DC MICROGRID AND CONTROL SYSTEMS

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PRE-REQUISITES : Power electronics, Power system and Control system

INTENDED AUDIENCE : M.Tech and PhD in Power electronics and Power system.

INDUSTRY SUPPORT : ABB, GE, CESC

COURSE OUTLINE :

This course is suitable for PG students studying in power electronics, power system and system & control subjects. The course details the fundamental concepts of microgrid and its components, types of microgrids, advantages of microgrid compared to the central conventional grid. Particularly the course describes general concepts and application, control strategies and principle of operation of DC microgrid. The course is very applicable for students and researchers from power system, power electronics and control system area who to do research in fast growing and emerging renewable energy technology.

ABOUT INSTRUCTOR :

Prof. Avik Bhattacharya is working as Assistant Professor in IIT Roorkee from February 2014. Before joining IIT Roorkee he was research and development team of Danfoss Solar inverter and ABB. He has over a decade of experience in power quality issues and published four IEEE transaction on it. He is also teaching this course in IIT Roorkee for past two years for UG and PG (B.Tech fourth year and M.Tech) . His teaching is right blending of Industry, research and academic interest

COURSE PLAN :

Week 1: Brief introduction and Concepts of Microgrid

Week 2: Types of Microgrid system, Microgrids vs Central Conventional power system

Week 3: AC and DC Microgrids, comparison between AC and DC Microgrids

Week 4: Power Electronic Converters in Microgrid application, DC Microgrid Topologies

Week 5: DC Power source components, application of DC Microgrids

Week 6: DC Microgrid operations, Some Standards related with DC Power Circuit.

Week 7: Control methods in DC Microgrid

Week 8: Linear and nonlinear Stability system in DC Microgrid