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Dr. M. Rezwan Khan

Professor Emeritus, Dept. of EEE & Director, IAR

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Biography

Professor Emeritus, EEE & Executive Director, IAR, UIU Distinguished Lecturer, IEEE-IAS

Education

Degree/Certificate	Year	Institution	Result
B.Sc.(Elec. Engg.)	1980	BangladeshUniv.of Engg.	
&Tech.(BUET)	1st class		
with hons.			
M.Sc.(Microwaves & Modern Optics)	1982	University College London, U.K.	
Ph.D.*	1986	University College London, U.K.	
*Ph.D. dissertation was titled â€œA beam steering technique using dielectric wedges â€œ.			
### Experience			
a) **Lecturer:**	Department of Electrical Engineering,Bangladesh University of Engineering& Technology (**BUET**), Dhaka, Bangladesh.April 1980 â€“ January 1986.		
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b) **Assistant Professor:**	Department of Electrical & Electronic Engineering, Bangladesh University of Engineering Technology (**BUET**), Dhaka, Bangladesh.January 1986 â€“ July 1989.		
c) **Associate Professor:**	Department of Electrical Engineering, University of Bahrain, Isa Town, Bahrain Sept. 1992 â€“ August 1994.Department of Electrical & Electronic Engineering,Bangladesh University of Engineering & Technology (**BUET**), Dhaka, Bangladesh.July 1989 â€“ Sept. 1992 and Sept.1994- July 1996.		
d) Professor	Department of Electrical & Electronic Engineering Bangladesh University of Engineering& Technology (**BUET**), Dhaka, Bangladesh.July 10, 1996 â€“ March 12, 2005.Visited **Clarkson University** , Potsdam, New York,USA, as a visiting faculty member for the Summer Session II, July 3 â€“ Aug. 5, 2000, and taught the summer course on Microelectronics (EE341).		
e) Professor and Dean(On leave from BUET)	School of Science and Engineering United International University Dhanmondi, Dhaka, Bangladesh.February 2004 â€“ March 2005 (On leave from BUET)		
f) Vice Chancellor	**United International University** , Dhanmondi, Dhaka , Bangladesh.**March 16, 2005 â€“November 13, 2017**		
g) Professor & Executive Director- Institute of Advanced Research (IAR)	**United International University** , Dhanmondi, Dhaka , Bangladesh.**November 14, 2017 â€“ till date**		
Also have experience in part time teaching in the following universities:			
* Ahsanullah University of Science & Technology, Dhaka, Bangladesh.			
* Islamic Institute of Technology,(An OIC run institute),Tongi,Bangladesh.			

Awards

AWARDS & MEMBERSHIP OF PROFESSIONAL BODIES 1. Received the â€˜**Dana Chase Memorial Award** â€™ for the best paper â€œ*A Novel Dehumidification Technique Using Electric Field* â€ presented at the 45th International Appliance Technical Conference held at Madison, Wisconsin, USA, May 1994. Also received the â€˜**Best Presentation Award** â€™ in the same conference. The technique involves high electric field to attract water molecules in the air to be removed from a closed room without condensation. It is a well known fact that water has a very high latent heat of condensation. As the process avoids condensation of moisture, it is highly energy efficient and can save significant level of energy consumption in dehumidifiers. 2. Received Prime Ministerâ€™s Award for outstanding contribution in popularizing Solar Home System in Bangladesh under the RERED Project (jointly financed by Govt. of Bangladesh and World Bank) implemented by Infrastructure Development Company Limited (IDCOL), Bangladesh, September 6, 2005. The author is the Chairman, Technical Standard Committee, IDCOL and is responsible for setting the standards for the components and gadgets to be disseminated in rural Bangladesh. The basic policy of the technical committee was to encourage local products to be incorporated in the solar PV packages along with the imported components like solar PV panels without sacrificing overall quality of the products. Such a policy has encouraged many small entrepreneurs to produce PV system components locally and saved significant amount of foreign exchange for the country, provided incentive to the local producers and ensured easy availability of the local services. The policy adopted by IDCOL has been highly successful and has set a new standard in disseminating solar PV systems in the South Asia 3. Awarded â€˜Gold Medalâ€™ by the Bangladesh Academy of Sciences in 2005 for outstanding research contribution in the field of Engineering and Technology. Prof. Iaj Udding Ahmed, President, Peopleâ€™s Republic of Bangladesh handed out the award. 4. Senior Member, IEEE. 5. Member, the Institute of Engineers, Bangladesh (IEB). 6. Fellow, Bangladesh Academy of Sciences. 7. Selected as a **Distinguished**

Lecturer of IEEE, IAS , for the years 2017-18. The topic of lectures are DC applications in renewable energy and DC as the emerging alternative to AC in power system.

Publications

Journals: 1. *M.R.Khan* , â€œ *Towards the dimension of an electron* â€œ, Technical Journal, Bangladesh University of Engineering & Technology, Dhaka, 1980-81, pp133-35.

