Electrical Engineering CIIT Lahore

Newsletter

July 2015 - December 2015

IN THIS ISSUE

by,

Newsletter Committee

Ms. Amna Arif (Lecturer EE Dept)

Ms. Ramsha Bukhari (Lecturer EE Dept)

Message From HoD(EE)

On behalf of EE department I would like to welcome and congratulate Professor Dr. Qaisar Abbas, on assuming the position of Director, CIIT, Lahore campus. We hope that under his dynamic leadership, CIIT Lahore would gain new heights and add new dimensions. At this point, heartiest congratulations to all CIIT family on the excellent progress in research productivity.

I would like to present an overview of EE department's activities over the last period of, July-December 2015 in this message. Our major contribution has been on the accreditation front for our engineering programs, whether it be Pakistan Engineering Council or IET. We have worked hard at updating our lab manuals, our course files and at mapping our course learning outcomes in line with the regulatory body requirements. In a short period of time, most of the laboratory manuals were revised twice. The latest revision process was initiated with the guidance from senior faculty members from Islamabad campus, a perfect example of COMSATS family members facilitating one another in time of need. With a new concept of "Design Aspect" to be instilled in our laboratory experiments, the junior and senior faculty members came together to work extra hours and produce laboratory manuals with a new dimension included in each. In a similar manner, faculty members produced course handbooks with mapping to IET defined learning outcomes. I would like to appreciate the PEC and IET Accreditation teams of EE department on their hard work.

On industrial liaison front, we have been continuously striving to strengthen the academia-industry relationship through the untiring efforts of our departmental team. Our students have been trained in the LabView academy and some of these students successfully passed the Certified LabView Associate Developer exam.

Our ranks have been reinforced by newly joined faculty members, whether they are fresh MS or PhD graduates, who have returned from various countries after successfully completing their respective degree requirements, thus representing the success story of CIIT's faculty development program. Our researchers have enhanced the motivation of the rest of the faculty members by producing high Impact factor research publications. Our FYPs won National ICT R & D funding under the supervision of our PhD faculty members.

Last but not the least our students have been making us proud, whether they are curricular, co-curricular and extracurricular activities. EE department made an impact through a joint effort in the form of TechFest 2015 by its IEEE Student Branch and IET Student's Chapter in student's week. The WIE affinity group of CIIT IEEE Student Branch won the best WIE IEEE award at the IEEE Lahore Section AGM held at LUMS on December 29, 2015 and our student bagged the runner up Volunteer for WIE for 2015. Our Final Year Project supervised by Dr. Mirza Tariq Humayun Assistant professor, EE Dept., won the second position at FIT 2015 FYP competition in Islamabad.

These success stories speak volumes of the tremendous effort and dedicated work of our students and faculty members. However, our goal is not to consider this our destination, we have just embarked on a long and tedious journey, where we see landmark achievements on our way, and get motivated to keep moving ahead with same zeal and fervor to achieve greater goals. I would like to thank my faculty and staff members who contribute to everyday routine work in the department.

Thank you.

Dr. Sobia Baig

H.o.D. EE Department

CIIT Lahore.

Congratulations!

Congratulations to Dr. Qaiser Abbas on Assuming the Post of Director CIIT Lahore

Prof. Dr. Qaisar Abbas holds PhD degree in Human Resource Development from Nankai University Tianjin China and has a Post-Doctoral Research experience at Cardiff Business School, Cardiff University, UK. Over the years, he has also assumed various additional responsibilities at CIIT including, Dean Faculty of Business Administration, Provost, Chief Proctor, Project Director of Infrastructure Development Project CIIT, Member of Campus Selection Committee, Convener Campus Inspection Committee, Convener Board of Stud-ies of Management Sciences, and Member Board of Faculties of Business Administration and Information Sciences. His efforts towards the establishment of a world class business school at CIIT are worth mentioning. We hope that the Lahore Campus will touch new heights under his kind guidance.

Faculty Dinner

EE Department arranged a faculty dinner on Wednesday, September 16, 2015, at Salt and Pepper grill which was graced by the worthy Director and Director Partnership, Lancaster University, UK.

Participation of HoD in National Instruments

The 21st annual National Instruments Week conference presented by NI begins on August 3 in Austin, Texas, and once again brings together the brightest minds in engineering and science. HOD (EE) attended the event from August 3-6, 2015 and held meetings for international collaboration with National Instruments and international funding agency.

