam Chughtai, LUMS faculty and students. Dr. Tayyaba Tamim, Associate Professor, SOE moderated the event.

PHYSICS FACULTY DELIVERED IEEE GUEST LECTURE AT ITU, LAHORE

Dr. Muhammad Faryad, Assistant Professor and Chair, Physics Department at the Syed Babar Ali School of Science and Engineering (SBASSE), LUMS delivered a lecture titled, "Green Functions in Electromagnetism and Optics" on Tuesday, November 20, 2018 at the Department of Electrical Engineering, Information Technology University of the Punjab, Lahore. In his lecture, Dr. Faryad introduced the scalar and dyadic green functions in electromagnetics and optics. He shared that in any linear system the input and the output are connected by means of a linear operator and when the input can be notionally represented by a function

that is null valued everywhere except at a specific location in space time, the corresponding output is called the 'green function' in field theories. "The scalar and dyadic green functions are commonplace in electromagnetics and optics, because both the input and the output are functions of space and time," he elaborated.

Dr. Faryad also introduced a survey of the state-of-the-art knowledge of scalar and infinite-space dyadic green functions. The talk was attended by graduate students working in electromagnetics, advanced mathematics and optics.



WORKSHOP ORGANISED ON BIG DATA AND CLOUD COMPUTING – BIGC 2018

Syed Babar Ali School of Science and Engineering (SBASSE), held a workshop from December 22-23, 2018, on 'Big Data and Cloud Computing (BigC 2018)'. The objective of this workshop was to provide a platform to researchers, students, and practitioners to discuss the cutting edge research and state-of-the-art industry solutions in the Big Data and cloud computing area.



The workshop included talks from experts in academia, industry, and government. A panel discussion was also conducted on how Big Data and Cloud Computing technologies can be used to solve problems of national importance as well as meeting the sustainable development goals. The workshop was intended for students, researchers, and practitioners focusing on Big Data, IoTs, and cloud computing. Relevant topics included:

- Big Data Analytics and Visualisation
- Big Data Infrastructure and Management
- Social Media Analytics
- Service Orchestration and Management
- Cloud /Edge/Fog Computing
- Internet of Things
- Internetworking and DevOps
- Security, Privacy, and Legal Issues
- Applications: E-Government, E-Health, E-Agriculture, E-Learning, Smart City, Smart Grid.

Following are the international speakers who participated in the event:

- Dr. Anjum Majeed, Senior Advisor Information

Technology, Global Rescue LLC, Boston, Massachusetts USA and GRID Systems (pvt) Ltd. Islamabad, Pakistan

- Dr. Annika Hinze, Associate Professor, University of Waikato, New Zealand
- Dr. Ashiq Anjum, Professor, College of Engineering and Technology, University of Derby, UK
- Dr. Atif Ahmad, Senior Academic, Computing & Information Systems, University of Melbourne
- Dr. Omer Rana, Professor of Performance Engineering, School of Computer Science and Informatics, Cardiff University
- Dr. Rafae Bhatti, Director of Security and Compliance, Mode Analytics, USA
- Dr. Shazia Sadiq, Professor of Data and Knowledge Engineering, School of Information Technology and Electrical Engineering, The University of Queensland

SBASSE ORGANISED A SAFETY WORKSHOP

It is of vital significance to ensure and practice safety at workplace. For this purpose, the Syed Babar Ali School of Science and Engineering (SBASSE) engaged in organising various training sessions. The most recent safety training workshop was held on December 19, 2018 in collaboration with OSALP. The training workshop delved deep into safety aspects of lab safety, first aid and firefighting. It was intended to provide empowering information with practical based approach on corrective measures to be taken in case of emergency and hazardous conditions and how to reduce the risk of fire, injury or incident. There were 19 technical/research staff members from all SBASSE departments who attended the workshop. An Automated External Defibrillator (AED) was also introduced to the participants which is a portable device that delivers an electric shock through the chest to the heart.

SESSION ON DRUG DISCOVERY ORGANISED BY DEPARTMENT OF CHEMISTRY & CHEMICAL ENGINEERING

The Department of Chemistry and Chemical Engineering hosted a session on Drug Discovery on November 9, 2018. This was a part of the Department's newly launched lecture series that triggered a very healthy discussion among the audience.

