Welcome

to

Smart Grid RTDS Research Lab.

Supported by
AICTE RPS
DST FIST (Level-I)
RTDS Technologies Inc., Canada
JMI, Innovative Research Scheme

Professor Ikbal Ali

Lab. In-charge & FIST Program Coordinator

SCADA & Smart Grid RTDS Research Lab.

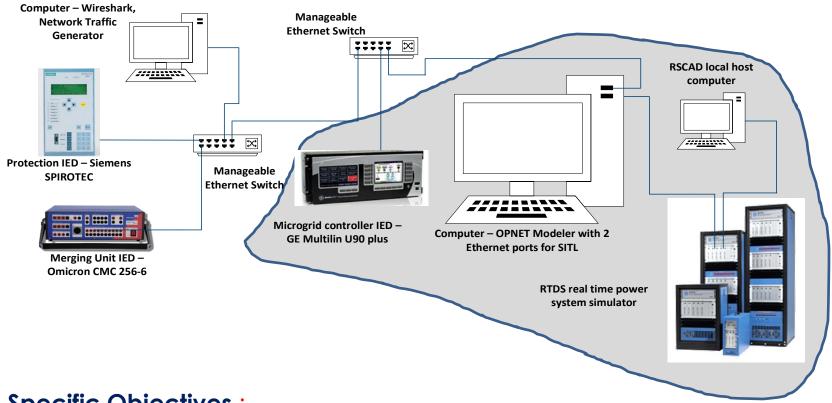


Research Projects by Prof. Ikbal Ali

| S. | PRINCIPAL | TITLE | GRANT | FUNDING | YEAR OF | YEAR OF |
|----|---------------|---|---------------------|----------------------------------|----------|------------|
| No | Investigtor | | RECEIVED | AGENCY | SANCTION | COMPLETION |
| 1. | Dr. Ikbal Ali | FIST project Real-time Digital Simulation Test bed for studying communication requirements for smart microgrid | Rs. 1.93 Crores, | DST | 2016 | 2021 |
| 2. | Dr. Ikbal Ali | IEC61850 Communication based Design and Development of Management, Control and Protection Schemes for Microgrid/Smartgrid | 15000 USD | RTDS Technologies Inc., CANADA | Apr2019 | Continuing |
| 3. | Dr. Ikbal Ali | Design and Performance Evaluation of Communication Architecture Requirements for Substation Automation System | Rs. 10Lakhs | AICTE | 2013 | 2016 |
| 4. | Dr. Ikbal Ali | IEC 61850 Standard based Communication Configuration to Integrate Distributed Energy Resources (DER) in Distribution System | Rs. 1Lakh | JMI | 2014 | 2015 |
| 5. | Dr. Ikbal Ali | IEC 61850 Based Communication Configuration to Integrate DER to Distribution System | 800 UDS | IEEE Standards Education Society | 2014 | 2014 |

•Co-PI, Proposed for a Project submitted, by THAPAR Institute of Engg. & Technolgy, Patiala to SERB, DST, Gol.,

FIST Support



Specific Objectives:

- Real-time Digital Simulation Test bed.
- II. To model the required communication architecture for a smart grid.
- III. To evaluate the performance of the communication architecture, created in objective I, for different functions of microgrid.
- IV. To carry out the **conformance testing** of different IEDs.
- V. PMU based WAMPAC analysis.

