

# PLECS WORKSHOP

Universitas Gadjah Mada (UGM), Indonesia, 31 July, 2023

08:30	Registration
09:00	<b>Introduction to PLECS</b> <ul style="list-style-type: none"><li>▶ General use of PLECS Blockset and PLECS Standalone</li><li>▶ Instantaneous switching</li><li>▶ Variable and fixed-step operation</li></ul> <b>Exercise:</b> Modeling a Switched-Mode Power Supply
10:30	Break
10:45	<b>Solver Settings, Thermal Modeling &amp; Simulation</b> <ul style="list-style-type: none"><li>▶ Solver types</li><li>▶ Accuracy considerations, step size control</li><li>▶ Switching &amp; conduction loss descriptions</li><li>▶ Combined electrical-thermal simulation</li></ul> <b>Demo:</b> Efficiency calculation of a buck converter
11:30	<b>Overview of PLECS Tools</b> <ul style="list-style-type: none"><li>▶ Custom components</li><li>▶ Steady state analysis tool</li><li>▶ Small-signal analysis tool</li><li>▶ Simulation scripting</li></ul>
12:00	Lunch
13:00	<b>Overview of PLECS Code Generation for Microcontrollers</b> <ul style="list-style-type: none"><li>▶ PLECS Coder for Rapid Control Prototyping (RCP) Concept</li></ul> <b>Exercise:</b> Program an STM32 MCU with PLECS Coder (STM32 Nucleo G474RE) for LED blinking, PWM generation, and ADC measurement
14:30	Break
14:45	<b>Overview of PLECS Code Generation for RT Box</b> <ul style="list-style-type: none"><li>▶ PLECS RT Box for Hardware-In-Loop (HIL) Concept</li></ul> <b>Exercise:</b> HIL application of a three-phase inverter in closed-loop (STM32 Nucleo G474RE + RT Box) <b>Demo:</b> Sensorless Field-Oriented Control of PMSM as HIL application
16:00	Q&A, end of day
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