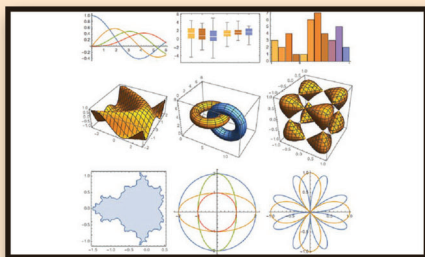
"Influenza A viruses are important veterinary and human health pathogens across the globe. Epidemiological studies of viral infections, and the development of new effective antiviral drugs are essential for controlling these pathogens," explained Dr. Mamoona Chaudhry, the speaker at the event. Dr. Chaudhry is currently working as Associate Professor in the Department of Epidemiology and Public Health, UVAS, Lahore. Her area of expertise is infectious disease epidemiology and she is leading an influenza group in Pakistan. Her research focuses on diseases at Human-Animal Interface. She has been awarded several research grants and travel fellowships by various funding agencies both nationally and internationally. Recently, she has won research grant by Pak-US Science and Technology Cooperation Program as lead PI in Pakistan in collaboration with WHO Collaborating Centre for Influenza, St. Jude Children's Research Hospital, Memphis, Tennessee, USA. The session was well attended by undergraduate and graduate students of the Department.



PHYSICS DEPARTMENT AND SPIE ORGANISED HANDS-ON WORKSHOP ON MATHEMATICA

Physics Department at Syed Babar Ali School of Science and Engineering (SBASSE), Lahore University of Management Sciences with the collaboration of LUMS SPIE Chapter organised a Hands-on Workshop on 'Mathematica' on Wednesday, November 14, 2018. Mr. Farid Pasha from Wolfram Research Inc. was the guest speaker at the workshop. The SPIE is the International Society for Photo-Optical Engineers and its chapter was established at LUMS in 2018.

The workshop trained the participants in Notebook Environment, Basic Computing, Making Interactive Models, Sharing Mathematica Documents, 2D and 3D Graphics, Visualising Data, Algebraic Manipulation, Calculus, Importing Data and Writing Functions. Moreover, the workshop discussed different methods to enter calculations and equation solving. The workshop was attended by graduate and undergraduate students, faculty, and staff from the Physics Department.



SEMINAR HELD ON COMPUTATIONAL CHEMISTRY BY CHEMISTRY & CHEMICAL ENGINEERING DEPARTMENT

As a part of its recently launched seminar series, the Department of Chemistry and Chemical Engineering organised a seminar on 'Computational Chemistry' on November 23, 2018. Dr. Farooq A. Kiani from the University of Heidelberg, Germany, was the guest speaker for the event.

During the talk, Dr. Kiani described the role of computational methods in understanding the production of energy in muscle cells. He showed how a combination of classical and quantum mechanical simulations are being used to help understand the movement of proteins and production of energy in the muscle cells. "For their contraction and relaxation, muscles need energy that is obtained by the catalytic hydrolysis of an energy rich compound (ATP)," he elaborated.

About the Speaker:
Dr. Kiani has years of experience on the applications of the Computational Chemistry in understanding biological and chemical systems. He currently works as a Visiting Scientist at Heidelberg University in Germany.



CASM ORGANISED WINTER MASTERCLASS

Centre for Advanced Studies in Mathematics, organised a workshop on, 'Winter Masterclass in Mathematical and Computational Finance for Scientists and Engineers', from December 26-30, 2018.

The aim of the course was to present a combination of the mathematical and computational based concepts which have practical uses in the global financial sector. The pace at which modern finance continues to grow has been possible due to the availability of advanced mathematics and computational power. At the centre of these advances is the noticeable contribution of graduates trained in hard science, computing and engineering disciplines.

This has allowed the financial markets to become increasingly sophisticated as well as the emergence of new complex financial products and markets. Alternative names for this branch of mathematical science are Mathematical Finance, Financial Mathematics and Financial Engineering. All of them rely on the provision of well-trained scientists with interests in finance.

The workshop was conducted by mathematicians who all have interests and skills in technical finance at both academic and professional levels.