1. *M.R.Khan* , â€œ *An artificial dielectric wedge for antenna beam steering* â€œ, Journal of Modeling, Simulation & Control (France), vol.18, 1988, pp 59-64.
2. *M.R.Khan* , â€œ *Generation of cross polar component due to a quarter wave matching layer* â€œ, Electrical Engineering Research Bulletin, Bangladesh University of Engineering & Technology, vol.4, no.1, 1988, pp 1-6.
3. *M.R.Khan* , C.D.McEwen, â€œ *A novel beam steering technique using dielectric wedges* â€œ, Journal of the Institute of Engineers, Bangladesh, vol.16, no.2, April 1988, pp 1-7.
4. A.N.Khondker, *M.R.Khan* , A.F.M.Anwar, â€œ *Transmission line analogy of resonance tunneling: The generalized impedance concept* â€œ, Journal of Applied Physics, vol 63, no. 10, 15 May, 1988, pp 5191-93.
5. H.D.Griffiths, *M.R.Khan* , â€œ *A pair of dielectric wedges for antenna beam steering* â€œ, Proc. of IEE, vol. 136, no. 2, part- H, April 1989, pp 126-131.
6. A.F.M.Anwar, A.N.Khondker, *M.R.Khan* , â€œ *Calculation of traversal time in resonant tunneling devices* â€œ, Journal of Applied Physics, vol.65, no.7, 1 April, 1989, pp 2761-65.
7. M.Z.Alam, *M.R.Khan* , S.M.Rahman, â€œ *An empirical model for nondestructive metal testing using eddy current* â€œ, The British Journal of Nondestructive Testing, vol.32, no.4, April 1990, pp 193-196.
8. A.Haque, M.Haque, *M.R.Khan* , â€œ *Energy band calculation for periodic potential structure using quantum mechanical impedance* â€œ, Journal of Applied Physics, vol.68, no.4, 15 August, 1990, pp 1661-64.
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10. K.M.Rahman, *M.R.Khan* , â€œ *Interference type amplifier using intermodal interference in potential channel structures* â€œ, Solid State Electronics, vol.35, no.12, pp 1841-42, 1992.
11. *M.Rezwan Khan* , M.Fayyaz Khan, â€œ *An alternate layer matching technique for dielectric materials* â€œ, Journal of Modeling, Measurement & Control, A (France), vol.52, no.3, pp27- 37, 1993.
12. M.Arif-uz-Zaman, *M.Rezwan Khan* , A.K.M.Sadrul Islam, M.Fayyaz Khan, â€œ *Atmospheric moisture: A potential source of energy* â€œ, Renewable Energy, vol.3, no.8, 1993, pp 941-45.
13. *M.Rezwan Khan* and Raqibul Mustafa, â€œ *Calculation of wave funcÂtion in the space charge region of a Double-Barrier Resonant Tunneling Diode with Applications* â€œ, Solid State Electronics, vol.36,no.11, pp 1619-1622, 1993.
14. M.Fayyaz Khan, *M.Rezwan Khan* , â€œ *A linearized model for p-n junctions as temperature sensors* â€œ, Solid State Electronics, vol.38, no.6, pp 1279-81, 1995.
15. M.Arif-uz-Zaman, *M.Rezwan Khan* , A.K.M.Sadrul Islam and M.Fayyaz Khan, â€œ *A Novel Dehumidification Technique Using Electric Field* â€, IEEE Trans. on Industry Applications, vol.32, no.1, p.36, 1996. Also presented at the 45th International Appliance Conference, May 9-11, 1994, Madison, Wisconsin, U.S.A.
16. A.H.M.A.Rahim, A.M.Mohammad, ** *M.R.Khan*** , â€˜ *Control of subsynchronous resonant modes in a series compensated system through superconducting magnetic energy storageâ€™* , IEEE Transaction on Energy Conversion, v.11, no.1, March 1996, p 175-180. Also presented at the 1995 IEEE-PES Summer Meeting, July 23-27, 1995, Portland, U.S.A.
17. K.M. Rahman, ** *M.Rezwan Khan*** , M.A.Choudhury and M.A.Rahman, *â€˜Variable-Band Hysteresis Current Controllers for PWM Voltage-Source Invertersâ€™* IEEE Trans. on Power Electronics, vol.12, no.6, Nov. 1997.
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44. 45**.** Simon Batchelor, Md. Arifur Rahman Talukder, Md. Raihan Uddin, Sandip Kumar Mondal, Shemim Islam, Rezwannul Karim Redoy, Rebecca Hanlin, *Rezwan Khan* , *â€˜Solar e-cooking: A Proposition for Solar Home System Integrated Clean Cooking* â€™, *Energies***2018** , *11*(11), 2933; https://doi.org/10.3390/en11112933.

45. A.T.M. Golam Sarwar, M. Rezwan Khan and Arshad Khan, â€˜ *A quantum mechanical model for hole transport through DNA: predicting conditions for oscillatory/non-oscillatory behavior***â€™,** International Journal of Physics Research and Applications, 2020, 3: 046-057, DOI: 10.29328/journal.ijpra.1001022**.**

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5. M.Taleb, A.Kamal, A.J.Sowaied, *M.R.Khan* , *â€˜Alternative active power filterâ€™* , Proc. of IEEE International Conference on Power Electronics, Drives and Energy Systems for Industrial Growth, PEDES â€™96, part.1, Jan.8-11, 1996, v.1, New Delhi, India.

6. *M.Rezwan Khan* , â€œ *Effect of force field on the thermal equilibrium of an ideal gas* â€, presented at the Joint Annual Meeting of American Physical Society and American Association of Physics Teachers, Indianapolis, USA, 2-5 May, 1996.

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8. *M.Rezwan Khan* & M.Azizur Rahman, â€˜ *Simultaneous compensation of reactive and harmonic component of line current using super magnet energy storage* â€™, IPECâ€™97, Singapore, May, 1997.

9. K.M.Rahman, M.A.Choudhury, *M.Rezwan Khan* and M.A.Rahman,â€ *Dual slope carrier injected wide band delta modulator for voltage source invertersâ€* , 32nd University Power Engineering Conference, (UPECâ€™97), UMIST, Manchester, U.K., 10-12 Sept., pp 814-817, 1997.