Training Sessions

- A training session for equipment in Communication System Lab by National Instruments (NI) was held on Tuesday, September 15, 2015.
- A training session for new equipment in Control Systems Lab for Lab Engineers/Research Associates by National Instruments (NI) was held on Wednesday, September 16, 2015 .
- Dr. Mirza Tariq Hamayun, Mr. Athar Hanif and Syed M. Nawazish Ali attended a Training and Installation session of Electric Machines Trainer at Muhammad Ali Jinnah University, Islamabad on Thursday, September 17, 2015.
- A meeting of IEEE Control Systems Society (Lahore chapter) was held on October 02,2015 at 04:15 P.M in the Conference Room KICS, UET Lahore. The meeting was chaired by Dr. Aamer Iqbal Bhatti, a well known expert and researcher in Pakistan in Control Systems. Three members from CIIT Lahore attended the meeting, Dr. Tariq Hamayun, Mr. Athar, Assistant Professors and Mr. Nawazish, Research Associate from EE department. The chair has given the designation of Coordinator IEEE CSS (Lahore
- Dr. Tariq Hamayun, Mr. Athar Hanif, Mr. Zulfiqar Khalid, Assistant Professors and Syed M. Nawazish Ali, Research Associate participated the IEEE symposium on “Recent Advances in Control Engineering” at PIEAS, Islamabad on Tuesday, October 20, 2015.

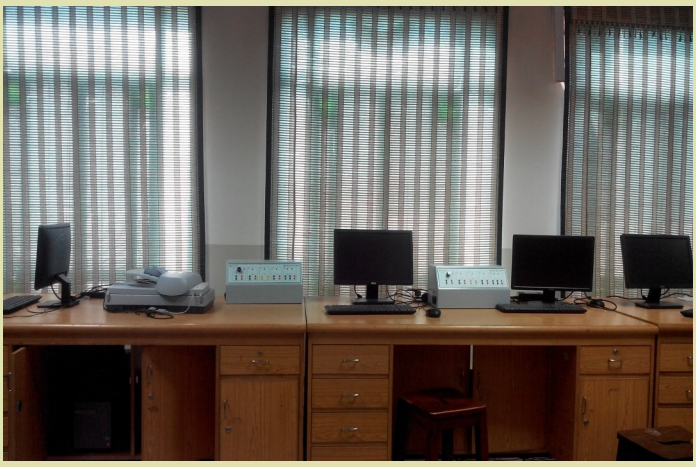
Establishment of New Labs

The EE department keeps its labs up to date so that the EE students become familiar with the latest technology. We have established new laboratories i.e Electrical Machines Lab , and Power and Industrial Electronics Lab. Moreover we have updated the equipment in Control Systems and EMI Lab.







Mehfil-e-Mushaira

Mehfil-e-Mushaira was held on Monday, November 02, 2015 during the student week and Dr. Muhammad Naeem Shehzad, AP-EE presented his poetic work. In musahira various famous and prominent poets of the country like Mr. Zahid Fakhri, Mr. Abbas Tabish, Mr. Nazir Qaiser, Ms. Sughra Sadaf, Mr. Hafeez Tahir, Rakhshanda Tanveer, Mr. Jamsheed Azam, Ms. Afshan Shehzad, Mr. Saleem Tahir, Mr. Israr Chishti and Dr. Naeem Shehzad participated and graced the occasion.

EE Students Achievement

Certified Lab View Associate Developer (CLAD) course was passed students in last week which was arranged by the Lab View Academy (LVA) established by Department of Electrical Engineering, CIIT, Lahore. The following students cleared CLAD exam held on Friday, November 20, 2015:

Muhammad Zeeshan CIIT/DDP-FA12-BTE-065/LHR

Noman Naeem CIIT/DDP-FA11-BTE-067/LHR

Sarfraz Anwar CIIT/DDP-FA12-BTE-077/LHR

ERASMUS Delegation in CIIT

EE department organized the visit of Erasmus + delegation in CIIT, Lahore to provide knowledge and relevant information regarding scholarship availability for higher study in European countries.

EE Faculty Member Nominated for a Policy Making Role in PEC

Mr. Jawwad Gillani, Assistant Professor EE, has been nominated for a **policy making role** in **PEC (**Pakistan Engineering Council) committees along with 6 other luminaries of engineering profession in Pakistan.