Speakers:

- Dr. Sultan Sial, Associate Professor, Programme Director
- Dr. Adnan Khan, Associate Professor, Dean Students Affairs
- Dr. Riaz Ahmad, International Researcher and Visiting Faculty
- Dr. Azmat Hussain, Adjunct Faculty

FROM IMPACT FACTOR TO IMPACT APPLIED RESEARCH FOR PAKISTAN

Department of Electrical Engineering held a talk on, "From Impact Factor to Impact Applied Research for Pakistan," on Friday, November 16, 2018. The talk was conducted by Dr. Syed Muhammad Raza Kazmi.

Abstract of the talk: Pakistan is the land of opportunity for a thoroughbred engineer who seeks, in every problem, an opportunity to innovate. An aspiration is long-lasting if its inspiration is derived from the problems that we live in. An engineering solution to such a problem, that can truly deliver an impact, is a journey from strong concepts and analytical skills to market-ready system design with a bit of out of the box thinking – the process known as applied research. This talk encompassed those applied research projects that have been carried out for Pakistan by Dr. Kazmi.

About the speaker:

Syed Muhammad Raza Kazmi did his Bachelors in Electronics Engineering from GIKI in 1999. He earned his Master's in Systems and Control with High Distinction from the University of New South Wales, Australia in 2001, for which he won the merit based S&T Scholarship. He then served till 2005 at NUST as Lecturer. Then he won the Japanese MEXT Scholarship for PhD which he accomplished from Tohoku University Japan in 2010. He was then offered two Postdoctoral Fellowships, first in New Energy and Industrial Technology Development Organization (NEDO) Japan till 2011 and the other at The University of Adelaide Australia as Australian Research Council Fellow till 2012. Since September 2012, he has served at NUST as Assistant Professor.

PLANT DEFENSE REINFORCEMENT IN THE SOLANACEAE FAMILY

Department of Biology held a talk on Wednesday, October 3, 2018, and the topic was "Metabolic Engineering of Cholesterol and Steroidal Glycoalkaloid Biosynthesis Results in Plant Defense Reinforcement in the Solanaceae Family." The talk was hosted by Dr. Amir Faisal, Associate Professor at the Department of Biology and the guest speaker was Dr. Usman Arif.

Abstract of the talk: Plants display an array of secondary metabolites that play pivotal role in plant defense, interaction with environment and pharmaceutical industry. In some Solanaceae family members, Steroidal glycoalkaloid (SGA) are specialised metabolites that contribute to plant defense against insects and pathogens. There is little information available about SGA biosynthesis although cholesterol is generally considered as possible precursor of SGA. This talk covered identification and characterisation of key genes catalysing rate-limiting steps involved in cholesterol and SGA biosynthesis.

About the Speaker:

Dr. Usman Arif earned his PhD Biology from Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden and did his Postdoctorate at Royal Institute of Technology (KTH), Stockholm, Sweden. Currently, he is working as an Assistant Professor at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan.



SEMINAR FOR INSTRUCTORS ON DEFINING & ASSESSING LEARNING IN COURSES – AN OBJECTIVE APPROACH

A seminar on, "Definition and Assessing Learning in Courses – An Objective Approach," was held on October 26, 2018 and led by Dr. Nadeem Khan from the Department of Electrical Engineering, who provided the opportunity to the faculty and staff of the Electrical Engineering Department of to share their experiences and requirements with regard to the implementation of Outcome Based System in its undergraduate Electrical Engineering (EE) Programme.

The LUMS EE Undergraduate Programme is among the few engineering programmes that are accredited by the PEC as a Tier-2 OBE accredited programme. The programme also enjoys the status of being treated under the Washington accord as a Bachelors programme whose degree holds equivalence to engineering degrees earned in the member states including US, UK, Japan, Australia, Singapore, Malaysia etc.

The seminar highlighted how teachers, students, and institutions can benefit in terms of improving the teaching and learning process associated with the OBE system.



STUDENT NEWS

ASPIRING COMPUTER SCIENTISTS COMPETED AT CODINGURU 2018

IEEE LUMS Student Chapter organised CodinGuru 2018 on December 1, 2018, in collaboration with Department of Computer Science, where 52 teams from various universities from across Pakistan participated.

Aspiring Computer Scientists from LUMS, FAST, PUCIT, BNU, COMSATS and FCCU took part in an exciting competition, which comprised five interesting problems to solve i.e. Food distribution, Dam Water Storage, Introvert Computer Scientist, Chess King and Coloured Balls Sequence. The teams were allowed to use any of the three languages namely C++, Java and Python and automated checking was used with PC square.