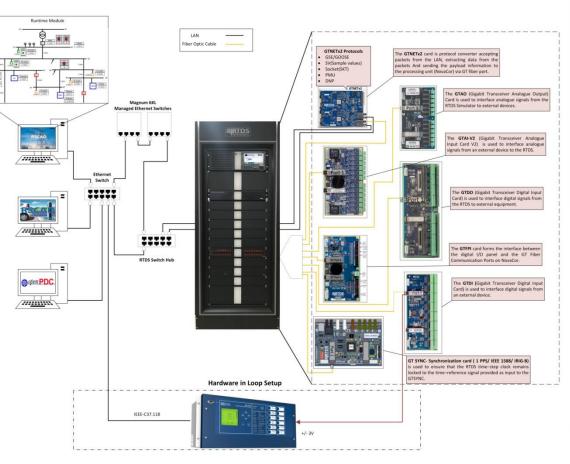
Utilization

Ist Installment of 1.55 Cr. for RTDS Equipments

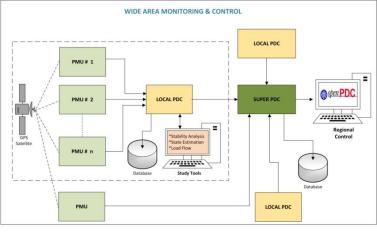


Smart Grid RTDS Lab. Setup

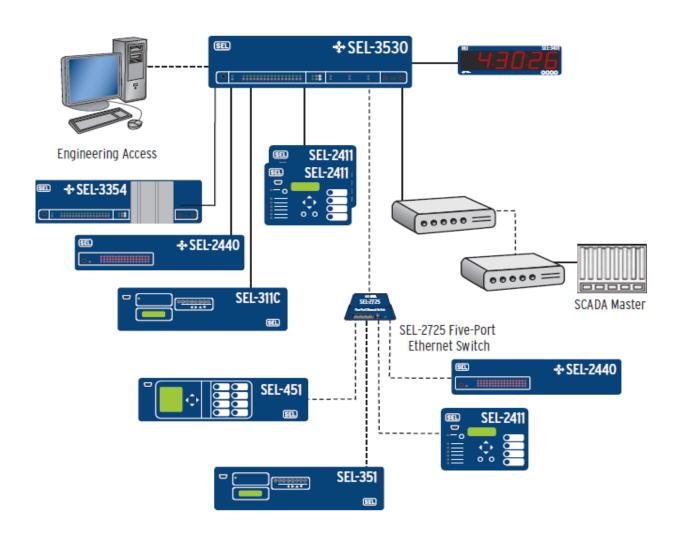
Department of Electrical Engineering, JMI



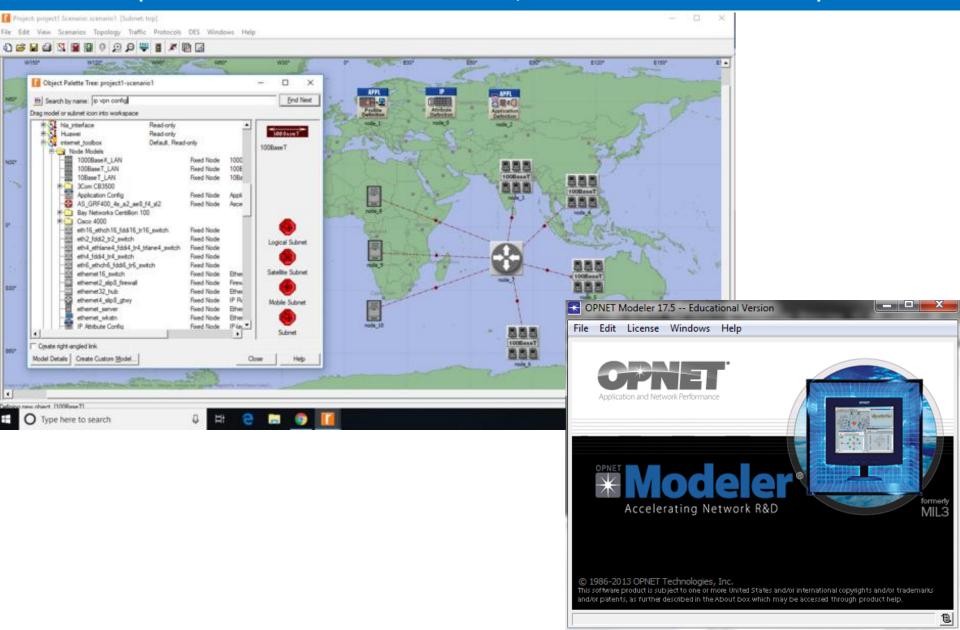




Smart Grid RTDS Research Lab. Setup based on Equipmen-02 (Real Time Automation Controller, RTAC)



Smart Grid RTDS Research Lab. Setup based on Equipmen-03 (Network Simulator Tools, Riverbed Modeller)