Industrial Visit to Century Cement and Board Mills

An industrial visit to Century cement and board mills was arranged by EE department. The group consisted of 50 students led by Dr. Naeem Shehzad and Engr. Ahmed Daud. The objective of this plant visit was to help students gain first-hand information regarding application of Instruments and control in process industry. This industry was chosen because it is a practical manifestation of large processes with various automatic control systems. The students got a chance to witness a team of engineers from various fields working together in harmony to run the machinery literally and figuratively.

Industrial Visit to NTDC Grid Station

Engineering students of DDP-Fall13-BEEE visited NTDC 220 KV grid station in Wapda Town Lahore on 3 November 2015 under the supervision of Dr. Naeem Shehzad. It is one of the most modern grid stations of NTDC, using the technology of gas insulated switch gear(GIS). The site engineers briefed the students about the principle, operation and components of the grid station.

FYP Students Achievement

The Final Year Project (FYP) titled "Efficient Control of Pneumatic Cylinders PLC in a prototype development for the Modern Soap Industry" by M. Ayub, A. Adil,R. Ahmad, D. Jamshaid supervised by Dr. Mirza Tariq Hamayun, Assistant Professor, EE won the 2nd position in IEEE International Conference of Frontier of Informational Technology (FIT) 2015 project competition at Islamabad on Wednesday, December 16, 2015.

Frontiers of Information Technology 2015

13th International Conference on Frontiers of Information Technology (FIT 2015) was held on Dec 14 -16, 2015 at Islamabad Pakistan. This was the thirteenth consecutive year that COMSATS Institute of Information Technology, CIIT, was organizing this event. The information technology has changed not only individual lives but societies are emerging to be built on technology, knowledge and intelligence. Appropriate use of knowledge contributes to raising the quality of life. This year the conference theme was "Smart University: Myths and Realities". Faculty of EE Department participated in Frontier of Information Technology (FIT) 2015 at Islamabad on Monday-Wednesday, December 14-16, 2015, wherein various Final Year Projects (FYP) were presented by the Faculty/Students of EE Department.

IEEE AGM Award Received

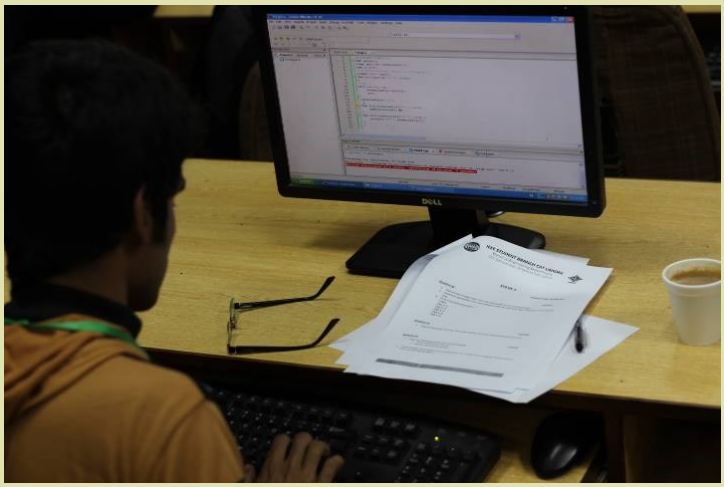
IEEE-WIE Student Branch CIIT Lahore has made the university proud once again on a provincial level amidst 15+ other branches of the society from different institutes in the Punjab province (named the Lahore Section) by winning both the awards in the IEEE-WIE category-the IEEE Lahore Section Best IEEE-WIE Student Branch Award and the runner up to IEEE -WIE Best Student Volunteer Award won by Ms. Rameesha Fatima, chairperson of IEEE-WIE CIIT Lahore.

Techfest '15

In student week FA 2015 IEEE CIIT Lahore & IEEE WIE CIIT Lahore in collaboration with IET conducted a three day festival named TECHFEST'15, from 5-7th November, 2015. Techfest '15 itself was merger of two separate events: Innofest 2.0 by IEEE and Technovate by IET. The festival, having a series of 11 competitions, was inaugurated by the worthy Director of CIIT, Dr. Qaisar Abbas. The inauguration event was attended by Dr. Sobia Baig (Councilor IEEE Student Branch), Dr. Naeem Awais (Councilor IET Student Branch), Mr. Haad Akmal (Vice Councilor IEEE Student Branch) and Mr. Ahmad Daud (Adviser IET Student Branch). The events that tested the participant's application of knowledge, physical strength, spontaneous skill and aesthetics