The judges of the competition were Computer Science Juniors at LUMS, Aafaq Sabir, Taimoor

Ali, Saad Khan, Soban Ali, Naima Samreen and Azan Bin Zahid. The competition commenced with the registration of the 52 teams and a brief on the rules and regulations. Testing software, PC2 was handed over to the teams and the marking scheme was explained.

The teams "Nemesis" and "Hackermen" had a strong competition right from the start and the hustle was increased by the tickle of live score board. Eventually, after a hectic competition Team Nemesis made it to the top of scoreboard. The results were compiled and Dr. Arif Zaman presented a cash prize of PKR 30,000 to the winner team, Nemesis which included team members, Waqar Ahmad and Muhammad Hasan (PUCIT). Shields were presented to the 1st Runner Up, Team Hackermen, Ammar Tahir and Abdul Mannan (LUMS)

and the 2nd Runner Up, Team StrawHats, Usama Ikram and Junaid Haris (PUCIT). Certificates were presented to all the participants by the judges. Special guests at CodinGurus included, Dr. Arif Zaman and Dr. Muhammad Hamad Alizai. Dr. Zaman is a Pakistani Mathematician, an Academic Scientist and a Professor of Statistics and Mathematics at LUMS. Before joining LUMS in 1994, he served at the Statistics Department of Purdue University and Florida State University.

CodinGuru is a coding competition, arranged with the objective to promote coding and computer science in local community and to conduct a state-of-the-art coding competition at LUMS.

FIELD TRIP TO NKLP GRID STATION

To enhance the learning through practical exposure, a field trip for the students of the Electrical Engineering Department was organised on Saturday, November 10, 2018. Students from the class of power system protection and stability visited 220 kV New Kot Lakhpat (NKLP) Grid, under the supervision of Dr. Mashood Nasir, Visiting Assistant Professor in

the Department of Electrical Engineering. During this study visit, students had the opportunity to observe various protection devices/schemes and their operation in a grid environment. The field trip helped students grasping various concepts they have studied in the class and also enhanced their research interest in the area of power system protection.



EE GRADUATE WINS AWARD AT THE 17TH SHAUKAT KHANUM CANCER SYMPOSIUM 2018

Bilal Majeed, an MS Electrical Engineering graduate won the award for the "Best Poster Presentation" at the 17th Shaukat Khanum Cancer Symposium 2018, held from November 2-4, 2018. Three posters out of a total of 178 submitted posters were selected as the best and Majeed's poster was one of them.

Majeed is also conducting research under the supervision of Dr. M. Awais Bin Altaf, faculty at the LUMS Electrical Engineering Department.

"We are working on prototyping an infrared based handheld portable off the shelf early stage breast cancer screening device. I presented the work in symposium which was done till the completion of my thesis in May 2018," he elaborated. Majeed's research has been funded by LUMS through Faculty Initiative Fund (FIF). He also shared that Biomedical Engineering has a lot of opportunities, funding and open problems available worldwide and urged LUMS science and engineering students

to enter this exciting field. Bilal Majeed is currently a Lecturer at the Engineering Campus, The University of Faisalabad.



MATHEMATICS DEPARTMENT SIGNED MOU WITH AFINITI

The Department of Mathematics has signed an agreement with Afiniti, Services (Private) Ltd., which provides a marvellous opportunity to the students in the form of a scholarship. The funds are available to the students (choosing Math or Econ-Math as a major) in the form of scholarships in an amount equal to 25% of the tuition fee for his/her education at LUMS. The funds are used to provide financial assistance to up to ten

students each academic year for up to 4 years until the total number of students assisted reaches 40. The students will be given employment of 40 Jobs at AFINITI with a handsome market competitive salary per month at the time of graduation.

Recently, three students of the batch of 2018 got selected at AFINITI in software solutions.

