

PhD intensive course of

THEORY OF SMART ELECTRIC POWER SYSTEMS

Assoc. Prof. Dr. R. Lukočius, Department of Electrical Power Systems

April 18 - 28, 2017

About the course:

The students are taught to analyse the complex systems, assimilate the principles of systematic point of view, to know the problems of decision adoption, to investigate the systems quality, to model the power systems, to study the electromagnetic field of system, to analyse the perturbed operation of power system, to protect the system from the overvoltage, short circuits and lightning, to control the system effectively, to familiarize the new methods of power systems investigation, to know the problems of electric market and influence of electromagnetic field to workers health, to know the alternative sources of electric power and the ways of integration these sources into system.

Aim of the course:

To teach the fundamentals of systems theory, to form the systematic point of view to problems, to familiarize with modern electric power system and new methods investigation of these systems, to know the analysis methods of electric power system electromagnetic field.

Course format, ECTS credits:

The course composes of 25% of lectures, 10% of practical, and 65% of individual work. Influence on final mark has individual work 50% and exam 50 %.

The task of the take-home assignment could be (2-3 weeks for the task):

- Application of system theory for particular power systems phenomenon analysis.
- Simulation of Electrical power system regimes and equipment.
- Simulation of Electromagnetic fields of a power systems equipment.

The evaluation is on a pass/fail basis (graduation on the Lithuanian 10-scale may be obtained if necessary).

Study load: 9 ECTS credits.

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Target group:

The course is for the students who have a master degree of electrical engineering or related study program. The module is useful to students who want to acquire knowledge about systematic point of view to technical problems, particularly the problems of the power systems.

Main topics of the course:

- Theory of sophisticated systems.
- The configuration and steady - state operation of electric power systems.
- The perturbed operation of electric power systems.
- The modern methods of electric power systems investigation.
- Alternative power systems.

References:

1. Blanchard B. Systems engineering and analysis. - New York: Pearson Prentice Hall - 2006. - 804p.
2. Tleis N. D. Power systems modelling and fault analysis: theory and practice. - Amsterdam: Elsevier. - 2007.
3. Saccomanno F. Electric power systems. - New York: IEEE Press. - 2003. - 728p.

Course schedule:

Start date: April 18, 2017 at 9 a.m.

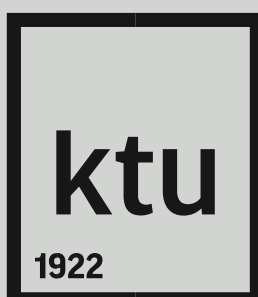
End date: April 28, 2017 at 3 p.m.

Course fee:

9 ECTS course fee is 810 EUR . Travel and insurance expenses, and accommodation *are not* included in course fee.

Course is free of charge for students who come to study under the Erasmus+ program.

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