क्षमता से लैस

शहर & NDTVKhabar News Desk जामिया मिल्लिया इस्लामिया यूनिवर्सिटी में स्मार्ट ग्रिड क्षेत्र में

अनुसंधान एवं प्रशिक्षण को और उच्च स्तर पर ले जाने में मदद मिलेगी

① Updated: October 04, 2018 02:13 IST









Supported by DST-FIST Grant
Programme Coordinator- Dr. Ikbal Ali

POSOCO Ltd. Load Dispatchers Training & Certification ON



SCADA Basics

29th Jan. to 02nd Feb. 2018



Summer/Winter Research Internship (Impact of the FIST Support)

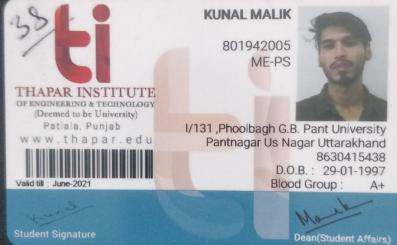
Utilization of Equipment from outside the College

► Ph.D. Scholars:

•Ms. Pratiksha Gupta Guide-Dr. M. A. Ansari, Co Guide- Dr. Ikbal Ali Thesis Proposed Topic: "Optimization based Supervisory Control of Smart Micro Grid Integration System"

➤ Summer/Winter Research Internship

| S. No | Student /Roll No. | Topic | Course / Institute | Internship Duration |
|----------|--------------------------------|---|--|---|
| 1. | Aditya Chaudhary 15/IEE/001 | Protective and Control System Testing Using the Real Time Digital Simulation | M.Tech., GBU Greater NOIDA | 28May-01Aug. 2019 |
| 2. | Sk. Abdul Aleem 17191D0717 | Real-Time Microgrid Synchronization using Phasor Measurement Units | M.Tech., JNTU Anantapur, College of Engg. Pulivendula, AP | 12 th Nov.18- 5 th May. 2019 |
| 3. | Kartik Bhatia | Smart Grid Technologies | B.Tech, BVCOE, New Delhi | (2 months), 2017 |
| 4. | Furqan Nadeem 16FH1D0719 | Energy Internet and Graph theory based energy routing in energy local area networks (e-LAN) | M.Tech. Department of Electrical and Electronics Engineering, JNTU, Anantapur | 25 Oct25 Dec. 2017 |
| 5. | Shaik Nabirasool 16FH1D0718 | do | do | do |
| 6. | Ashok Tak | Design of IEC 61850 based Protection Schemes for a Power System | B.Tech., Department of Electrical, IIT Roorkee | 03-21 Dec. 2015 |
| 7. | Mohit Bhatnagar | STATE ESTIMATION IN MICROGRIDS USING PMU | B.Tech. , Power Engineering, NPTI , New Delhi | 15 June-12 Aug. 2015 |





Prof. Mohd. Rizwan Khan AMU Aligarh



Dr. Bruce Rigby & Dr. Dinesh Gurusinghe Training Expert, RTDS Technologies CANADA

Ph.D. Scholars under Prof. Ikbal Ali

| S. No. | Student's Name | Topic of Ph.D. Thesis | Status |
|-----------|--------------------------------------|--|---------------------------|
| 1. | Dr. Sunil Gupta | Impact of IEC 61850 Protocol on Substation Performance | Degree Awarded, 2015 |
| 2. | Dr. Pawan Kumar | Optimal Operation of Automated Radial and Meshed Distribution System | Degree Awarded, 2015 |
| 3. | Dr. Nitin Gupta | Integration, Evaluation and Security Analysis of Smart Metering Infrastructure | Degree Awarded, 2016 |
| 4. | Dr. Shaik Muhammad Suhail Hussain | Muhammad Suhail Technology Assessment for Designing Communication Requirements of Microgrid | |
| 5. | Dr. Mohd. Asim Aftab | SMART Solutions for Active Distributions Systems | Degree Awarded, July-2020 |
| 6. | Mr. ViveK Kumar | Communication Design for Control and Protection in Microgrid (Under Visvesvaraya Scheme of MHRD GoI) | Admission Cancelled |
| 7. | Mr. Sunil Kumar | Isolated Micro-Grid with Renewable Hybrid Generation | In-progress, Full-Time |
| 8. | Mr. Abhishek Kumar Gupta | Small Signal Stability Analysis in Micro-Grids under Distributed Control with Communication Latency | In-progress, Full-Time |
| 9. | Ms. Swati Sharma | Energy Efficiency Enhancement through Demand Response in Smart Grid | In-progress, Full-Time |
| 10. | Mrs. Shikha Kuchhal | Reliable and Secure Information Communication for Smart Grid | In-progress, Full-Time |

