ERIGrid 2.0 Training School – Introduction to Real-Time Digital Simulations with Applications to Sustainable Energy Systems

Jan 2023, Delft, NL

Summary: A training school on introduction to real-time digital simulation with applications in sustainable energy systems is will be organized by the Intelligent Electrical Power Grids (IEPG) section of the Electrical Sustainable Energy (ESE) department at the Delft University of Technology. The training school is intended to introduce real-time power system simulations and its wide range of applications in sustainable energy systems. This includes modelling and simulation of renewables such as wind turbines and high voltage DC applications. Furthermore, the training school will also touch upon the concept of Controller-hardware-in-the-loop, in collaboration with the University of Strathclyde. The IEEE student branch of Delft University of Technology will form the local organising committee.

Intended Learning Objectives (ILOs): A student who completes this course is able to:

1. Model and simulate simple power system networks in RTDS.
2. Understand the concept of small-time step for detailed modelling of renewables – wind turbines and HVDC.
3. Apply real-time simulations to study and analyse power networks with high share of renewables.
4. Understand the concept of application of Hardware-in-Loop experiments.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 870620.

Note: The course is offered free of charge! **Registration is mandatory.**

Please register via the following link: registration form.

A certificate of attendance will be given at the end of the workshop provided that the student is present in all sessions and completes the work planned for each session. Please bring your own laptops. Lunch and tea/coffee will be provided.

Course Instructors:

Ir. Vetrivel S. Rajkumar, Ir. Ajay Shetgaonkar, Rohan Kamat – TU Delft, Netherlands

Dr. Mazher Syed – University of Strathclyde, UK

Dr. Alexandros Paspatis, Alkistis Kontou – National Technical University of Athens, Greece

Course Structure: The training school will be organized in person at Delft, with interactive lectures and hands-on training sessions from **Jan 23 to 26, 2023:**

Time	Day 1	Day 2	Day 3	Day 4
08:30-09:00	Registration, welcome			
09:00-09:45	Lecture: Overview of RTDS and RSCAD	Lecture: real-time modelling of wind energy systems	Lecture: HVDC & converter technologies	Lecture: CHIL UoS/ICCS
09:45-10:00	Software setup			
10:00-10:15	Break	Break	Break	Break
10:15-10:45	Lecture: Overview of RTDS hardware and RSCAD	Lecture: intro to small and sub time-step modelling of wind energy systems	Lab: modelling of HVDC networks	Lab: HIL and CHIL applications
10:45-12:00	Lab: building simple RSCAD models	Lab: sub time-step *Groups of 4*		
12:00-13:00	Lunch	Lunch	Lunch	Lunch
13:00-15:00	Lab: building simple RSCAD models	Lab: sub time-step modelling and simulation	Lab: modelling of HVDC networks	Lab: HIL and CHIL applications
15:00-15:30	Coffee Break		Coffee Break	Coffee Break
15:30-17:00	Lab: building simple RSCAD models		ESP Lab tour MMC Demo	Guest lecture: TBD
19:00-			**Group Dinner**	

Legend	
	Admin
	Lectures
	Hands-on/Lab sessions
	Breaks/Social

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Practical Information

Arrival and Location

The ERIGrid 2.0 Training School will take place at TU Delft:

Delft University of Technology
Buliding 36, EEMCS Faculty
Mekelweg 4
2628 CD Delft, The Netherlands

Registration

All attendees are requested to register by filling out the corresponding registration form.

Hotels

The following list provides an overview of suitable hotels near the university.

- http://delft.nl/delften/tourists/accommodations/hotels_in_Delft
- http://www.hoteldeplataan.nl/ned
- https://www.hampshirehoteldelftcentre.com
- http://www.hoteldekoophandel.nl
- https://www.emauspoort.nl
- http://www.hotelvermeer.nl
- http://www.museumhotels.nl
- http://www.grandcanal.nl
- http://www.bridgeshouse.nl

Public Transport

If you are coming by public transport, take the train or bus to ***Delft Central Station***.

The following buses travel between Delft Central Station and TU Delft campus.

Train: http://www.ns.nl/en/

Bus / tram: http://9292.nl/en

- Bus 69: get off at bus stop “Mekelpark”
- Bus 40 : get off at bus stop “Mekelpark”
- Bus 174: get off at bus stop “Mekelpark”

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Taxi:

- Deltax: +31(0) 21 91 9319
- Varia Taxi: +31(0)15 82 53 500

Things to Do

Discover Delft:

https://www.delft.com/

https://www.google.nl/maps/search/delft+centrum+restaurant/@52.0132083,4.3564452,15z/data=!3m1!4b1

Restaurant het Vermeertje http://www.hetvermeertje.nl/	Maharja Delft http://www.restaurantmaharajadelft.nl/	La cubanita delft https://www.lacubanita.nl/	Belgische bier Belvedere http://www.bbcbelvedere.nl/
Cafe Vlaanderen http://vlaanderen.nl/	restaurant de beren delft http://www.beren.nl/welkom	Moodz eten & drinken http://www.moodzdelft.nl/	Peking wok http://www.pekingwok.nl/

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