Tutorial B

Date Sunday, October 12, 13:30 – 17:00
Venue SDKM, ITU, Workshop Room B

Cyber Physical Systems Security for the Smart Grid

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Prof. Dr. Chen-Ching Liu is Boeing Distinguished Professor at Washington State University, Pullman, and Director of Energy Systems Innovation (ESI) Center. He is also Professor of Power Systems at University College Dublin, Ireland. During 1983-2005, he was a Professor of EE at University of Washington, Seattle. Dr. Liu was Palmer Chair Professor at Iowa State University from 2006 to 2008. In 2008, he joined University College Dublin, where he was Deputy/Acting Principal of Engineering, Mathematical and Physical Sciences. Chen-Ching completed his Ph.D. from the University of California, Berkeley. He received an IEEE Third Millennium Medal in 2000 and the Power and Energy Society Outstanding Power Engineering Educator Award in 2004. Professor Liu received a Doctor Honoris Causa from Polytechnic University of Bucharest, Romania, in 2013. He chaired the IEEE Power and Energy Society Fellow Committee, Technical Committee on Power System Analysis, Computing and Economics, and Outstanding Power Engineering Educator Award Committee. Professor Liu is a Fellow of the IEEE.

Abstract: The electric power grid is a complex cyber physical system (CPS) that forms the lifeline of a modern society. Its reliable and secure operation is of paramount importance to national security and economic well-being. The power grid today is a highly automated network, wherein a variety of communication networks and information systems are interconnected to the physical grid for the purpose of monitoring, protection, control, and market functions. Numerous publications - from government, industry, and academics - have indicated the growing concern of cyber threats to the electric power grid and the critical need to protect the grid against cyber attacks. Moreover, the increased reliance on information and communication technologies in the smart gird will significantly increase the attack surface, which further underscores the importance of cyber security.

As a result, cyber security of the power grid — encompassing attack prevention, detection, mitigation, and resilience — is among the most important R&D and educational priorities of today and in the future. The purpose of this tutorial is to provide insights into the latest R&D and best practices for raising awareness of cyber security and approaches for managing it. The short course is tailored to a broad audience from industry and academia with the background in power systems or cyber security