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37. Rezwanur Rahman, Morshed U. Chowdhury, S.M. Raiyan Kabir and *M. Rezwan Khan* , â€˜A Novel Method for Person Identification by Comparing Retinal Patternâ€™, CAINE â€“ 2006, Las Vegas, Nevada, USA, Nov.15, 2006.
38. Kazi Jamir Uddin Ahmed and *M. Rezwan Khan* , â€˜Estimation of Pitch of Noisy Speech Using AR Model Based Inverse Filteringâ€™, Proceedings of ICECE 2006, Dec.19-21, 2006, Dhaka, Bangladesh.
39. Nasrin Sultana, A.B.M.H. Rashid and *M. Rezwan Khan* , â€˜Effect of Variation of Resistivity and Antenna Distance on Integrated Antenna System in Siliconâ€™, Proceedings of ICECE 2006, Dec.19-21, 2006, Dhaka, Bangladesh.
40. K.M.Farhan Shahil, Md. Nayeem Arafat, Q.D.M.Khasru and *M. Rezwan Khan* , â€˜Study of Charge Trapping/detrapping Mechanism in SiO2/HfO2 Stack gate Dielectrics Considering Two-way detrappingâ€™, Proceeding of International Workshop on Electron Devices and Semiconductor Technology, Tsinghua University, Beijing, China, June 3-4, 2007, pp 349-352.

41. Mehjabeen A. Khan, Akeed A. Pavel, *M. Rezwan Khan* and M. A. Choudhury, â€˜ *Design of a single phase rectifier with switching on AC side for high power factor and low total harmonic distortion* â€™, 2007 IEEE Region 5 Technical Conference, Fayetteville, AR, USA, April 20-21, 2007.

42. K. M. Farhan. Shahil, Md. Nayeem. Arafat, and *M. Rezwan Khan* , *â€˜Modeling of Post Soft Breakdown Conduction through Ultrathin High-k Gate Dielectricsâ€™,* The 2007 IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC) 2007, Taiwan, December 20-22, 2007 pp-177-180. http://www.ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=4422222&isYear=2007&count=337&page=3&ResultStart=75

43. K. M. Farhan. Shahil, Md. Nayeem. Arafat, Q. D. M. Khosru and *M. Rezwan Khan , â€œQuantum mechanical modeling of charge trapping/detrapping phenomena in CMOS structures with high-k dielectricâ€* Proceedings of 4th International Conference on Electrical and Electronics Engineering, ICEEE-2007,Mexico City, September 5-7, 2007, pp-349-352.http://ieeexplore.ieee.org/Xplore/login.jsp?url=/iel5/4344970/4344971/04345073.pdf?arnumber=4345073

44. M. Ryyan Khan, Taufiq Hasan, *M. Rezwan Khan* , â€™Iterative Noise Power Subtraction Technique for Improved Speech Qualityâ€™, Proceedings of the 5th International Conference on Electrical and Computer Engineering (ICECE 2008), Dhaka, December 20-22, 2008, pp 391-4.

45. *M. Rezwan Khan* and Md. Fayyaz Khan, â€™Energy Cost Calculations for a Solar PV Home Systemâ€™, Proceedings of the International Conference on the Developments in Renewable Energy Technology (ICDRETâ€™09), Dhaka, December 17-19, 2009, pp. 11-14.
46. Shahriar A. Chowdhury, A.T.M. Golam Sarwar and *M. Rezwan Khan* , â€™Optimized Solar Home System Package Design: Bangladesh Perspectiveâ€™, Proceedings of the International Conference on the Developments in Renewable Energy Technology (ICDRETâ€™09), Dhaka, December 17-19, 2009, pp. 148-152.
47. A.T.M. Golam Sarwar, *M. Rezwan Khan* , Arshad Khan, â€™A Quantum Model For Charge Transfer in DNA Incorporating Coherent and Incoherent Processesâ€™, the 6th International Conference on Electrical and Computer Engineering (ICECE 2010), December 2010,Dhaka.
48. Mahmudur Rahman Siddiqui, Md. Ryyan Khan, *Md. Rezwan Khan,* â€™A Double Gate Mos Structure for Solar Photo-Voltaic Applicationâ€™, the 6th International Conference on Electrical and Computer Engineering (ICECE 2010), December, 2010, Dhaka.
49. *M. Rezwan Khan* , â€™Prospect of solar PV based irrigation in rural Bangladesh: A comparative study with diesel based irrigationâ€™, 2nd International Conference on the Developments in Renewable Energy Technology (ICDRET 2012), January 5-7, 2012, Dhaka, Bangladesh pp35-37.

50. *M. Rezwan Khan* , Shahriar A. Chowdhuryâ€™Reduced battery sizing in a solar home system with respect to the night load and solar panel sizeâ€™, 2nd International Conference on the Developments in Renewable Energy Technology (ICDRET 2012), January 5-7, 2012, Dhaka, Bangladesh pp248-251.

51. *M. Rezwan Khan* , â€™A stand alone microgrid for electricity supply in rural Bangaldeshâ€™, 2nd International Conference on the Developments in Renewable Energy Technology (ICDRET 2012), January 5-7, 2012, Dhaka, Bangladesh pp 217-220.

52. M. Rezwan Khan and Edward E. Brown, *â€˜DC Nanogrids: A Low Cost PV based Solution for Livelihood Enhancement for Rural Bangladeshâ€™* , 3rd International Conference on the Developments in Renewable Energy Technology (ICDRET 2014), Dhaka, Bangladesh, May 29-31, 2014. Also presented at the International conference on the Innovating energy access to remote areas: Discovering untapped resourcesâ€™, April 10-12, 2014, University of California at Berkeley, USA.

