

# PLECS WORKSHOP

Real-Time Simulation Using the PLECS RT Box  
Plexim GmbH, September 7, 2017

08:30	<b>Registration and Installation of Necessary Features</b>
09:00	<b>Overview and Introduction to RT Box Workflow using PLECS</b> <ul style="list-style-type: none"><li>▶ PLECS overview</li><li>▶ Ideal switch concept</li><li>▶ From PLECS offline models to RCP and HIL</li><li>▶ Code Generation</li></ul>
09:30	<b>RT Box Introductory Exercise</b> <ul style="list-style-type: none"><li>▶ PLECS RT Box features</li></ul> Exercise: Introductory exercise using I/O ports
10:00	<b>RT Box Specs and Library Blocks</b>
10:15	<b>Break</b>
10:30	<b>Real-time Simulation of a Voltage Source Inverter (VSI)</b> <ul style="list-style-type: none"><li>▶ PLECS model creation using the target blocks library</li><li>▶ Deployment on the RT Box</li></ul> Exercise: Voltage Source Inverter (VSI)
12:00	<b>Lunch</b>
13:00	<b>Timing Overview and Step Size Selection</b> <ul style="list-style-type: none"><li>▶ Example of a Buck Converter using continuous, switched implementation</li><li>▶ Step size and calculation time</li><li>▶ Motivation for sub-cycle averaging using PWM capture module</li><li>▶ Example of a Buck Converter with sub-cycle averaged configuration</li></ul>
13:45	<b>Model Optimization</b> <ul style="list-style-type: none"><li>▶ Sub-cycle averaging and power modules</li><li>▶ Model separation</li></ul> Exercise: Model splitting using a DTC example
15:00	<b>Break</b>
15:15	<b>Virtual Prototyping</b> <ul style="list-style-type: none"><li>▶ Concept of virtual prototyping</li><li>▶ Extension of VSI with controls</li></ul> Exercise: Virtual prototyping
16:00	<b>Q&amp;A - End of Workshop</b>
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Location	Plexim GmbH, 3rd Floor, Zeppelin Wing, Technoparkstrasse 1, 8005 Zurich, Switzerland
Note	This workshop addresses to anyone who already has experience with the simulation software PLECS.