



This project has received funding from the European Union's HORIZON-WIDERA-2021-ACCESS-03 under Grant Agreement No. 101079200.



SUNRISE SUMMER SCHOOL

Real time applications for enabling massive penetration of RES

(From simulation to prototyping via HIL)

Tuesday 10th – Friday 13th September 2024, University of Belgrade, School of Electrical Engineering, Belgrade, Serbia

Agenda

Monday 9th September 2024		
19:30-21:30 Welcome Reception		
Tuesday 10th September 2024		
Protection testing in HIL		
Time slot	Lecture	Lecturer
9:00-10:00	Opening Session	SUNRISE team
10:00-10:30	Coffee Break	
10:30-12:00	Typhoon HIL – Integrated Model Based Engineering Solutions	Aleksandar Kavagic, Senior Business Developer Caio Osório, Head of HIL Academy Projects
12:00-13:30	Lunch	
13:30-14:30	Protection relay testing using real-time simulators. Application to distribution systems.	Oihane Abarrategi, Associate Professor UPV/EHU
14:30-15:30	Modelling of a distribution system protection. Overcurrent relay protection (Part 1)	Marene Larruskain, Associate Professor UPV/EHU and UPV/EHU team
15:30-16:00	Coffee Break	
16:00-17:00	Hardware in the Loop of overcurrent relay protection (Part 2)	Pablo Eguia, Associate Professor UPV/EHU and UPV/EHU team
Wednesday 11th September 2024		
Protections and renewable generation		
9:00-10:00	Transmission system protection	Marene Larruskain, Associate, Professor UPV/EHU
10:00-10:30	Coffee Break	
10:30-11:30	Distance relay protection testing	Pablo Eguia, Associate Professor UPV/EHU and UPV/EHU team
11:30-12:30	Influence of renewable generation in the protection system	Pablo Eguia, Associate Professor UPV/EHU
12:30-13:30	Lunch	
13:30-15:30	Automating Substation Protection Testing: Unleashing the Power of Model-Based, Whole-System-Validation Approach	Dusan Kostic, Application engineer at Typhoon HIL
15:30-17:00	Nikola Tesla museum tour	



This project has received funding from the European Union's HORIZON-WIDERA-2021-ACCESS-03 under Grant Agreement No. 101079200.



Thursday 12th September 2024		
Modelling and Control of Voltage Source Converters		
9:00-10:00	Modeling and control of voltage source converters (VSCs): Part I	Manuel Barragán Villarejo, Associate Professor USE
10:00-10:30	Coffee Break	
10:30-11:30	Simulation of a grid-following VSC. Current controller in rotating axes dq	Manuel Barragán Villarejo, Associate Professor USE, and USE team
11:30-12:30	Modeling and control of voltage source converters (VSCs): Part II	José María Maza Ortega, Full Professor USE
12:30-13:30	Lunch	
13:30-14:30	Simulation of a grid-following VSC. DC bus voltage control and reactive power control in rotating axes dq	José María Maza Ortega, Full Professor USE
14:30-15:30	Higher level controllers in RES.	Juan Manuel Mauricio, Associate Professor USE
15:30-16:00	Coffee Break	
16:00-17:00	Simulation of Higher level controllers in RES	Juan Manuel Mauricio, Associate Professor USE
20:00-23:00	Joint Gala Dinner	
Friday 13th September 2024		
HIL and prototyping of Voltage Source Converters		
9:00-10:30	Control Hardware in the Loop of VSC-controller using Typhoon HIL	Manuel Barragán Villarejo, Associate Professor USE, and USE team
10:30-11:00	Coffee Break	
11:00-12:30	Control Hardware in the Loop of Higher level controllers in RES	Juan Manuel Mauricio, Associate Professor USE, and USE team
12:30-13:30	Lunch	
13:30-15:00	Experimental validation of VSC-controller in the SUNRISE prototype	Manuel Barragán Villarejo, Associate Professor USE, and USE team