53. M. Rezwan Khan and Sufi Iqbal, â€˜ *Solar PV-Diesel Hybrid Mini Cold Storage for Rural Bangladesh* â€™, 3rd International Conference on the Developments in Renewable Energy Technology (ICDRET 2014), Dhaka, Bangladesh, May 29-31, 2014.

54. M. Rezwan Khan, Md. Fayyaz Khan, â€˜ *Arc Suppression in Moderate Voltage DC Grid for Solar PV Applications* â€™, 3rd International Conference on the Developments in Renewable Energy Technology (ICDRET 2014), Dhaka, Bangladesh, May 29-31, 2014.

55. SML Kabir, I Alam, MR Khan, MS Hossain, KS Rahman, N Amin, â€˜ *Solar powered ferry boat for the rural area of Bangladesh â€™* , International Conference on Advances in Electrical, Electronic and Systems Engineering (ICAEES 2016), Putrajaya, Malaysia, 14-16 November, 2016.

56. Intekhab Alam, Nur-e-Mohammod Rifat, M. Rezwan Khan, â€˜ *Solar PV-Diesel Hybrid mini cold storage for off-grid areas of Bangladesh* â€™, 5th International Conference on the Developments in Renewable Energy Technology, ICDRET 2018, Kathmandu, Nepal, March 29-31, 2018.

57. Md. Arifur Rahman Talukder, Rebecca Hanlin, Simon Bachelor and M. Rezwan Khan , â€˜ *Fan Driven Improved Cookstove for Off-grid Rural Areas Using Solar Home Systems* â€™, 5th International Conference on the Developments in Renewable Energy Technology, ICDRET 2018, Kathmandu, Nepal, March 29-31, 2018.

58. Simon Batchelor, Md. Arifur Rahman Talukder, Md. Raihan Uddin, Sandip Kumar Mondal, Shemim Islam, Rezwanul Karim Redoy, Rebecca Hanlin, and M. Rezwan Khan, *â€˜Solar e-cooking: Solar Home System Integrated Clean Cooking Using Solar PVâ€™* , at the International Conference on Renewable Energy ICREN 2018, Barcelona, Spain, April 25-27, 2018.

59. M. Rezwan Khan, S.M. Lutful Kabir and Md. Ali Choudhury, *â€˜Resurrection of DC: An Exposition for Future Power Systemâ€™,* Invited paper in ICECE 2018, December 19-21, 2018, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

PUBLICATION OF BOOKS/CONTRIBUTED ARTICLES: 1. â€˜ *Anomalous Density of Water: The Mystery Unfolded* â€™, M.Ferdouse Khan, A.Khan, *Rezwan Khan* & Fahima Khanam, Published by M.Rezwan Khan, October, 1996. In this book, a model for water has been proposed where water molecules remain in clustered form while in liquid state. As the temperature is increased, the cluster size gets smaller but inter cluster distance becomes larger. Decreasing cluster size contributes to the increase in density and the inter cluster distance on the other hand contributes towards density reduction. Resultant of these two opposite processes make the density maximum at 4oC and the results presented in the book agree quite closely to the experimental results. Papers on the cluster model explaining density variation and other properties like surface tension has been published in some international journals (see publication list of journal papers; no.19, 22, 36)

1. â€˜ *Local Technology Development for Solar PV Systems* â€™, *Rezwan Khan* , Ch. 13 of the book â€˜Photovoltaic Technology for Bangladeshâ€™, edited by A.K.M.Sadrul Islam and D.G.Infield, jointly published by Mechanical Engineering Dept., BUET, Dhaka, Bangladesh and Centre for Renewable Energy Systems Technology, Loughborough, U.K, March 2001. The chapter includes the designs of different Solar PV Components like charge controllers, efficient inverters for DC lamps, fans and pumps for solar PV home systems etc. used rural Bangladesh.

2. *â€˜A Concept of DC Nano-Grid for Low Cost Energy Access in Rural Bangladeshâ€™* , Rezwan Khan and Edward D. Brown, Part I, Ch.3 of book , â€˜Decentralized Solutions for Developing Economies â€“ Addressing Energy Poverty Through Innovationâ€™, Edited by Groh S, Straeten J, Edlefsen Lasch B, Gershenson D, Leal Filho W & Kammen DM, *Springer Proceedings in Energy. 2015, XXIV.* ISBN 978-3-319-15964-5.

Keynote/Seminar/Visits

SEMINARS, CONFERENCES, WORKSHOPS & VISITS 1. Presented paper in the 14th European Microwave Conference, Liege, Belgium, Sept. 1984.

