

Digital Control and FPGA-Based Rapid Prototyping in Switched Mode Power Converters

SPEAKERS



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ABSTRACT

Leading power electronics and power management industries are aggressively exploring digital control solutions for their mainstream product lines in the near future to meet ever increasing demands of performance, efficiency, safety, EMI, hot swapping, scalability, modularity, adaptability, compatibility with smart digital communication.

This short-term course will benefit industry practitioners, students and researchers to know about latest digital control trends in power electronics industries, particularly to understand (i) benefits of digital control, (ii) modulation and digital control architectures, (iii) MATLAB customized model development for simulation, (iv) modeling and analysis techniques, (v) design and tuning methods, (vi) embedded control implementation platforms, (vii) Verilog HDL and fixed point implementation, and (viii) hardware development and FPGA-based prototyping with case studies and practical demonstration.



About The Speakers:

Santanu Kapat:

Dr. Santanu Kapat received the M.Tech. and Ph.D. degrees in Electrical Engineering (EE) from IIT Kharagpur, India, in 2006 and 2010, respectively. He was a Visiting Scholar with the ECE Department, University of Illinois at Urbana-Champaign, USA from 2009 to 2010, and a Research Engineer with GE Global Research, Bengaluru from 2010 to 2011. Since August 2011, he has been with the EE Department (EED), IIT Kharagpur, where he is presently a Professor.

Philip Krein:

Philip T. Krein holds the Grainger Endowed Chair Emeritus in Electric Machinery and Electromechanics at the University of Illinois at Urbana-Champaign, where he is the Director of the Grainger Center for Electric Machinery and Electromechanics. He is also the Executive Dean of the Zhejiang University/University of Illinois at Urbana-Champaign Institute, Haining, China. He holds 42 U.S. patents. His current research interests include all aspects of power electronics, machines, drives, electric transportation, and electrical energy, with emphasis on nonlinear control approaches.