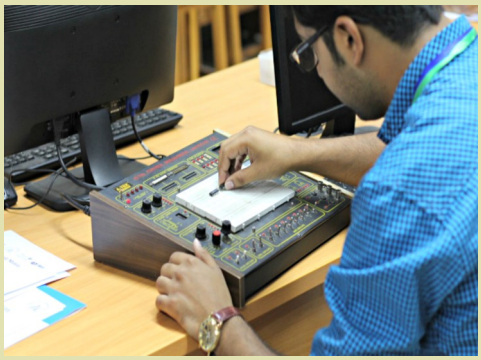
1. Coding Challenge

This competition challenged all the coders to prove their mettle in a C/C++ coding competition. Some of the finest minds fight their way out through the two hurdles of this event. The event was based on two levels i.e. the basic and advance level. Winning prize was Rs. 3000. The runners up were given certificates as well. It was jointly organized by IEEE and IET.



2. CIRCUIT MANIA

This activity was aimed at boosting the electronic design interest and capabilities of COMSATS Lahore students. The participants had to design a specific electronics application by using the components provided by the organizers. Winning prize was Rs. 3000. The runners up were given certificates as well. It was jointly organized by IEEE and IET.


3. TECHNOHUNT

The scavenger hunt, with a slight twist on the conventional scavenger hunt competition strategies. A Scavenger hunt was a co-curricular activity in which the competitors were provided a list of tasks to complete within the shortest amount of time possible. IEEE has been organizing this event since 2013. This semester with the collaboration of IET, both societies made sure to present it in a successful manner. Winning prize was Rs. 5000. The runners up were given certificates as well.



4. JUNKART-BRIDGE

Junkart competition has gained the status of an age-old cherished tradition of IEEE-WIE CIIT Lahore. The competition originated as a means to promote recycling among the masses and grew into one of the most popular events of the society. This year, improvising the original Junkart idea a little, i.e Bridge Building, a fun-filled event which tested the engineering skills and creativity. Winning prize was Rs. 3000. The runners up were given certificates as well.



5. PLAY WITH COLORS

The participants were given a specific amount of time, specific art material and some painting rules which would make the competition even more innovative. IET's organized this event. Winning prize was Rs. 3000. The runners up were given certificates as well.



6. BICYCLE RACE

Physical sports especially one as strenuous as cycling yield long lasting benefits in terms of good health and sportsman spirit, and for the very same reason a bicycle race was conducted. The race consisted of 5 rounds with 4 participants in each round. IET's organized this event. Winning prize was Rs. 3000. The runners up were given certificates as well.



7. ARCHERY COMPETITION

To open up a new avenue of adventure and skills, IET arranged an archery competition was conducted, wherein students may get acquainted with a new form of sport. A trained professional archery coach was brought in to assist new shooters, as well as security personnel deployed to prevent any mishaps from occurring on the site. Winning prize was Rs. 3000. The runners up were given certificates as well. The worthy director Dr. Qaisar Abbas and Head of Department (Physics) Dr. Saleem Farooq also participated in this event.



8. HIT WICKET COMPETITON

To help talented bowlers reach their potential and direct their love for cricket into Techfest'15, a hit wicket competition was organized by IET. The player with the most number of wickets won the competition. Winning prize was Rs. 3000. The runners up were given certificates as well.

DDP Program Director Dr. Muhammad Ahmed Farooqi and Director of Partnership Program (DDP) Dr. Hassan Ahmed along with senior faculty member from EE, Dr. Ali Nawaz Khan also participated in this event.

9. WIE-RATHON

WIE-Rathon is IEEE/WIE's new marathon incentive for COMSATS to run for a cause. To help women reach a greater number in STEM fields and to reduce gender discrimination in the fields. Winning prize was Rs. 3000. The runners up were given certificates as well.

10. SPEED MARKETING

Speed marketing is an event that challenges your creativity, ingenuity and your brain storming abilities as a group. The objective of the competition was to create an original and creative advertisement for a product (that was disclosed on the spot). IEEE organized this event. Winning prize was Rs. 3000. The runners up were given certificates as well.

11. EGGSTRAVAGANZA

The engineering skills of the participants were truly tested in this event, using an amusing, fresh concept to engage the students in designing and testing aerodynamic structures. The team that designed such a device that was able to protect the egg from damaging, after a fall from a certain height, was termed as the winner. IEEE organized this event. Winning prize was Rs. 3000. The runners up were given certificates as well.

