Control Techniques in Switched Mode Power Converters (SMPCs) Part II		
Session details (Each session of 2 hours duration)		
Sessions	**Session theme**	**Major topics**
S₁	Design of Current Mode Control – Buck Converter Example	• Loop shaping objectives and design of current mode control • Loop interactions in current mode control • Shaping output impedance under current mode control
S₂	Analysis and Design of Ripple based Control Techniques	• Modeling and analysis of ripple based control • Design of hysteresis current control technique • Design of constant on/off-time CMC techniques
S₃	Fastest Control in SMPCs and Performance Limits	• Time optimal performance and slew rate limits • Implementation methods of time optimal control • Performance comparison using linear and nonlinear control
S₄	Opportunities and challenges of digital control in SMPCs	• Need for Digital Control in SMPCs • Closing the Digital Feedback Loop • Digital Pulse Width Modulator Architectures

Reference book and material:

[1] R. W. Erickson and D. Maksimovic, Fundamentals of Power Electronics, 3rd Ed., Springer, 2020.

[2] S. Kapat and P. T. Krein, "A Tutorial and Review Discussion of Modulation, Control and Tuning of High-Performance DC-DC Converters based on Small-Signal and Large-Signal Approaches" *IEEE Open Journal of Power Electronics,* vol. 1, pp. 339 - 371, Aug. 2020.