Notable Ph.D. Scholars

PhD Thesis Achievements

PhD Thesis title: Smart Solutions for Active Distribution Systems and Microgrid D/O Electrical Engineering, F/O Engg. & Tech., Jamia Millia Islamia (Central University)



Candidate Profie:

Dr. Mohd Asim Aftab

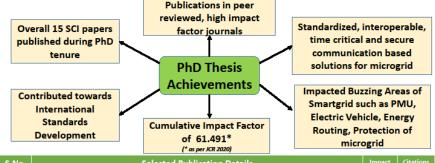
M.Tech (2015), PhD in Electrical Engineering (2015-20) from Jamia Millia Islamia

Assistant Professor, Electrical and Instrumentation Department.

Thapar Institute of Engineering and Technology (Deemed to be University), Patiala (https://scholar.google.com/citations?user= a4 uWIAAAAJ&hl=en)



PhD Thesis Title's Impact and Importance: Power system automation is the need of the hour. The automation of microgrid and ADS is unimaginable without Information and Communication Technology (ICT). Standardized and interoperable communication leads to stability, reliability, security and improved power quality. This thesis presents Smart solutions based upon IEC 61850 standard for ADS and microgrid.



| S.No. | Selected Publication Details | Impact Factor | (as of July 2020) |
|-------|--|------------------|-------------------|
| 1. | Ikbal Ali, Mohd Asim Aftab and S.M. Suhail Hussain, "Performance Evaluation of IEC 61850-90-5 and IEEE C37.118.2 based Wide Area PMU Communication Networks", <i>Journal of Modern Power System and Clean Energy</i> (Springer), Volume 4, Issue 3, pp 487–495. July 2016 | 3.09 | 43 |
| 2. | Mohd Asim Aftab, S. M. S. Hussain, I. Ali and T. S. Ustun, "IEC 61850 and XMPP Communication Based Energy Management in Microgrids Considering Electric Vehicles," in <i>IEEE Access</i> , vol. 6, pp. 35657-35668, 2018. | 3.745 | 30 |
| 3. | S.M. Suhail Hussain, Mohd Asim Aftab and Ikbal Ali, "IEC 61850 Modeling of DSTATCOM and XMPP Communication for Reactive Power Management in Microgrids", IEEE Systems Journal, vol. 12, no. 4, pp. 3215 - 3225, 2018. | 3.987 | 29 |
| 4. | Mohd. Asim Aftab, Saeed Rostaee, S.M. Suhail Hussain, Ikbal Ali, Mini S. Thomas and Shabana Mehfuz, "Performance evaluation of IEC 61850 GOOSE-based inter-substation communication for accelerated distance protection scheme", IET Generation Transmission & Distribution, vol. 12, no. 18, pp. 4089-4098, 2018. | 2.862 | 15 |
| 5. | Mohd Asim Aftab, S.M. Suhail Hussain, Ikbal Ali and Taha Selim Ustun, "Dynamic protection of power systems with high penetration of renewables: A review of the traveling wave based fault location techniques". International Journal of Electrical Power and Energy Systems, Volume 114, 105410., January 2020 | 3.588 | 8 |
| 6. | Mohd Asim Aftab, S. M.S. Hussain, I. Ali and T. S. Ustun, "A Novel SCL Configuration Method for Modeling Microgrids With IEC 61850," in <i>IEEE Systems Journal</i> vol. 14, no. 2, pp. 2676-2683, June 2020. | 3.987 | 5 |
| 7. | S.M. Suhail Hussain, Mohd Asim Aftab, Furquan Nadeem, Ikbal Ali and Taha Selim Ustun, "Optimal Energy Routing in Microgrids with IEC 61850 based Energy Routers" <i>IEEE Transactions on Industrial Electronics</i> , vol. 67, no. 6, pp. 5161-5169, June 2020. | 7.515 | 5 |
| 8. | Mohd Asim Aftab, S. M. S. Hussain, I. Ali and T. S. Ustun, "IEC 61850-Based Communication Layer Modeling for Electric Vehicles: Electric Vehicle Charging and Discharging Processes Based on the International Electrotechnical Commission 61850 Standard and Its Extensions," in <i>IEEE Industrial Electronics Magazine</i> , vol. 14, no. 2, pp. 4-14, June 2020. | 13.593 | - |