Energy Efficient and Conservation Measures in Agricultural and Industrial Sector of Pakistan

A seminar was held on Wednesday, October 14, 2015 by the Energy Research Center, COMSATS Lahore Campus on “Energy Efficiency and Conservation Measures in Agriculture and Industrial Sector of Pakistan”. HoD-EE and Dr. Mujtaba Hussain Jaffery, Assistant Professor, EE Dept., delivered a talk on “Power Quality Issues and Academia-Industry Reationship” in this seminar. HoD-EE and Dr. Mujtaba held discussions with the partivcipants, specially representatives of Punjab Energy Board to explore opportunities of funding with the Government of Punjab.

Design Real Systems Fast with National Instruments

A workshop on “Design Real System Fast with NI”was organized by NI and EE department CIIT Lahore on 2nd September,2015. Faculty and students attended the workshop.

Workshop on the Applications and Usage of Lab View.

COMSATS University,18th November,2015,Lahore:A workshop on the applications of the Worldly used program for Undergraduate Projects (Lab View) was scheduled on 18th November 2015.The workshop was started at 2pm with the recitation of Holy Quran by Muhammad Salman. It was carried forward by EE's Lecturer Sir Ameer Hamza who gave a brief introduction on this program and showed a video to the audience featuring the ex COMSIAN students who had established a Wheel Chair for the disabled Persons using this Lab View program.

The Workshop was than carried forward by our Honorable Speaker from LUMS. The session was highly appreciated by the audience and the cross questioning added up a great interaction to the environment. The event was organized by IEEE Student Branch CIIT Lahore. Special acknowledgments to Mr. Arslan Ahmad and Mr. Haseeb Mirza, members Ex-Com 2015, Mr. Haad Akmal (Vice Councilor IEEE CIIT Lahore Branch) for making this event a success. Also acknowledgment goes to faculty members Mr. Muhammad Usman and Ms. Mayyada for their support.

CPD Workshop on Digital Communication System Design

EE Department held a CPD workshop on Digital Communication System Design and Simulation using MATLAB on Friday, December 04, 2015. Being instructors; HoD-EE and EE Faculty members delivered lectures and shared their experience/area of interest with the participants.

Seminar on Breaking Stereotypes about Gender Disparity in the STEM fields

The first event of WOMENGINEERS'15 was the Seminar on reducing gender discrimination in the STEM fields as well as breaking stereotypes associated with gender bias in educational institutions and the workplace twin, conducted on 30th October, 2015 between 9:00am-10:00 am. The seminar was presented by Mr. Syed Ahmed Faran who talked about stereotypes and their negative impact on the world. It was attended by 60 students, and 3 faculty members.

The Lubna of Cordoba Engineering Entrepreneurship workshop

Held on 30th October, 2015, between 12:00pm-1:30pm, was the last workshop of the 1st day of WOMENGINEERS'15. Lubna of Cordoba was a scholar of the middle ages, of Hispanic Muslim origins. This workshop was named in her honor to celebrate her love for mathematics and science.

The workshop was arranged for engineers (female engineers in particular), who have innovative ideas that they feel like they can put to use as an entrepreneur. The workshop was arranged to allow the participants to explores all avenues of investment, learn about channels to use while launching an entrepreneurship venture as well as create capital after re-searching for the right direction to invest time in as entrepreneurs. The workshop was attended by 60 students.

The Ada Lovelace Workshop on Career Essentials

This workshop was named after Ada Lovelace, the first programmer of the world. It was conducted on 30th October, 2015, between 10am-12:00pm. Around a 100 students attended the workshop as well as 4 faculty members.

Mr. Shahid Akram, HRO of Kohinoor Mills was invited as the guest speaker. He began the workshop with his introduction; currently working in the Human resource department and graduate placement cell he has ample experience in hiring new recruits. He asked the students to first ask themselves the question why should anyone hire you for a job.

"Gender discriminatory behaviors have no place in the workplaces of the modern world"

He then gave a format of a short 30 second CV for the students to know how to sell themselves in thirty seconds only highlighting their career objectives, their strengths, achievements and their reason for joining a particular firm. He emphasized how confidence can make the difference between an acceptance and rejection for a job. He taught the audience the importance of exhibiting a fair treatment policy at all times regarding gender-"Gender discriminatory behaviors have no place in the workplaces of the modern world", said Mr. Ikram. He then called for volunteers to come to the dais and reiterate their 30 second CVs. The students were highly receptive, participating in the activity; a guest attending the STEP event from the Red Cross Doctors Panel also participated with his resume.

