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Energy, Power and Environment
(Towards Clean Energy Technologies)

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National Institute of Technology Meghalaya, Shillong, India

ICEPE 2020

ICEPE 2020 Special Session (SS-01)

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1. Title of the special session

Real-time Simulation and Hardware-in-the-Loop Applications

2. <u>Aims & Scope of the Session:</u>

As there is a shift from conventional grid towards Smart Grid, the modeling and real time implementation of electric vehicles, FACTS devices, Renewable Energy Sources is gaining importance. Prior to installation, the operation, simulation of new concepts and technologies is a must in order to ensure safe operation and reduce the cost of field testing. To accomplish this, real time modeling and simulation technologies are required. Real-time simulation technology offers such platform where state-of-the art digital hardware and software is used to produce faithful responses of the systems.

3. <u>Topics of interest include, but are not limited to:</u>

- ❖ Real-time simulation of electrical systems
- ❖ Modeling & Simulation of Electric Vehicles
- ❖ Modeling of HVDC Converters & Their Real Time Implementation
- ❖ Real Time Simulation of FACTS Devices
- ❖ Modeling of Wind Energy Conversion Systems
- ❖ Modeling of Microgrid using HIL
- ❖ Hardware/Software-in-the-Loop real time simulations and experiments

4. <u>Special Session Organizers:</u>

Dr. Ritula Thakur
ritula.thakur@gmail.com

5. <u>Special Session Organizers (short bios):</u>

Dr. Ritula Thakur received B.E degree in Electrical engineering with Honours, M.E. degree in Power systems with distinction and Ph.D from Panjab University, Chandigarh. Currently, she is working as Associate Professor at National Institute of Technical Teachers Training and Research, Chandigarh, India. Dr. Thakur has also worked as Visiting Scholar in Richard Russel Research Laboratory, Athens, USA.

Her research interests are in the areas of Real Time modeling & Simulation of Power Systems, Modeling of DFIG based WECS, Embedded systems and Microcontrollers, Electrical Engineering and Information Technology in Agriculture, Quality Analysis and Detection Technology in Food Materials, Sensors and Instrumentation, Power Systems, Power Quality, PLC and SCADA, Micro Grid and Smart Grid.