Dr. S.M. Suhail Hussain PhD (2013 - 2018) Department of Electrical Engineering Jamia Millia Islamia (A Central University)



Current position:

AIST Postdoctoral Researcher, Fukushima Renewable Energy Institute, AIST (FREA), Koriyama, Japan

PhD Topic: Technology assessment for designing Communication requirements of microgrid

The major contributions of this research work are:

- IEC 61850 information modeling for electrical power system components such as different Distributed Energy Resources (DERs) (e.g. Photovoltaic (PV) systems, Battery System, Wind plant system, Diesel plants etc), Phasor Measurement Unit (PMU), smart meter, Solar Home System (SHS) and DSTATCOM.
- Robust, deterministic and interoperable communication for microgrid.
- IEC 61850 based energy management automation in microgrids.
- Communication design for charging management of Electric Vehicle (EV) in a microgrid.
- Development and testing of real time communication of microgrid through hardware in loop (HIL) system.

| S.No. | Publication Details | Impact Factor | Citations (as of July 2020) |
|-------|--|------------------|--------------------------------|
| 1. | Ikbal Ali and S.M. Suhail Hussain, "Communication Design for Energy Management Automation in Microgrid", IEEE Transactions on Smart Grid, vol. 9, no. 3, pp. 2055-2064, 2018. | 8.267 | 48 |
| 2. | Ikbal Ali, S.M. Suhail Hussain, Ashok Tak and Taha Selim Ustun, "Communication Modeling for Differential Protection in IEC 61850 Based Substations", IEEE Transactions on Industry Applications, vol. 54, no. 1, pp. 135–142, 2018. | 3.488 | 34 |
| 3. | S.M. Suhail Hussain, Taha Selim Ustun, Paul Nsonga and Ikbal Ali, "IEEE 1609 WAVE and IEC 61850 Standard Communication Based Integrated EV Charging Management in Smart Grids", IEEE Transactions on Vehicular Technology, vol. 67, no. 8, pp. 7690-7697, Aug. 2018. | 5.379 | 30 |
| 4. | S.M. Suhail Hussain, Mohd Asim Aftab and Ikbal Ali, "IEC 61850 Modeling of DSTATCOM and XMPP Communication for Reactive Power Management in Microgrids", IEEE Systems Journal, vol. 12, no. 4, pp. 3215 - 3225, 2018. | 3.987 | 29 |
| 5. | S.M. Suhail Hussain, Ashok Tak, Taha Selim Ustun and Ikbal Ali, "Communication Modeling of Solar Home System and Smart Meter in Smart Grids", IEEE Access, vol. 6, pp. 16985–16996, 2018. | 3.745 | 27 |
| 6. | Mohd. Asim Aftab, Saeed Rostaee, S.M. Suhail Hussain, Ikbal Ali, Mini S. Thomas and Shabana Mehfuz, "Performance evaluation of IEC 61850 GOOSE-based inter-substation communication for accelerated distance protection scheme", IET Generation Transmission & Distribution, vol. 12, no. 18, pp. 4089-4098, 2018. | 2.862 | 15 |
| 7. | Ikbal Ali and S.M. Suhail Hussain, "Control and Management of Distribution System with High Penetration of DERs via IEC 61850 based Communication", Engineering Science and Technology, an International Journal, vol. 20, no. 3, pp. 956-964, 2017. | 3.219 | 13 |
| 8. | S.M. Suhail Hussain, Mohd. Asim Aftab, Ikbal Ali and Taha Selim Ustun, "IEC 61850 based Energy Management System using Plug-in Electric Vehicle & Distributed Generator During Emergencies", International Journal of Electrical Power & Energy Systems, vol. 119, 105873, 2020. | 3.588 | 1 |

- Published more than 65 papers in peer reviewed international journals and conferences, including 40 papers in
- Received Grants worth USD 500 from IEEE Standards Education Society.
- Awarded Maulana Azad National Fellowship (MANF) for PhD.