1. Lectured as a resource person at RONAST (Royal Nepal Academy of Science & Technology), Kathmandu, Nepal in August 1989 on digital electronics.
2. Attended the Summer College on Physics of Low Dimensional Semiconductor Devices at ICTP (International Centre for Theoretical Physics) Trieste, Italy, in April 1990. Presented talks on â€œCalculation of conduction band for arbitrary periodic potentials using quantum mechanical impedanceâ€ and â€œA new potential channel structure for interference type amplifierâ€ during the stay at ICTP.
3. Lectured as a resource person in the workshop on NDT (Nondestructive testing) using eddy current at the AEC (Atomic Energy Commission) Dhaka, Bangladesh in October, 1990 and in November 1991.
4. Presented paper titled â€œA Novel Dehumidification Technique Using Electric Fieldâ€ at the 45th International Appliance Technical Conference, May 9-11, 1994, Held at the University of Wisconsin, Madison. The paper was judged to be the best technical paper.
5. Presented a paper titled â€˜Effect of force field on the thermal equilibrium of an ideal gasâ€™ at the APS and AAPT Joint Meeting, May 2-5, 1996, at Indianapolis, Indiana, U.S.A. Also presented talks on the same topic at University of Colorado at Denver, University of South Florida at Tampa and University of Connecticut at Storrs.
6. Presented the paper titled â€˜Simultaneous compensation of reactive and harmonic components of line current using super magnet energy storageâ€™ at the International Power Engineering Conference IPECâ€™97, May 22-23, 1997, held at the Nanyang Technological University, Singapore.
7. Attended International conference on â€˜Renewable Energy Technology for Rural Developmentâ€™ held at Kathmandu, Nepal, in October 1998.
8. Visited Centre for Renewable Energy System Technology, Loughborough University, UK, from February 25 to March 7, 2000, under a link programme. Presented a seminar on â€˜Premature Blackening of the Fluorescent DC Lamps Used in Solar PV Home Systemsâ€™.
9. Visited Clarkson University, Potsdam, New York, USA, as a visiting faculty member for the Summer Session II, July 3 â€“ Aug. 5, 2000, and taught the summer course on Microelectronics (EE341). Also involved in research regarding the 3D electron transport in generalized potential structure.
10. Attended training program on â€˜Energy Efficiency in South Asia Regionâ€™, held in Mumbai, India, December 2002, organized, by Academy for Educational Development, funded by USAID.
11. Attended South Asian Regional Initiative, Energy (SARI/E) Training Institute Partners (TIP) Meet, Marawila, Sri Lanka, April, 2003.
12. Attended Institutional Linkage Program Meeting at Purdue University, West Lefayette, In., USA, October 2003 to initiate South Asia Power Pool Model (PPOSA) applications in the SAARC region.
13. Attended South Asian Regional Initiative, Energy (SARI/E) Training Institute Partners (TIP) Meet, Hyderabad, India, October 2003.
14. Presented paper â€˜Vehicle Classification Using Image Processingâ€™ at the International Conference on Computer and Communication Engineering, May 2006, Kuala Lumpur, Malaysia.
15. Visited VIT University, Vellore, Tamil Nadu, India, IIT Kharagpur, India and IIM Calcutta, India, to explore the possible academic collaboration with United International University, Dhaka, May 2007.
16. Visited University Technology Kebansang, Bangi and Academy Laut Malaysia (ALAM), Melaka, Malaysia, in October, 2008.
17. Attended workshop on â€˜Executive Exchange on the Use and Integration of renewable Energy in the Power Sectorâ€™, Madrid, Spain, October 19-23, 2009.
18. Visited Loughborough University, Staffordshire University, University of Bradford and University of Strathclyde, UK, under a British Council grant (INSPIRE) to develop academic collaboration with UIU, March 6-13, 2010. Later paid an unofficial visit to Purdue University, West Lafayette, Indiana, USA, March 14-20, 2010.
19. Attended â€˜National seminar on Power and Communicationâ€™, held on December 30, 2010 at Kathmandu University, Dhulikhel, Nepal as one of the key note speakers.

20. Visited Solarland solar PV manufacturing industry in Wuxi, China from September 2-7, 2011. Also visited Wuxi Institute of Technology and Jiangnan University for possible collaboration with UIU.
21. Attended the kick off meeting of EU funded â€˜Strong-Tiesâ€™ under Erasmus Mundus Program as a member institution at University of Malaya, Kualalumpur, Malaysia, October 13-15, 2011.
22. Attended the International Conference organized by LCEDN (Low Carbon Energy Development Network) and presented a poster on â€˜Solar PV based DC Micro-grid for Rural Bangladeshâ€™ held at Loughborough University, Loughborough, UK, April 4-6, 2012.
23. Attended the workshop on â€˜Energy and International Development: Understanding Sustainable Energy Solutions in Developing Countriesâ€™, held in Nairobi, Kenya, 12-14 December 2012.
24. Attended the Selection Committee meeting of â€˜Strongtiesâ€™ programme funded by Erasmus Mundus EU project, Larnaca, Cyprus, March 26-27, 2013.
25. Attended the British Councilâ€™s South Asia Policy Dialogue, June 18-19, 2013, held in Colombo, Srilanka.
26. Attended the Erusmus Mundus (European Union) Coordinators Meeting as the Joint Coordinator of the INTACT, October 1-2, 2013, Brussels, Belgium.
27. Attended the kick off meeting of INTACT (Erasmus Mundus, EU), November 7-8, 2013, Bangkok, Thailand.
28. Attended the Kick-off meeting of EPSRC, UK, funded Nanogrid project, December 10-12, 2013, Loughborough University, UK.
29. Attended the selection committee meeting of INTACT (Erasmus Mundus), March 27-29, 2014, Nicosia, Cyprus.
30. Presented key note paper titled â€˜ Solar PV in Bangladesh: The Way Forwardâ€™ at the international conference on â€˜Innovating energy access to remote areas: Discovering untapped resourcesâ€™, 10-12 April, 2014, University of Berkeley, USA.
31. Attended the workshop on â€˜Community Consultationâ€™ for the Solar Nanogrid (SONG) Project funded by EPSRC and DFID, Nairobi, Kenya, May 7-10, 2014.
32. Attended workshop on â€˜Low Carbon Options for South Asian Countries and Sectorsâ€™, Kathmandu, Nepal, August 26-27, 2014.
33. Attended the European Union Funded Erasmus Mundus Coordinatorsâ€™ Meeting, October 2-3, 2014, Brussels, Belgium.
34. Attended the kick-off meeting of the Erasmus Mundus â€˜LEADERSâ€™ project as the joint coordinator, October 17-18, 2014, Bangkok, Thailand.
35. Attended the selection committee meeting of Erasmus Mundus â€˜INTACTâ€™ and â€˜LEADERSâ€™ projects, March 10-13, 2015, Nicosia, Cyprus.
36. Attended the annual meeting of â€˜Solar Nanogridâ€™ (SONG) project, March 17, 2015, Nairobi, Kenya.
37. Attended the kickoff meeting of â€˜Next generation low-energy productsâ€™ project, April 27-28, 2015, Nairobi, Kenya.
38. Attended 4th International Offgrid Lighting Conference, October 26-28, 2015, Dubai.
39. Attended the annual meeting of â€˜Next Generation low-cost energy efficienct productsâ€™, 22-23 February, 2016, Open University, London.
40. Attended the Selection Committee meeting of Erasmus Mundus â€˜INTACTâ€™ and â€˜LEADERSâ€™ programs, 12-13 April, 2016, University of Limerick, Limerick, Ireland.
41. Visited National University, San Diego, California USA and met the Dean School of Engineering, June 21, 2016.
42. Attended the â€˜Improved Cookstove Workshopâ€™, Nairobi, Kenya, October 4-6, 2016.
43. Attended the Extra-ordinary General Meeting of International Council of Science (ICSU), Oslo, Norway, October 24, 2016.
44. Attended the annual meeting of â€˜Next generation low-cost energy-efficient productsâ€™, 8-9 March 2017, ACTS, Nairobi, Kenya.

