REAL-TIME WORKSHOP

Advanced Modeling, Simulation and Code Generation of Power Electronic Systems
Plexim GmbH, 14. / 15. Mai 2025

08:30	Registration
09:00	Introduction to PLECS ▶I General use of PLECS ▶I Instantaneous switching ▶I Variable and fixed-step operation Exercise: Modeling a switched-mode power supply
10:00	Break
10:30	Solver Settings ▶I Definition of stiff and non-stiff systems ▶I Explicit and non-explicit solvers ▶I Stability domains ▶I Accuracy considerations, step size control ▶I Proper handling of discontinuities, zero-crossing detection
12:00	Lunch
13:00	Introduction to Thermal Modeling & Simulation ▶I Switching & conduction loss descriptions ▶I Combined electrical-thermal simulation ▶I Approach for determining the loss values from the data sheet Exercise: Thermal modeling of a buck converter
14:30	Break
15:00	Overview of PLECS Tools ▶I Custom components ▶I Steady state analysis ▶I Small signal analysis ▶I State machine ▶I Simulation scripting (Octave and Python) ▶I Parallel simulations
16:00	Q&A with Plexim Engineers ▶I Open discussions ▶I Bring your questions/models
16:30	End of workshop day 1

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electrical engineering software

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08:30	Introduction to PLECS Coder for Embedded Targets ▶I Embedded code generation motivation ▶I Code generation workflow ▶I Control task execution and timing ▶I Multitasking
09:30	Break
10:00	Tutorial 1: Workflow ▶I Blinking an LED ▶I Generate PWM output signals ▶I Use the external mode and parameter inlining
12:00	Lunch
13:00	Tutorial 2: Timing Configuration and Real-Time Setup ▶I Control task execution and timing ▶I Code generation workflow ▶I Real-Time Example
15:00	Overview and Introduction to the PLECS RT Box ▶I Hardware-in-the-Loop (HIL) ▶I Rapid control prototyping (RCP) ▶I Demonstration of a real-time simulation
16:00	End of workshop day 2
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