AICTE Sponsored Online One Week Short Term Training Programme



Department Of Electrical Engineering

F/o Engg. & Technology, JMI, New Delhi



On

'Role of Energy Management in Smart Grid'

Schedule of the STTP

This STTP program will be conducted from 22-27 March 2021.

Registration

Eligibility:

Faculty Members/Research Scholars / M.Tech Students/Industry Professionals

*You are required to fill the Google Form at the following link:

https://forms.gle/2U5sSGr4cqCVLfrZ9

Last date for filling google form -3rd June 2021 Intimation of confirmation – 5th June 2021 Commencement of STT 7th June 2021

Seats are

limited and will be

confirmed on first come first servebasis.

The daily schedule will be in three sessions 9.30 am-11.30 am, 11.30 am - 1.30 pm and 2.30 pm -

For any

For any STTP related Query, Please contact Email: **JMI.Smartgrid.STTP@jmi.ac.in**Prof. Ikbal Ali- 9891478481

PATRON

Prof. Najma Akhtar

Vice-Chancellor's, JMI, New Delhi

Prof. Anil Dattatraya Sahasrabudhe

Chairman, AICTE

MENTOR

Dr. Nazim Husain Al-Jafri

Registrar, JMI, New Delhi

General Chair

Prof. Ibraheem

Dean, F/o Engg. & Technology, JMI, New Delhi

Chairman

Prof. Munna Khan, HoD, Electrical Engg.

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Prof. Shabana Mehfuz
Prof. Zaheeruddin
Prof. Majid Jamil
Prof. A. S. Siddiqui
Prof. Shakeb A. Khan
Prof. Tariqul Islam
Prof. Manaullah
Prof. Manaullah
Prof. Manaullah
Prof. Shabana Mehfuz

Program Monitoring Committee PMC)

Dr. Nazim Husain Al-Jafri, Chairperson, PMC

Prof. Ibraheem, Member Secretary, PMC

Prof. Munna Khan, HoD, Electrical Engg., Member PMC

Prof. Tanveer Ahmad, HoD, E&C Engg., Member PMC

Prof. Shahida Khatoon, Member PMC

Prof. Naimul Hasan, Member PMC

Prof. Ikbal Ali, Member PMC

AICTE Sponsored Online
One Week Short Term Training Programme
On

'Role of Energy Management System in Smart Grid'



Organized by

DEPARTMENT OF ELECTRICAL ENGINEERING

(NBA Accredited)

Coordinator

Prof. Ibraheem

Co-coordinator

Prof. Ikbal Ali

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Jamia Nagar, New Delhi-110025.

Ph: +91(11)-26981717, 26982651 https://www.jmi.ac.in/electrical

Jamia Millia Islamia University New Delhi

Conference





TRAINING PROGRAMS

| S. No. | Title of Research Project (with specific period) | Funding Agency | Period | Grant/Amo unt Mobilized (Rs. Lakhs) | Whether you are the Main/co- consultant | Status Ongoing/ Completed | |
|--|---|-------------------|--|--|--|---------------------------------|--|
| 1. | POSOCO Load Dispatchers Training & Certification | POSOCO Ltd. | 23—27 Feb. 2016 | 5.0 | co-consultant | Completed | |
| 2. | POSOCO Load Dispatchers Training & Certification | POSOCO Ltd. | 29 Jan. – 2 nd Feb. 2018 | 5.7 | CONSULTANT | Completed | |
| | | | | | | | |
| (Note: Enclose all relevant documents in sequence) | | | | | | | |



Prof. Ikbal Ali Guest Editor Elsevier Journal

of

Computer and Electrical Engineering (Special Issue)