Following is the list of students:

Mohibullah Khan Shirazi	<i>Research Engineer</i>
Areesha Najam	<i>Data Analyst</i>
Omar Iqbal	<i>Data Analyst</i>



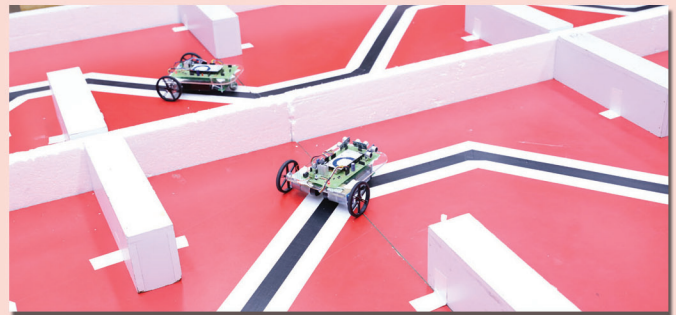
EE ORGANISED ROBOTIC COMPETITION – PART OF FINAL MODULE FOR EE-100 COURSE

The Department of Electrical Engineering organised a Robotic Competition on December 13, 2018 which was part of final module for EE-100 course. The goal of this event was to demonstrate the knowledge and skills which students have learned during this course,

furthermore, to motivate them towards Electrical Engineering.

Thirty-four teams, each comprising of four to five students competed with each other to create a fastest line following or obstacle avoiding robot. The students were provided

basic components (motors, sensors, discrete electronic components) to assemble their robots. The winning team "Desi Wall-E" traversed track in just 42 seconds while the runner-up's "Ghauri" traversed the track in 44.5 seconds.



IEEE LUMS ENCOURAGES WOMEN TO JOIN STEM FIELDS AT THE NATIONAL YOUTH SUMMIT PAKISTAN 2018

The LUMS Campus Climate Unit and the Extra-Curricular Activities (ECA), Office of the Dean of Student Affairs, in collaboration with three universities, the Student Council, ten student societies, and four non-profit organisations from the development sector came together to organise a conference on, "Peace Building and National Integration" at the National Youth Summit Pakistan 2018. The Conference was held at the University of Azad Jammu and Kashmir from October 17-19, 2018.

The SBASSE delegates representing IEEE LUMS at the conference were Kashmala Usmani, President IEEE WIE (Women in Engineering), Efra Usmani, President IEEE PES (Power and Energy Society) and Azan Bin Zahid, Vice President IEEE. The National Youth Summit Pakistan 2018 presented an amazing opportunity to the youth of the nation to present their ideas and views on issues pertaining to national importance. The chief guests at the conference were some of the

prominent government leaders, including Mr. Masood Khan, President of Azad Jammu and Kashmir, Shehryar Afridi, Interior Minister and Justice Jawad S. Khawaja, former Chief Justice of Pakistan.

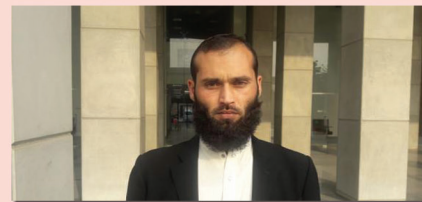


CHEMISTRY GRADUATE STUDENT PUBLISHES REVIEW ARTICLE IN A HIGH IMPACT JOURNAL

Akhtar Munir, a PhD Chemistry student under the supervision of Dr. Irshad Hussain, faculty at the Department of Chemistry and Chemical Engineering, has published a review article in ChemSusChem, a peer-reviewed interdisciplinary journal published by Wiley-VCH. ChemSusChem (impact factor 7.4). It publishes cutting edge research and review articles at the interface of energy and sustainability covering various aspects of chemistry, catalysis, materials

science, chemical engineering and biotechnology. This review article discusses the decent catalytic role of extremely small (< 2 nanometer) aggregates of metal atoms (generally known as metal nanoclusters) for the photo-electrocatalytic hydrogen production from water, as a light harvesting antenna in the solar cell and conversion of carbon dioxide into potential fuels. These processes are extremely important

to develop renewable energy technologies to ensure the production of clean and sustainable energy resulting in less global warming and improved public health.



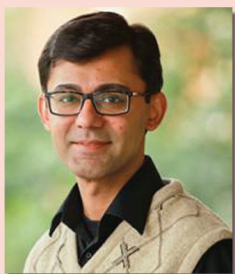
SBASSE STUDENTS SHINE IN GRE PHYSICS EXAM

The Graduate Record Examinations (GRE) Physics subject test has almost become a benchmark for competitiveness for admission into top US Graduate Programmes in Experimental and Theoretical Physics. This year students from the 2017, 2018 and 2019 Physics batches sat for the exam. We are proud to share that nearly 90 % of the undergraduate students scored more than 900 marks out of 990.