The Marie Curie Essay Writing Competition

This essay writing competition was conducted to reduce gender discrimination in STEM fields. The topic was "What creates gender disparity in STEM fields: Natural inequality of intellect or societal norms?" The essays were to be mailed to the IEEE account and were judged by Ms. Memoona Idris of the Humanities Department in CIIT Lahore. The first prize was awarded to Ms. Arooj Zahid.

Research Productivity

Research Publications

1) Aamir Razaq, Aism A. Khan et al, “ Dielectric and Mechanical Characteristics of Lignocelluloses Fibrils Sheet for Substrate of Patch Antenna” Modern Physics Letters B, Accepted.

2) Aism A. Khan and Anthony k Brown, ”Sector Nulling in Planar Irregular Sub-arrayed Sparse Array Antennas”, IET Microwave Antennas & Propagation, Accepted

3) Imran Ghous, “State Feedback L1- gain Control of Positive 2-D Continuous Delayed Systems via State-dependent Switching", Circuits, Systems, and Signal Processing, 2015, Impact Factor : 1.118

4) Imran Ghous, “H∞ Control of Class of 2-D Continuous Switched Delayed Systems via State-dependent Switching”, Systems Science (Taylor and Francis) 2014,Impact Factor: 2.100

5) Saad Aslam, “Performance Analysis of Real Time & Non-Real Time Scheduling Algorithms in a Hybrid Environment", Mehran University Research Journal of Engineering & Technology.

6) Saad Aslam, “Design and Performance Analysis of Downlink Scheduling Algorithms for LTE Networks", Mehran University Research Journal of Engineering & Technology.

7) A research paper "Exact Feedback Linearization based Grid-Interfaced Permanent Magnet Synchronous Generator Control Models" of Dr. Muhammad Jawad was accepted in International Transactions on Electrical Energy Systems Wiley, IF=0.49.

8) A research paper of Dr. Muhammad Naeem Awais, Assistant Professor, titled: switching mechanism in printed non-volatile Ag/ZrO2/ITO sandwiched structure” has been accepted in Electronics Letters, IET.

Research Collaborations and Grants

1) A research proposal from Dr. Mirza Tariq Hamayun titled "Design and implementation of robust Fault Detection and Augmentation Fault Tolerance scheme for Safety Critical Plants" has been accepted for research grant under HEC scheme of National Research Program for Universities (NRPU) .

2) Faculty members from EE Department (Mr. Ahmad Mudassir, Mr. Zulfiqar Khalid and Mr. Usman Rafique) attended a meeting with Korean University Union Delegation on Research Collaboration and Scholar Exchange program, in UET Lahore.

3) Dr. Ali Nawaz Khan received ICT RDF Grassroot Initiative Grant for 2014-15 worth Rs. 85,000/- for his supervised FYP entitled "WSN Nodes for Health Monitoring of Players on Football Field through Collaborative Communication".

4) The research proposal titled "Design and implementation of robust Fault Detection and Augmentation Fault Tolerance scheme for Safety Critical Plants" has been accepted for research grant under HEC scheme of National Research Program for Universities (NRPU) . Principle Investigator: Dr. Mirza Tariq Hamayun, Co-Principle Investigator: Dr Naeem Awais

5) The officials from Pakistan Industrial Technical Assistance Centre (PITAC) visited the Labs of EE Department and held a meeting with HoD-EE and Dr. Mujtaba Hussain Jaffery, Incharge Labs Development to discuss about on MoU for collaboration.

6) Dr. Naeem Awais has won National Grassroots ICT Research Initiative (NGIRI) 2014-15 grant for FYP titled “Brain Computer Interface Based Smart Home Control Using EEG Sensors”.

