



VOCATIONAL EDUCATION SYSTEM

The award winning Leonardo Power Quality Initiative has granted funding by the European Commission to extend the dissemination of its educational material and introduce an international certification scheme for PQ engineers through a new pan-European vocational training and education project, Leonardo Power Quality and EMC Vocational Education System (LPQIVES). The project is subject to the Agreement 2004-2599/002-001 LE2-74SUB which provides funding until end of 2005. This funding provides resources to set up the process. The future maintenance of the system will be provided by the fees from participants, both from trainings and certification.

LPQIVES was launched at a meeting in Wrocław on 13 and 14 January 2005, with the participation of experts from leading academic institutions from 14 European countries. The project is aimed at installers, designers consultants and other industry and utility staff, committed to extending their competencies related to Power Quality and EMC issues.

LPQIVES has two goals - to increase and accredit knowledge of Power Quality and EMC related issues in the engineering community. Accreditation will be through a European certification system defining a new speciality "Power Quality Expert". Power Quality Experts will be vocationally trained specialists whose competencies will be the identification and solution of Power Quality related problems.

Aims

Problems relating to power quality in low voltage electrical installations are estimated to cost European industry over 10 billion euro annually. In a study conducted by European Copper Institute (ECI) in 2000, 50% of buildings in Germany were found to suffer from data loss in IT equipment, network congestion, computer lockups, etc. In a worst case scenario, these shortcomings can lead directly to breaks in the chain of production and loss of revenue. The consequences of such problems have become increasingly apparent to organisations who rely heavily on computer systems and networks, eg financial institutions, office buildings, internet hotels, call centres and e-commerce businesses. These problems are relatively new. Power quality analysis, diagnosis and solutions have been included in the electrical engineering curriculum since the mid 90s. As a result, many generations of engineers have not been trained for these topics, while being confronted with them on a daily basis. European standards lag in modern installation practice in the United States and UK. PQ-standards do exist, but in many countries they are not obligatory or are interpreted differently by energy users and suppliers. Urgent action is needed.

To solve these problems we have created the LPQIVES Training Courses, which will make you an Expert in Power Quality.

LPQIVES is co-financed by:



LPQIVES is a programme of:



LPQI is part of:





What does LPQIVES offer?

- Improve your practical and theoretical qualifications (trained and certified) as a technical person in the field of power quality and electromagnetic compatibility
- Learn how to identify and solve PQ and EMC problems at different levels
- Improve your qualifications as a qualified designer (also other specifiers such as contractors, installers, manufacturers)
- Receive news updates (measuring, simulation systems, etc.) on power quality and electromagnetic compatibility
- Exchange information on power quality topics with your peers.

Two main tools of LPQIVES are the education program and certification.

Education Program

The education program is composed of 10 modules. Each module is 10-12 hours of both teaching and training e.g. in a laboratory, usually structured in 2 days scheme. There are the following system modules:

- INTRODUCTION TO POWER QUALITY
- VOLTAGE DIPS AND SWELLS
- HARMONICS AND INTERHARMONICS
- VOLTAGE FLUCTUATIONS/FLICKER
- OVERVOLTAGES (TRANSIENTS)
- RELIABILITY OF ELECTRICITY SUPPLY
- ELECTROMAGNETIC COMPATIBILITY (EMC), HIGH-FREQUENCY DISTURBANCES
- THE INFLUENCE OF STATIC CONVERTERS ON THE SUPPLY NETWORK
- COMPENSATION OF REACTIVE POWER. CAPACITORS IN THE POWER SYSTEM. VOLTAGE AND CURRENT UNBALANCE
- DISTRIBUTED ENERGY SOURCES
- UTILITY PACKAGE

The trainings are held in 6 European countries; Czech Republic, Germany, Hungary, Italy Poland and Romania.

In 2005, 14 module trainings have been organized with more than 300 trainees.

Certification

The certificate confirms the granting of professional qualification degree - specialist in the field of power quality .It is granted hierarchically in three degrees (every next degree is granted after completing the preceding one);

The Certificate is granted in two stages through:

- gaining knowledge by the candidates proven by attendance certificates
- verification of gained knowledge by SEP Committee for Power Quality.

Currently the recommended ways of gaining knowledge are the following:



- post-graduate studies for power quality with the program covering the 10 LPQIVES modules, for example AGH
- series of trainings organized within LPQIVES. In Poland this will be under umbrella of SEP Power Quality Committee.

The first international level 1 PQ expert certification was held in Warsaw on December 9. Two countries Germany and Poland have started in this event.

Figure 1: The sample certificate



Website

The LPQIVES offers website with all the information about the system. Particularly for more information about the trainings and certification calendar please refer there. Website is available in 7 language versions and contains many folders, tools and background information. This website is visibly linked from the LPQI website home page; <http://www.lpqj.org> or directly <http://lpqi.org/custom/1036/> ..

Figure 2: LPQIVES website

Contact

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WHAT IS LPQI?

LPQI (Leonardo Power Quality Initiative) is a pan-European education programme on Power Quality, supported by the European Commission under the LEONARDO programme and delivered by European Copper Institute and a network of 80+ academic and industrial European partners operating in the electrical area and providing technical services in the field of PQ/EMC. LPQI is currently operating in Belgium, Czech Republic, Germany, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Romania, Spain, Turkey and United Kingdom.

This 3 million Euro project, funded by the Commission for its first three years, develops and implements a range of training programmes aimed at consulting engineers, electrical contractors and maintenance managers. The objective of LPQI is to increase understanding of the origin, diagnosis and solutions of problems relating to Power Quality in low voltage installations in buildings and industrial premises. LPQI provides application notes and regular e-mail newsletter, organises technical seminars and promotes conferences and technical meetings, with the cooperation of institutional and industrial partners.

At the heart of this project is its web-site (www.lpqi.org), which offers:

- a comprehensive library of application notes describing power quality problems, their diagnosis and solutions;
- an FAQ-list and forum, to address the most urgent questions;
- tests to assess your knowledge in this field and to understand the power quality status within the building for which you are responsible;
- An events page detailing PQ seminars, conferences and exhibitions.
- a distance learning course to allow you to build knowledge in this new and complex field.

LPQI's resources are available free of charge but some areas of the website require registration before they can be accessed.



WHAT IS LEONARDO DA VINCI EU PROGRAMME?

Leonardo da Vinci is the EU's action programme on vocational education and training (VET), promoting transnational projects based on cooperation between the various players. The aim is to increase mobility, foster innovation and improve the quality of training. The Leonardo da Vinci programme, established in 1995 and renewed in 2000, aims at helping people of all backgrounds to improve skills and mobility throughout their lives. A total of 32 projects have been chosen from 165 that were selected by the Leonardo da Vinci National Agencies as being best examples of successful VET practice. A broad sweep of VET sectors are covered: e-learning, tourism, business communication and e-commerce, craft and design, environment-friendly technology, clinical training, farming – to name but a few. Strong focus is also given to enhancing mobility and job market access for people with disabilities, and to capitalising online opportunities for all.

Among the 32 selected projects, the best 3 won the prestigious Leonardo da Vinci Award.

LPQIVES partners

LPQIVES is supported by:



www.miedz.org.pl



www.agh.edu.pl



www.hcpcinfo.org



www.kuleuven.ac.be



www.unibg.it



www.uni-magdeburg.de



www.sep.com.pl

Associated Partner

SIER - Societatea Inginerilor Energeticieni din Romania, Bucuresti, Romania