45. Presented key note paper titled â€˜Solar PV based Stand Alone Grid Systems for developing Countries: Advantages of DC systemsâ€™, IEEE Hyderabad, March 10, 2017 and Osmania University, Hyderabad, March 11, 2017.

46. Attended ACBSP workshop and conference, June 23-28, 2017, Anaheim, California USA.

47. Visited Malaysia from July 4-9, 2017 and held a meeting with Vice President of University Selangor, Malysia regarding the signing of an MoU between UNISEL and UIU.

48. Attended IEEE IAS Annual Meeting Conference, October 1-5, 2017.

49. Delivered IEEE-IAS Distinguished Lecture on DC power system at North Carolina State University, Raleigh, North Carolina, October 6, 2017.

50. Delivered IEEE-IAS Distinguished Lecture on â€˜Stand-alone solar PV microgrid: Advantages of DC over ACâ€™ and â€˜Future of Power systemâ€™ on October 8, 2017, at National University of Singapore.

51. Participated in the stakeholdersâ€™ meeting â€˜Fostering Growth of Semiconductor Industries in Bangladesh Suggesting Necessary Transformation in Related Teaching and Building Infrastructuresâ€™ held at Crowne Plaza, Milpitas, CA 95035, USA, December 8-9, 2017. Also visited University California Davis, CA, USA to explore the possibilities of mutual collaboration with UIU.

52. Attended ICDRET 2018, held in Kathmandu Nepal, March 29-31, 2018 and presented a key note paper on â€˜Solar PV based Stand Alone Grid Systems for developing Countries: Advantages of DC systemsâ€™.

53. Presented paper â€˜Solar e-cooking: Solar Home System Integrated Clean Cooking Using Solar PVâ€™, at the International Conference on Renewable Energy ICREN 2018, Barcelona, Spain, April 25-27, 2018.

54. Presented Seminar titled â€˜AC vs. DC: Resurrection of Edison and Westinghouse debateâ€™, University of California San Diego, USA, October 12, 2018, and South Illinois University, Carbondale, USA, October 23, 2018.

55. Presented IEEE Distinguished Lecture in UTHM, Batu Pahat and University Technology Mara, Malaysia on â€˜AC vs. DC: Future of Power systemâ€™, Nov.11 and Nov.12, 2018 respectively.

56. Visited University of California San Diego, USA, on September 17, 2019. Also visited Intel Corporation office at Folsom, California, September 11, 2019 to discuss possible collaboration with UIU on VLSI design.