5/11/2018

Jamia Milla Islamia Mali - [CAEE] VSt:mogs - Confirmation Letter



Ikbal Ali <iali1@jmi.ac.in>

[CAEE] VSI:mcgs - Confirmation Letter

Jiao. Qian (ELS-BEI) <q.iiao@elsevier.com>

Thu. Feb 1, 2018 at 1:20 PM

- To: "pawanror@gmail.com" <pawanror@gmail.com>, "srete@etfos.hr" <srete@etfos.hr>, "iali1@jmi.ac.in" <iali1@jmi.ac.in>
- Cc: "Sandacoumar, Sudhakar (ELS-CHN)" <s.sandacoumar@elsevier.com>, Manu Malek <mmalek14@verizon.net>

Dear Ikbal Ali, Pawan Kumar, Srete Nikolovski,

On behalf of Elsevier and the Editors of Computers and Electrical Engineering, I would like to thank you for agreeing to serve as Guest Editors of the Special Issue on Innovative Technologies for Micro-grid and Smart-grid Systems. I hope you will find the experience both a rewarding and interesting one. At any stage during the publication process please do not hesitate to ask questions or request assistance, I will always be glad to help.

In this email I briefly summarize some keys dates and information to give you a better understanding of what is required from you. Please also find attached the Guest Editor Guidelines for more information.

- 1. Submission & Peer Review Timeline:
- * Submission deadline: 31 May 2018: All papers should be submitted before this date and the option to submit online via the submission system (EVICE) will closed.
- * Acceptance deadline: 31 December 2018: All manuscripts must be peer reviewed and final decisions (accept or reject) made for all articles by this date.

I will monitor progress towards these deadlines and cooperate with you to ensure we adhere to the schedule as closely as possible.

3. Peer Review & Submission System:

As Guest Editor you are responsible for ensuring that the peer review process for this special issue is conducted in an appropriate manner and in line with review practices for the journal. To facilitate the review process we will arrange access to the Elsevier Editorial System (EVICE) for you. The Journal Manager, Sudhakar Sandacoumar, will be in contact with you to discuss how to use EVICE to manage your special issue. Following this you may invite authors to submit their manuscripts via EVICE.

You may also find the EVICE Interactive Tutorials a useful resource: https://www.elsevier.com/editors/elsevier-editorial-system

System set up:

 This special issue will be set up in EVISE, hence please register yourself HERE if not done already. Upon Your registration; the submission portal will be opened.

https://mail.google.com/mail/u/0/?ui=2&lik=5291cf5a76&jsver=uin2lVdyjuk.en.&cbi=gmail_fe_180502.07_p5&view=pt&msg=1615058ee53a1a96&q-guest... 1/2



AWARD CERTIFICATE

IEEE Standards Education Grant Recipient

Approved by the IEEE Standards Education Committee for project and final student paper

"IEC 61850-7-420 based Communication Configuration to Integrate DER to Distribution System"

Ikbal Ali

3 February 2015

Dr. James M. Irvine

Chair, IEEE Standards Education Committee



Price

Cash

7/23/2019

Jamia Millia Islamia Mail - Fwd: Faculty Endorsement::IEEE Standards Education Grant Application for Student Application Papers I,



Ikbal Ali <iali1@jmi.ac.in>

Fwd: Faculty Endorsement::IEEE Standards Education Grant Application for Student Application Papers Implementing Industry Standards

Jennifer McClain <j.mcclain@ieee.org> To: Ikbal Ali <iali1@jmi.ac.in>

Mon, Feb 9, 2015 at 8:30 PM

Dear Professor Ikbal Ali:

As faculty advisor for the accepted final student application paper listed below, you are entitled to receive a US \$300.00 honorarium.

In order to process this payment, could you please complete and sign the attached w8 form? We can send you a check in US dollars

via Federal Express or we can wire transfer the funds to your account. The wire transfers to India can take several weeks to complete.

If you would like, please complete the yellow highlighted areas of the attached wire transfer form.

Thank you very much once again for your support of the IEEE Standards Education Grant program. If you have any questions, please do not hesitate to contact me

Best regards, Jennifer