Faculty

Rejoined Faculty Members After MS and PhD

Name: Dr. Muhammad Jawad

Ph.D. Electrical & Computer Engineering

Institute: North Dakota State University

Discipline: Power Systems/Control

PhD. Abstract

The primary objective of the data centers is to provide in-time services to the cloud customers in the presence of an Uninterruptable Power Supply (UPS) at low cost. The data centers' power supply is directly linked with the stability and steady-state performance of the power system under faults and disturbances. Smart Grids that are also known as next generation of the power systems utilize communication and information technology to optimize power generation, distribution, and consumption. Therefore, it is beneficial to run data centers under smart grid environment. By keeping in view the aforementioned facts, we present a Power Management Model (PMM) for the data centers to estimate energy consumption cost. . Renewable energy, such as wind energy is integrated into the smart grid to minimize data center energy consumption cost. Moreover, forecasting algorithms are introduced in the PMM to predict and reduce data center power consumption cost. The proposed technique enable data center to increase energy efficiency and reduce energy consumption cost in an effective way for on-demand cloud services. The effectiveness of the proposed technique is evaluated on real-world data sets through intensive simulations.

Name: Dr. Kashif Imran

Ph.D. Electrical & Electronic Engineering

Institute: Strathclyde University, UK

Discipline: Power Systems

MSc : Electrical Engineering

PhD. Abstract

An intelligent agent-based computational approach combined with traditional optimization techniques forms a powerful simulation platform to investigate performance of a wholesale electricity market and behavior of its participants. An agent-based system is well suited to model the decentralized aspect of modern electricity markets because various market participants can be represented by autonomous agents. Each market participant has its own private goals and it must learn to survive in a dynamic market environment with incomplete information about other participants. On the basis of available mathematical modelling details for bilateral transactions, agent-based models that can simulate combination of day-ahead auction and bilateral transactions are categorized into simplified models and proprietary software. Although complete mathematical and implementation details of bilateral transactions are publicly available for simplified models, they only represent bilateral transactions facilitated by brokers or bulletin-boards. By comparison, mathematical details of bilateral transactions' models used in proprietary software are not publicly available because of commercial value. This thesis provides accurate and in-depth understanding of decentralized bilateral transactions by presenting detailed mathematical modelling that includes: (i) match making for bilateral transactions by a systematic direct-search approach and (ii) bilateral negotiations between participants with incomplete information about each other but capability to learn from interactions.

Faculty

Name: Dr. Nadeem Rafique

PhD. : Electrical and Computer Engineering

Institute: North Dakota State University, USA

MSc. (Engg) Data Communications , The University of Sheffield, UK

B.Sc. Electrical Engineering (Electronics/Comms) ,UET, Taxila, Pakistan

PhD. Abstract

Electromagnetic shielding is becoming more and more important with the abundance of wireless devices. Therefore a need has arisen for more versatile, flexible and low-cost solutions for shielding. For these requirements, carbon microfiber material has been proposed for electromagnetic shielding applications. For this purpose its shielding effectiveness has been measured and modeled in a simulation environment. A parametric simulation was conducted for the material property 'conductivity' and the results were compared to measured ones. These simulation results were also verified by the analytical solution for the shielding effectiveness and the agreement between the simulated values and analytical results demonstrated that the carbon microfiber material, though having less conductivity than the traditional metallic shields is a good candidate for electromagnetic shielding applications. Carbon microfiber not only provides comparable shielding effectiveness to a metallic shield but it can be advantageous because of its light weight, corrosion resistance and flexibility. Also, its porous nature can help with cooling of enclosed electronic circuits.

Name: Subhan Khan

MSc. Electronic Communications and Computer Engineering

Institute: The University of Nottingham, UK

Specialization: Satellite Navigation Technology (Galileo GNSS)

MSc. Abstract

The structure of the receiver for the Galileo E5 AltBOC signal is complicated due to the signal complexity and the large bandwidth. Galileo E5 AltBOC signal could be used as a wideband signal, which could offer an accuracy of 20 centimetres even with pseudo-range only. In this thesis, a software based solution is discussed for Galileo E5 AltBOC signal acquisition, signal tracking and recovery of the navigation data by using Matlab. Parallel frequency and code search method is implemented for the E5 signal acquisition; E5 signal tracking is achieved by implementing code tracking loop as delay locked loop and the carrier tracking loop as phase locked loop. The extraction of navigation data has been achieved by using prompt channel of the code tracking. A Graphical User Interface (GUI) is also implemented in Matlab to provide feasibility for the users in order to understand the working of signal acquisition, signal tracking and the extraction of navigation data. Matlab based GUI also provides the complete signal processing of E5 AltBOC signal, which includes the selection of different editable parameters under the user control. Power spectral density, real and imaginary signal generation of the Galileo E5 AltBOC signal could also be viewed from the GUI.