57. Attended International Clean Cooking Forum 5-7 November, 2019, Nairobi Kenya.

Keynote/Invited Papers: 1. Rezwan Khan, â€˜ Promoting Renewable Energy: Sustainable Cooperationâ€™, South Asia Forum for Infrastructure Regulation (SAFIR) meeting May 2012, Organized By Bangladesh Energy regulatory Commission, Dhaka. 2. Fayyaz Khan, M. Rezwan Khan and Shahriar Ahmed Chowdhury, â€˜Renewable Energy and Bangladesh: Prospects and Challengesâ€™, 6th International Conference on Electical and Computer Engineering, ICECE 2012, December, 2012, BUET, Dhaka, Bangladesh. 3. Rezwan Khan, â€˜ Regulatory Issues in Renewable Energyâ€™, SAFIR meeting March 2014, Organized By Bangladesh Energy Regulatory Commission, Dhaka. 4. Rezwan Khan, â€˜Solar PV in Bangladesh: The Way Forwardâ€™, the international conference on â€˜Innovating energy access to remote areas: Discovering untapped resourcesâ€™, 10-12 April, 2014, University of California at Berkeley, USA. 5. Rezwan Khan, â€˜Solar Energy: Bangladesh Perspectiveâ€™, Asiatic Society Bangladesh, May 16, 2015. 6. Rezwan Khan, â€˜Energy, Environment and Sustainable Development: Strategic Options for Bangladeshâ€™, BUET, organized by BUET Alumni, May 14, 2016. 7. Rezwan Khan, â€˜AC vs. DC: Resurrection of Westinghouse and Edison Debateâ€™, IEEE-IAS Webinar as IEEE-IAS Distinguished Lecturer, February 1, 2017. 8. Rezwan Khan, â€˜Solar PV based Stand Alone Grid Systems for developing Countries: Advantages of DC systemsâ€™, IEEE Hyderabad, India, March 10, 2017 and Osmania University, Hyderabad, India, March 11, 2017. 9. Rezwan Khan, â€˜AC vs. DC: Resurrection of Westinghouse and Edison Debateâ€™, IEEE-IAS Distinguished Lecture, Raleigh, North Carolina State University, USA, October 6, 2017. 10. Rezwan Khan, â€˜Role of Architects, Engineers and Planners in Achieving Sustainable Development Goals (SDGs): Affordable and Clean Energyâ€™, BUET Alumni Talk, BUET, Dhaka, October 28, 2017. 11. Rezwan Khan, â€˜Stand alone solar PV microgrid: Advantages of DC over ACâ€™, IEEE-IAS Distinguished Lecture, National University of Singapore, Singapore, November 8, 2017. 12. Rezwan Khan, â€˜Future of Power Systemâ€™, IEEE-IAS Distinguished Lecture, National University of Singapore, Singapore, November 8, 2017. 13. Rezwan Khan, â€˜Solar PV based Stand Alone Grid Systems for developing Countries: Advantages of DC systemsâ€™, ICDRET 2018, Kathmandu, Nepal, March 29, 2018. 14. Rezwan Khan, â€˜AC vs. DC: Resurrection of Edison and Westinghouse debateâ€™, University of California San Diego, USA, October 12, 2018, and South Illinois University, Carbondale, USA, October 23, 2018. 15. IEEE Distinguished Lecture in UTHM, Batu Pahat and University Technology Mara, Malaysia on â€˜AC vs. DC: Future of Power systemâ€™, Nov.11 and Nov.12, 2018 respectively. 16. Invited paper â€˜Resurrection of DC: An exposition for future power systemâ€™, ICECE 2018, December 19-21, BUET, Dhaka, Bangladesh. 17. Keynote paper â€˜Future of Soar PV Applications: Bangladesh Perspectiveâ€™, IEEE IPRECON 2020, October 30, 2020.

Research Interest

FIELDS OF RESEARCH INTEREST 1. Renewable Energy 2. Microelectronics, power electronics 3. Digital Signal Processing 4. Electromagnetics and communication.

SUPERVISION OF POST-GRADUATE RESARCH

Masterâ€™s Thesis: Title	Completion
Study of nondestructive metal testing using electromagnetic induction- BUET	1986-87
Quantum mechanical analysis of potential channel structures for current divider amplifiers- BUET	1988-89
Analysis of periodic potential structures by quantum mechanical impedance concept- BUET	1988-89
Quantum mechanical investigation of the resonant tunneling phenomena for multi-barrier potential structures- BUET	1989-90
Analysis of electron flow in potential channel structures discontinuous in the transverse dimension. â€“ BUET	1989-90
Extraction of latent heat from atmospheric moisture using electric field. â€“ BUET	1991-92
Calculation of trapped charge in the SiO2 layer of an enhancement type MOSFET using impurity trap levels. â€“ BUET	1995-96
Simultaneous compensation of reactive and harmonic components of line current using superconducting magnet energy storage. â€“ BUET	1995-96
Calculation of gate current due to incoherent scattering of the electrons waves by the trapped impurities. â€“ BUET	2000-01
New hetero-junction structure for high efficiency solar cells. â€“ BUET	2004
Estimation of the AR model for vocal fold for speaker identification and verification. -BUET	2005
Speech enhancement for white noise corrupted speech signals using perturbation technique. â€“ BUET	2005
Ph.D. Thesis: Title	Completion
Development of a new current controlled pulse width modulator for voltage source inverter	1997-2000
OTHER RESEARCH TOPICS: Funded projects	Funded by	US$	Year/duration
Design and construction of low loss semi-electronicballast for fluorescent mercury vapour lamps.	BUET	1,000	1989(6 months)
Design and construction of a low cost
battery driven small vehicle | Grameen Trust | 10,000 | 1997-1999(18 months)
Design and construction of an
induction type dc motor. | BUET | 1,500 | 1997-1998 (6 months)
Investigation to the cause of end blackening
of fluorescent lamps. | Energy Systems | 1,500 | 1998-1999 (4 months)
a. Design and development of low cost DC-DC
converter for Solar PV Home systems
b. Design and development of low cost
DC-pump for rural villages using solar PV panels.
c. Design and development of optimum power
tracking charge controller for solar PV systems. | Grameen Shakti | 7,500 | 1999-2000 (12 months)
Design and implementation of micro-hydro
project at Bamer Chara, Chittagong | LGED | 22,000 | 2003-2004
A study on awareness and financial models
for energy efficiency in Bangladesh | AED(USAID) | 1,600 | 2003 (Six weks)
Solar-Wind hybrid (5kW+5kW) renewable
energy system for St. Martinâ€™s Island, Bangladesh | LGED | 200,000 | 2003-2004
Feasibility study for Solar PV- diesel
Hybrid DC micro-grid for Nuner Tek
and Shonatala Char area | GIZ (German Technical Assistance) | 4,500 | 2011-12
Design and implementation of solar
PV-Diesel hybrid Micro-grid for rural
Bangladesh in 5 different off-grid area
of Bangladesh (still in progress) | IDCOL | 1,800,000 | 2012
Solar Nano-grids as an Appropriate Solution to the Limitations of Solar Home Systems in Rural
Communities in Kenya and Bangladesh
(Loughborough Univ.,UK, as the lead partner) | EPSRC+DFID | 720,000 | 2013-16
The Next Generation of Low Cost Energy-efficient Appliances and devices to Benefit the Bottom of the Pyramid (Open

