Role of Smart Building Energy Management Systems in the Development of Smart City

Overview of the course:

The demand of electrical energy is increasing drastically and around 35% of the electrical energy is consumed in small and medium sized buildings in India. As we know that the electrical energy consumption in buildings is very high and will increase in near future. Therefore, there is a need of smart buildings or zero energy buildings. In India, most of the small and medium sized buildings are operating manually and there is a lack of automation for monitoring and control of various electrical equipment's/devices and lighting systems as a result, the lot of electrical energy is wasted. It is also observed that the power factor gets reduced because of more inductive loads which will be challenging task in near future. BEMOSS (Building Energy Management Open Source Software) using ICT devices and integrated with renewable energy can provide the good solution for the aforesaid problem and would be helpful in the development of smart buildings and smart cities in India. An International collaboration always provides opportunities for the enhancement of capacity building models in research and sustainable development.

Modules	**This course consists of one module only.** **6th March, 2018 to 10th March, 2018.**
You Should Attend If You are	▪ Students of B.Tech, M.Tech, Ph.D. research scholars and faculty members of academic institutions and technical institutions. ▪ Executives, engineers and researchers from utilities, services and government organizations, including R&D laboratories.
Registration Fees	The participation fees for attending the course is as follows: **Overseas Participants: US$ 200** **Industry/ Research Organizations: Rs. 3000** **Participants from Academic Institutions: Rs. 1000 (Rs. 500 for SC/ST participants)** **Research Scholars/Students/Alumni: Rs. 500 (Rs. 250 for SC/ST participants)** After registration on GIAN portal http://www.gian.iitkgp.ac.in/GREGN/index, the candidates are advised to submit the prescribed fee in the form of DD in favor of **"Jamia Millia Islamia"** payable at Delhi along with printout of online submitted application form to **Prof. Majid Jamil, Course Coordinator (GIAN), Department of Electrical Engineering, Jamia Millia Islamia, Jamia Nagar, New Delhi-110025** on or before **02.03.2018**. The shortlisted participants will be informed through e-mail. The above fee includes all instructional materials, computer use for tutorials and assignments and laboratory equipment usage charges. **The course fee does not include boarding and lodging. The paid hostel/guest house accommodation may be provided on first come first serve basis with prior request.**

Teaching Faculty

Professor Saifur Rahman is the founding director of the Advanced Research Institute (www.ari.vt.edu) at Virginia Tech where he is the Joseph R. Loring Professor of Electrical and Computer Eengineering. He also directs the Center for Energy and the Global Environment (www.ceage.vt.edu). He is a Fellow of the IEEE and an IEEE Millennium Medal winner. He is the President-elect of the IEEE Power and Energy Society (PES) for 2016 and 2017. He will serve as the President of PES in 2018 and 2019. He was the vice president for publications of IEEE and a member of the governing board in 2006. He is a member of the governing board of the IEEE Society on the Social Implications of Technology (SSIT). He was the founding editor-in-chief of the IEEE Electrifications Magazine and the IEEE Transactions on Sustainable Energy. He served as the chair of the US Naitonal Science Foundation Advisory Committee for International Science and Engineering from 2010 to 2013. He is a member-at-large of the IEEE-USA Energy Policy Committee. He is a Distinguished Lecturer for the IEEE PES, and has lectured on smart grid, energy efficient buildings, renewable energy, demand response, distributed generation and critical infrastructure protection topics in over 30 countries on all six continents.

He received his Ph.D. in electrical engineering from Virginia Tech in 1978. His M.S. degree is from the Stony Brook University and has a B.Sc.EE degree from the Bangladesh University of Engineering & Technology. His industry and government experience includes work with the Tokyo Electric Power Company in Japan, the Brookhaven National Laboratory in New York, Duke Energy in North Carolina and consultancy for the World Bank, the United Nations, US Agency for the International Development and the Asian Development Bank.

Host Faculty

Dr. Majid Jamil is a Professor and Head, Department of Electrical Engineering, Jamia Millia Islamia, New Delhi. Dr Jamil has more than 24 years' research and teaching experience. He joined Jamia as a Lecturer in 1992 and became professor in 2010. He has also served as an Assistant Professor at BITS Pilani Dubai Campus during 2003-2006.

Dr Jamil has published more than 80 research papers in international refereed journals and conferences. Dr Jamil has guided 8 Ph.Ds and supervising 6 PhDs at present. He has also received grant of Rs. 203 lacs under FIST programme of DST, Govt of India. He has received grant of more than Rs 40 lacks from AICTE and DST, Govt of India for research projects. He has Edited 2 books and has written book chapters also. Dr. Jamil has also received the best paper award from University of California, Berkley, USA in 2009, Prof. Jamil was the organizing chair of IEEE International Conference- 12th INDICON 2015 held at Jamia Millia Islamia during 17th-20th December 2015. He also organized a national conference ETEEE-2015 during 2nd-3rd Feb 2015. Prof. Jamil is the senior member of IEEE and life member of ISTE, ICTP and Institutes of Engineering. His areas of interest are power systems, power protection, and renewable energy, energy auditing, energy efficiency, smart buildings and intel-ligent techniques.

Course Coordinator:

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For Registration:
http://www.gian.iitkgp.ac.in/GREGN/index

Role of Smart Building Energy Management Systems in the Development of Smart City

Tentative Course Schedule (25th February, 2018 to 1st March, 2018)

Tentative Lecture Schedule

March 6, 2018 Tuesday

Lecture 1 : 10.00 AM to 11:00 AM
Introduction to Smart Buildings, Smart City and Energy Efficeiency
Lecture 2: 11:30 AM to 12:30 PM
Smart Buildings and Infrastructure

March 7, 2018 Wednesday

Lecture 3 : 10.00 AM to 11:00 AM
BEMOSS Platform
Lecture 4: 11:30 AM to 12:30 PM
Use of BEMOSS for Building Energy Management integrated with Renewable Energy
Lecture 5 : 2.00 PM to 3:00 PM
IoT devices for Building Energy Managements Systems

March 8, 2018 Thursday

Lecture 6 : 10.00 AM to 11:00 AM
Smart Building Management Facilities at Virginia Tech: Case Studies
Lecture 7 : 11:30 AM to 12:30 PM
Energy Efficiency
Lecture 8 : 2.00 PM to 3:00 PM

Green House Gas Mitigation using Renewable Energy and Energy Efficiency

March 9, 2018 Friday

Lecture 9 : 10.00 AM to 11:00 AM
Smart Grid and Smart Cities
Lecture 10: 11:30 AM to 12:30 PM
Role of Smart Buildings and Energy Efficiency in Smart Cities
Lecture 11 : 2.00 PM to 3:00 PM
Home Energy Management System

March 10, 2018 Saturday

Lecture 12 : 10.00 AM to 11:00 AM
Smart City Development for Indian Scenario

Date of Examination: March 10, 2018 at 11:30 AM