SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
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Area: Power and Energy Systems

Host: Prof Dipti Srinivasan

Jointly Organized By:
Green Energy Management and Smart Grid Research Center (GEMS),
Department of Electrical & Computer Engineering, National University of Singapore
and IEEE Singapore Power & Energy Chapter and
IEEE Singapore Computational Intelligence Chapter and
IEEE PES National University of Singapore Student Branch Chapter

Details:

2pm to 3.15pm : Part I: Intelligent forecasting

3.15pm to 3.30pm : Tea Break

3.30pm to 4.30pm : Part II: Optimization and control methods for dynamic electricity market

TOPIC	**:**	**Transactive Energy: A Market-Based Approach to Enable More Dynamic, Interactive, and Intelligent Systems for Smart Distribution Networks**
SPEAKER	**:**	**Paras Mandal, Ph.D., SMIEEE** **Associate Professor of Electrical & Computer Engineering** **Director, Power & Renewable Energy Systems (PRES) Lab.** **University of Texas at El Paso**
DATE	**:**	**6 June 2019, Thursday**
TIME	**:**	**2pm to 5pm**
VENUE	**:**	**E3-06-09, Engineering Block E3, Faculty of Engineering, NUS**

ABSTRACT

This presentation will provide an overview of intelligent forecasting, optimization and control methods for decision-making in the dynamic electricity market with the overall objective of improving the reliability and performance of the electric power grid in the path towards a sustainable future. The increasing emphasis to integrate environmentally friendly and/or intermittent distributed energy resources (DER), such as wind and solar, has made the planning and operation of power markets even more complex and daunting. Furthermore, power utilities are facing a major challenge in maintaining the desired reliability and security while integrating increasing loads, DER, energy storage systems (ESS), and electric vehicles (EV). We need efficient tools to model and analyze the electric power grid with newly added components to facilitate smooth integration within given constraints. The existing practice of grid operation is based on forecasting, planning, sensing, estimating, operating and controlling, which are more challenging with the inherent uncertainty of DER/other loads and demand response (DR). A series of work is required in various areas such as (1) development of intelligent tools for managing variability and uncertainty of DER, (2) design an effective DR program in coordination with ESS/EV, (3) enable ISOs to minimize the impact of DER uncertainties, (4) design network-microgrids as assets and create a new distribution system based power market, and (5) integrate smart grid and transactive energy concepts in order to improve efficiency and reliability of the grid and helping transmission and distribution system operators to manage the increasing complexity of the grid effectively.

BIOGRAPHY

Dr. Mandal is as an Associate Professor of Electrical and Computer Engineering and Director of Power & Renewable Energy Systems Lab at the University of Texas at El Paso (UTEP), U.S.A. He received his Ph.D. degree (power system) from University of the Ryukyus, Japan in 2005. In the past, he worked as JSPS Postdoctoral Fellow at the University of the Ryukyus; Research Professor at Yonsei University, South Korea; Research Fellow at University of Tasmania, Australia; and Postdoctoral Research Fellow at University of Calgary and University of New Brunswick, Canada. His research interests include power system forecasting problems (especially forecasting of solar power, wind power, load demand, and electricity price); predictive data analytics and uncertainty estimation; intelligent systems applications; power system optimization, operations and markets; smart grid; cyber physical system; and distribution systems planning. He has served as a PI and Co-PI of the projects (around $3 million) funded by the National Science Foundation, the Department of Education, and others. He has authored several scientific articles and proven technical, academic and leadership skill with various awards and honors. He is a recipient of best papers award by IEEE and Young Engineer award from IEEJ. He participates and assumes leadership roles in multiple professional groups within the IEEE Power and Energy Society (PES). He is a *Senior Member* of IEEE, *Secretary* of IEEE PES Power & Energy Education Committee (PEEC)–Life Long Learning Subcommittee (LLLSC), *Vice-Chair* of IEEE PEEC award subcommittee, and *Member* of various IEEE working groups and subcommittees. Dr. Mandal is a regular reviewer of journals and conferences and, serves as an Editorial Board of the journals and a session chair and panelist in IEEE PES conferences.

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