The Department is proud of its students for their hard work and focus on the fundamentals. Furthermore, it wishes them all the best in postgraduate applications, and hopes that they continue to become leading researchers in their areas of interest.

Hamza Ahmed	920	86%
Bilal Khalid	990	94%
Sheikh Nauman	930	88%
Asad Hussain	980	93%
Sharoon Austin	910	85%
Muhammad Qasim	930	88%
Maryam Mudassar	920	86%

FACULTY NEWS



• Dr. Aziz Mithani has been promoted to Tenured Associate Professor in the Department of Biology.



• Dr. Tajdar Mufti has joined as an Assistant Professor in the Department of Physics.

GOOD BYES

Following members have left SBASSE, we wish them every success in their future endeavours.

Faculty Members:

- Dr. Syeda Kahkeshan Hijazi – Department of Biology
- Dr. Ahmed Jawaad Afzal – Department of Biology
- Dr. Usman Khan – Department of Chemistry and Chemical Engineering

Staff Members:

- Hafiz Asad Hamid, Deputy Manager, Dean's Office, has left after 9 years of service at LUMS.

STAFF NEWS



• Mr. Ch. Mansoor Asif has joined as Lab Facilitator in the Department of Electrical Engineering.



• Mr. Wajid Javaid has joined as an Assistant Manager, Dean's Office SBASSE.



• Mr. Waseem Asad has joined as Lab Technician in the Department of Electrical Engineering.

NUCLEAR MAGNETIC RESONANCE LAB - A STATE-OF-THE-ART FACILITY

In January 2018, members of the Advisory Board of Syed Babar Ali School of Science and Engineering (SBASSE) inaugurated the Nuclear Magnetic Resonance (NMR) facility at SBASSE to improve education standards and boost research in diverse areas of Biology and Chemistry. Establishment of such state-of-the-art facility was the result of a generous support from Syed Babar Ali and this was the first high resolution NMR with frequency of 600 MHz installed in the Punjab province. The NMR facility at LUMS has hugely benefited the teaching and research at Biology, and Chemistry and Chemical Engineering Departments. Several research areas including, drug discovery, organic synthesis, polymers, organic electronic materials, nano materials, metal-organic frameworks, mechanism of infections, vaccine design, protein structural biology and metabolomics have been boosted by the establishment of NMR facility at LUMS.

Within a year of NMR arrival, following success stories in NMR assisted research have emerged which highlight the significance of this facility.

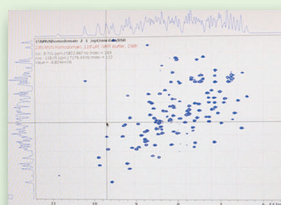
1. Bioorganic and Medicinal Chemistry (BMC) group, led by Dr. Muhammad Saeed at Chemistry and Chemical Engineering Department, discovered a potent inhibitor of dengue virus protease from cloves. The discovery was the result of a joint interdisciplinary effort between the research group of Dr. Muhammad Saeed and Dr. Syed Shahzadul Hussan at the Department of Biology. This work has been accepted for a research publication in ACS Omega, a journal published by the American Chemical Society.

2. Catalysis and Green Chemistry Group led by Dr. Ghayoor Abbas Chotana recently published synthesis of halogen decorated para-/meta-hydroxy-benzoate molecules in the journal "Synthesis." This work describes preparation of new bioactive derivative of aspirin. Moreover, this group has developed a new methodology for the preparation of chiral arylboronic esters for the asymmetric synthesis of drugs.

3. Biochemistry and Structural Biology (BSB) Laboratory, led by Dr. Syed Shahzad ul Hussan engineered an antiviral protein that potently inhibits HIV entry to the target cell. This discovery is under the process of a patent.

4. The Organic and Medicinal Chemistry group of Dr. Rahman Shah Zaib Saleem, in two different collaborations with Dr. Ghayoor Abbas and Dr. Amir Faisal has developed a novel three-component organic reaction and identified novel lead compounds that overcome multidrug resistance in cancer cells.

Besides these success stories, several research publications in different research areas particularly in organic synthesis of potential cancer therapeutics, drug discoveries against HCV, HIV and Dengue virus are in the pipeline. This facility is not only significantly supporting research at SBASSE but also provides an opportunity to undergraduates and graduate students to learn one of the state-of-the-art scientific techniques.





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