

PLECS WORKSHOP

Advanced Modeling and Simulation of Power Electronic Systems
University of Pisa - DESTEC, October 24th 2025

08:30	Registration
09:30	Introduction to PLECS ► General use of PLECS Blockset and PLECS Standalone ► Instantaneous switching ► Variable and fixed-step operation Exercise: Modeling a switched-mode power supply
11:00	Break
11:30	Solver Settings ► Definition of stiff and non-stiff systems ► Explicit and non-explicit solvers ► Stability domains ► Accuracy considerations, step size control ► Proper handling of discontinuities, zero-crossing detection
12:30	Lunch
13:30	Introduction to Thermal Simulation ► Switching & conduction loss descriptions ► Combined electrical-thermal simulation ► Determining loss values from data sheets Exercise: Thermal modeling of a buck converter
15:00	Break
15:30	Bringing Simulation and Real Hardware Together (Code Generation Workflow in PLECS) ► Automatic code generation for microcontrollers ► Plant code generation for the RT Box ► Nanostep®, FlexArray and CPU solver engines ► Real-time simulation with 4ns step size for MHz switching Demonstration: HIL testbench with microcontroller and RT Box
16:30	Q&A
16:45	End of day
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