Faculty

Name: Ramsha Bukhari

MSc. Electronic & Electrical Engineering

Institute: The University of Sheffield, UK

B.S Telecom Engineering

Institute: CIIT Lahore

Name: Muhammad Mohsin

MSc. Communication Systems

Institute: Lancaster University , UK

B.Sc Telecom Engineering

Institute: CIIT Islamabad

MSc. Abstract

Artificial materials having variable electromagnetic properties are causing some ground breaking advancements in the fields of electromagnetics recently. Use of dielectric and metallic combinations for realising the surfaces with alterable radiation properties is gaining innovation. This project is also an attempt to design a surface that has variable surface impedance dependent upon the shape, size and position of sub-wavelength metallic patches patterned over grounded dielectric surface. Such a surface is regarded as a scalar artificial impedance surface whose impedance value is the function of shape and size of the metallic patch. The technique used in this project is different and advanced than previously used techniques and called as microwave holography. Microwave holography is the formation of interference pattern between two waves, a desired radiation in a particular angle and a reference plane wave. The resulting interference pattern is the microwave hologram. This pattern is in turn used to obtain the impedance values using the basic concepts of reflectivity. The size of metallic patch is adjusted to make the surface achieve the required value of surface impedance. Such a surface has ability to direct the beam in the desired direction by altering its phase characteristics. The applications of this scalar holographic artificial impedance surface is in the integration of low-profile antennas on complex metallic objects such as cars and planes where current excitation in nearby metallic bodies alters the radiation pattern and causes the major issues. The platform used for simulations is Matlab and CST.

MSc. Abstract

In current time every second person in the world has cell / smart phones in his hand and he or she using it in any exciting cellular network in that area. The subscriber now a day's using internet on their smart phone and they demand high speed internet and HD voice calling for this propose cellular companies using maximum energy to increase data rate. The main aim is that to design a network profitable and "green" (environment friendly) less consumption of energy. In cellular network Base Station is major part of consuming energy. Due to demand in data rate we move from 3G technology network to LTE(long term evolution) but for HD calling research started for VoLTE (Voice over LTE) or advance LTE. My area of research is to understand the exciting system for LTE and try to improve the system or develop a system for VoLTE and run some test to check the stability and result of improvement.

New Faculty Members Joining

1) Salman Tariq

Lecturer

Qualification

MS (Electrical Engineering)

University of Taxila, Pakistan

BS (Electrical Engineering)

2) Bilal Amin

Lecturer

Qualification

MS (Electrical Engineering)

CIIT Islamabad, Pakistan

BS (Electrical Engineering)

CIIT Lahore, Pakistan

3) Nesruminallah

Lecturer

Qualification

MS (Comm System Engg)

University of Portsmouth UK

BS (Telecom Engineering)

4) Waleed Saqib

Lab Engineer

Qualification

MS(Electrical Engineering)

NUST, Pakistan

BS (Electrical Engineering)

5) Maida Farooq

Lab Engineer

Qualification

BS (Computer Engineering)

CIIT Lahore, Pakistan

6) Ghazala Mushtaq

Lab Engineer

Qualification

BS (Electrical Engineering)

University of Taxila, Pakistan

7) Awais Ahmed Alvi

Lab Engineer

Qualification

BS (Electrical Engineering)

CIIT Lahore, Pakistan

8) Ahmed Daud

Lab Engineer

Qualification

BS (Electrical Engineering)

CIIT Lahore, Pakistan

9) Jawad Ali

Lab Engineer

Qualification

BS (Electrical Engineering)

CIIT Lahore, Pakistan

10) Hamza Waseem

Research Associate

Qualification

BS (Electrical Engineering)

CIIT Lahore, Pakistan

Faculty Members on Post-Doc Leave

- Dr. Umer Farooq
- Dr. Mubeen Masud

Faculty Members on Ex-Pakistan Leave

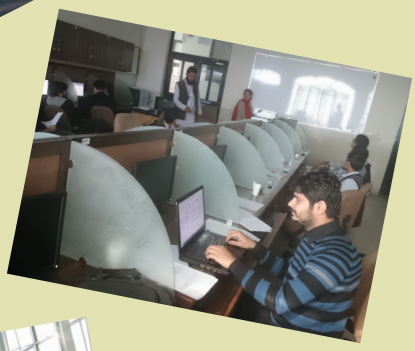
- Aamer Biall Asghar
- Salman Ijaz

Electrical Engineering Department CIIT Lahore

Newsletter

July 2015 - December



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