Univ., UK, as the lead Partner) | EPSRC+DFID | 1,660,000 | 2014-2017
Solar Ferry Boat for rural Bangladesh | IDCOL | 52,000 | 2015-16
Small scale solar refrigeration for rural Bangladesh | IDCOL | 38,000 | 2016
Other projects:(Done at BUET if not specified otherwise) Funded projects	Year	Duration
Effect of electron scattering on the coherent behavior of electron waves in resonant tunneling devices.	1991	(6 months)
Calculation of density of states for solid state electron devices.	1991-92	(6 months)
Real power control of power systems using supermagnet energy storage device. (Done at University of Bahrain)	1993	(6 months)
Dehumidification using electric field.	1991-92	(12 months)
Effect of tunneling of gas molecules on thermal equilibrium of an ideal gas.	1994-95	(12 months)
Low voltage electrolysis of water for extraction of thermal energy.	1998-99	(12 months)
Design and construction of high starting torque squirrel cage induction motor using magnetic conducting material.	2000-01	(12 months)
Design and development of Pedaling generator for rural home systems.	2001	(4 months)
Modeling of the bonding behaviour of liquid water to explain its physical properties like density variation and surface tension variation with temperature.	1997-2001	(4 years)
Design and development of antennas and repeaters for mobile telecom system in Bangladesh.	2000-01	(6 months)
Estimation of system parameters at a very low SNR by noise pre-filtering	2003-2004
Speech enhancement using small sub-frame sections in DCT domain	2003-2004
Low cost 1D solar tracking system	2003-2004
Person identification using retina pattern	2004-2005
Pattern recognition for vehicle identification (UIU)	2004-2005
Estimation of soft break down parameters in a MOS structure using quantum model (**UIU**)	2005-2006
Pitch estimation from a voiced segment heavily corrupted by white noise (UIU)	2006-2007
Effect of charge trapping/detrapping in a high dielectric MOS structure using quasi-quantum calculations (UIU)	2006-2007
A residual noise averaging technique for further enhancement of a denoised signal (UIU)	2006-2007
A new power subtraction rule in DCT domain to obtain significant improvement in speech enhancement (UIU)	2006-2007
Quantum model for charge conduction in DNA (UIU)	2009-10
Design and energy cost optimization for Solar Home Systems (UIU)	2009-11
Solar PV-Diesel hybrid based DC microgrid for rural electricity Supply (UIU)	2010-11
A feasibility study of the Solar PV based irrigation system in comparison with diesel based system for rural Bangladesh (UIU)	2010-11

Other

COURSES OFFERED: a) Undergraduate level â€“ Electrical circuits, Linear System Analysis, Microelectronics, Electromagnetic theory, Electrical Engineering Materials, Data Communications, Microwave Engineering, Signals and Systems. b) Postgraduate level â€“ Laser theory, Energy Conversion. *OTHER ADMINISTR ATIVE/EXTRA ACADEMIC ACTIVITIES* 1. Served as the Provost of the Ahsanullah Hall, the largest studentsâ€™ hall of residence in Bangladesh University of Engineering & Technology, September 1996 to January 1998.

1. Served as the Secretary of the Board of the Undergraduate Studies (BUGS) and the Board of the Post-graduate Studies (BPGS), Department of EEE, BUET.
2. Served as a member/convenor in different academic and administrative committees like syllabus review committee, development and maintenance of Power electronics and Electronics lab etc.
3. Involved in different consultancy services provided to the industries organized by the university. A brief list of the important works is given below
4. Estimation of the harmonics injected to the power system by a steel mill
5. Consulting service for the updating and modification of the National Load Dispatch Centre Project, Bangladesh
6. Computer controlled automation for different industries in Bangladesh
7. Earthing design for telecom stations around Bangladesh
8. Consulting services to Unique Power Plant, Meghna Group of Industries, Bangladesh
9. Served as the Secretary, Technical Committee, International Conference on Electrical & Computer Engineering (ICECE 2001), Jan. 5-6, 2001.

10. Chairman, Technical Standards Committee, the Rural Electrification and Renewable Energy Development Project in Bangladesh implemented by Infrastructure Development Company Limited (IDCOL) , since 2003.
11. Served as the Technical Chair, International Conference on Electrical and Computer Engineering (ICECE 2002), Dec. 26-28, Dhaka, Bangladesh.
12. Member, Programme Committee, International Conference on Information Technology, Kathmandu, Nepal, May 2003.
13. Organizing Chair, International Conference on the Developments in Renewable Technology (ICDRET) 2009-2016, Dhaka, Bngaladesh.

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Departments

- Dept. of CSE
- B.Sc in Data Science
- Dept. of EEE
- Dept. of Civil Engineering
- Dept. of Pharmacy
- Dept. of English
- Dept. of EDS
- Dept. of MSJ
- SoBE (BBA, AIS, MBA, EMBA)
- Dept. of Economics
- Dept. of BGE

Admission

- Admission
- Tuition Fees & Waiver
- Admission Requirements
- Admission Test Result
- Admission Procedure
- Admission Dates
- International Studentsâ€™ Admission
- Global Opportunities
- International Collaboration
- FAQ

Important Links

- Time Schedule of Shuttle Services
- Student Transportation Service

- Payment Procedure
- Student e-Resources
- Important Contact

Quick Links

- UCAM
- eLMS
- Parent Portal
- Online Classroom Booking
- Degree Verification
- Necessary Forms
- Notice
- News
- Event
- EEE Old Site