

## Seminar 18 Sunday June 17, 2001

### POWER QUALITY MITIGATION USING CUSTOM POWER DEVICES

9:00am - 6:00pm

**Instructors: Dr. JHR Enslin, KEMA Arnhem, The Netherlands  
Dr. P. Bauer Delft, University of Technology, The Netherlands**

#### **ABOUT THE INSTRUCTORS**

Prof. Johan Enslin is a Senior Consultant with KEMA, Arnhem, The Netherlands and the Programme Leader for the FACTS Research Group, University of Stellenbosch, in South Africa. He is consulting and doing research in power quality, high power electronics and power systems. He was also Technical Manager (Distribution) of the Southern African Power Systems Studies Institute (SAPSSI), a joint venture between Eskom and EPRI. He is an Associate Editor for the IEEE Transactions on Power Electronics, holds several international patents, industrialized several research outputs and authored more than 200 international papers.

Dr. P. Bauer received his Masters in electrical engineering at the Technical University of Kosice and PhD from the Delft University of Technology. Since 1990 he is with Delft University of Technology, currently holding the position of assist. professor. Dr. P. Bauer published over 70 papers in his field and holds international patents. He is reviewer of several IEEE proceedings and member of International Steering committees of different conferences. A number of short courses and seminars on Simulation of Power Electronics and Power Quality have been developed and presented by him to industry.

#### **CONTENTS**

**Fundamentals of Power System parameters, Power Flow and Power Quality**

**High Power Semiconductors Devices**

**Power Electronic Converter Topologies**

**Power Quality, Flexible AC Transmissions and Custom Power Principles**

- Power Quality parameters
- Harmonic generation
- Shunt compensation of power system parameters
- Series compensation of power system parameters
- Series-Shunt compensation of power system parameters

**Converter-based FACTS & CUSTOM Power Devices**

- STATCOM
- Dynamic Voltage Restorer (DVR)
- Unified Power Flow Controller (UPFC)

**Tap Changers**

**Energy Storage Resources**

- Flywheels (low-speed steel and high-speed composite)
- Super-conducting coils • Fuel Cells • Battery Plants

**Power Quality Mitigation**

- Active and Passive PQ Mitigation
- Hybrid active power filters
- Controls for active filtering

**Case Studies**

- DVR and DSTATCOM case-studies
- Tap Changer for 500kVA 10kV/400V transformer
- Active Power Filter installations
- Dip-compensators using superconducting coils

#### **WHO SHOULD ATTEND**

Practicing power electronic engineers, industry positions, consultants, students and faculty interested in new developments in power electronics for power system applications will benefit from these course.