



MODERN ELECTRICAL MACHINES AND APPLICATIONS

PhD course 8 - 10.10.2012 (3 days)

Organizer:	Department of Fundamentals of Electrical Engineering and Electrical Machines
Course Responsible:	Prof. Anouar Belahcen
Lecturers:	Prof. A. Belahcen (Tallinn University of Technology/Aalto University, Finland) Dr. Pia Lindh (Lappeenranta University of Technology, Finland)
Audience:	PhD- and advanced Master's students in the field of Energy, Electrical and Mechanical Engineering
Language:	English
Location:	Ehitajate tee 5, VII-323, Tallinn
Registration:	before October 5, email: toomas.vaimann@ttu.ee

Backgrounds and Objectives

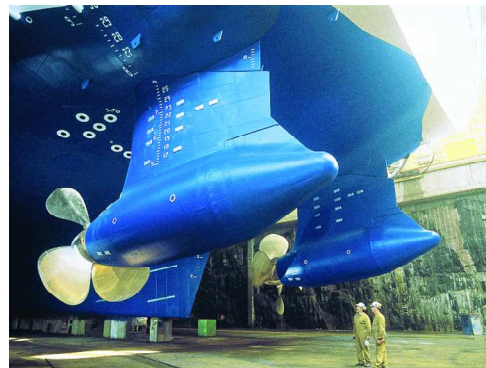
The quasi totality of the worldwide electric energy is produced by electrical machines working as generators in thermal, hydraulic or wind power plants. More than 65% of this energy is consumed by electrical motors in different industry applications. The electrical motor is usually the main energy conversion device in large industrial systems. Understanding the operation principle of different types of electrical machines as well as the way they are controlled and the criteria for choosing one type or the other is primordial in all energy and power engineering applications. The aim of this course is to introduce the students to the applications and to clarify the control and choice criteria as well as to illustrate the advantages and limitations of electrical machines in different applications. The modelling methodologies for electrical machines are also explained.

Participation

The course is free of charges and targeted to postgraduate and advanced Master's students in electrical, energy, and mechanical engineering; especially those from machines, drives, automation, and energy areas.

Course contents

- Types of Electrical Machines
- Applications of Electrical Machines
- Operation principle of Electrical Machines
- Losses in Electrical Machines
- Modelling of Electrical Machines
- Control of Electrical Motors
- Choice of Electrical Motors
- Choice of Generators



Course Schedule

	Mon. 8.10.2012	Tue. 9.10.2012	Wed. 10.10.2012
9.00 - 10.30		Other types	Modelling
10.30 - 11.00	kickoff	Break	Break
11.00 - 12.30	PM machines	Losses	Control
12.30 - 13.30	Lunch	Lunch	Lunch
13.30 - 15.00	PM machines	Applications	Choice
15.00 - 15.30	Break	Break	Break
15.30 - 17.00	Group work	Group work	Group work
color code	Pia Lindh	Anouar Belahcen	Pia & Anouar