

Co-Operation of Electrical Power Companies in Education at the Faculty of Electrical Engineering and Informatics of VŠB-Technical University of Ostrava with the Prospects for the 21st Century

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Abstract: The connection of theory and practice is advantageous co-operation between universities (technical universities) and companies of the industrial sphere. The VŠB-Technical University of Ostrava (henceforth referred to as VŠB-TU) has had a long-term agreement on co-operation with electrical power companies in the Czech Republic. On the basis of this agreement, the rector of VŠB-TU entrusted the Faculty of Electrical Engineering and Informatics (FEI) with fulfilling this agreement by means of co-operation.

This co-operation is implemented in virtue of particular annual tasks in the field of utilization of prospective technologies and control systems, especially with the regional electrical power company SME, joint-stock company Ostrava. The FEI co-operates further with the producers of electric power and heat, i.e. ĚEZ, joint-stock company, and with electrical power companies of large industrial metallurgical works in the region concerned.

Keywords: Co-operation, university, industry, programs

1. Introduction

Co-operation with electrical power companies manifests itself markedly in the quality of student's education. Projects for diploma theses and themes for post-graduate doctoral theses are set directly by practice. Leading experts from electrical power companies give lectures on partial themes at the Faculty. What is of importance to the quality of decision-making is a participation of these experts from practice in the Scientific Board of the Faculty and in opponent procedures of student's and research works.

Prospects and goals of electrical power management in the Czech Republic in the 21st century will be realized by present students, future engineers.

Therefore, the education of these professionals in the field of electrical engineering must be connected with concrete requirements for ensuring the electrical power management in the beginning of the 21st century.

The aim of this article is to define, in a concrete form, co-operation between the Faculty of Electrical Engineering and Informatics and electrical power companies. The goal of this co-operation is to educate the present students to become highly educated managers and technical engineers influencing one of the fundamental industries of the Czech Republic.

2. Co-operation of electrical power companies in education at the Faculty of Electrical Engineering and Informatics

Co-operation of power engineering companies manifests itself significantly in lectures given by professionals from practice in the teaching of students in each semester of the 4th and 5th years of study. Leading specialists from practice have their own special lectures directly in the framework of study programmes. Experts from the company Severomoravská energetika (SME) participate in this activity most, namely in the subject "Economics and Management in Electrical Power Engineering". It is also the top management of SME, joint-stock company, that contributes to the lectures. Other lectures are delivered by important professionals from power stations and power plants of industrial establishments in the region. What is of exceptional importance for the quality of the final phase of engineering study is the setting of topics from practice for theses. Students completing their studies can acquaint themselves with the given problems just with the submitters in practice.

The topics for allocating degree projects are supplied especially by Severomoravská energetika, joint-stock company, further Česká energetická přenosová soustava (ĚEPS), joint-stock company, power stations in the region (ĚEZ), industrial establishments of the North Moravian region.

The results of working out the theses are then assessed by intellectual evaluators from practice. Those evaluate primarily the utilization of results of the thesis in practice. The leader teacher from the University assesses the theoretical level of the thesis. Leading professionals from practice participate in commissions for the defence of the engineering thesis.

3. Postgraduate course on the electric power engineering

A marked activity of co-operation between VŠB – Technical University of Ostrava – Faculty of Electrical Engineering and Informatics (FEI) and Severomoravská energetika (SME), joint-stock company is the postgraduate course on electric power engineering intended for employees of SME, joint-stock company. These hold prominent posts as engineers in SME, joint-stock company. The postgraduate course is provided by the Department of Power engineering in co-operation with other departments of the Faculty. They are, above all, the Department of Informatics, Department of Electrical Machines and Apparatuses and Department of General Electrotechnics. One complete education cycle is secured by teachers from the Faculty of Economics. The postgraduate course was opened in 1999; it continues as the second cycle in 2000.

Twenty-six engineers completed the first cycle. The second cycle is followed by 15 engineers from SME, joint-stock company.

The course is divided into the following four parts: theoretical electric power engineering and applied mathematics, informatics, economics and electric power engineering. The first three parts are completed by partial examinations on problems concerning the subjects taught. At the end of the course, the engineers elaborate final theses that have to be defended against the commission formed by representatives of the Faculty of Electrical Engineering and Informatics of VŠB-Technical University of Ostrava and SME, joint-stock company.

4. Preparatory courses for the bachelor study.

Another activity of co-operation between the FEI of VŠB-Technical University of Ostrava and Severomoravská energetika, joint-stock company, is the preparatory course for workers of SME having school-leaving examinations interested in bachelor study in the field of Electric Power Engineering.

The preparation is ensured by teachers from the Departments of Mathematics, Physics and Theoretical Electrotechnics. Having passed their school-leaving examinations in secondary schools, trainees of this preparatory course have already been in practice for a rather long time. The preparatory course serves for the deepening theoretical knowledge of these workers and for the preparation for admission examinations for the bachelor programmes at the FEI.

In 1999, 25 workers of SME, joint-stock company, completed this course. At present they attend the 1st year of bachelor study in the field of Electric Power Engineering.

In 2000, 17 workers of SME, joint-stock company, do the preparatory course. The preparatory course helps connect the practical knowledge obtained during many-year practice in the field of electrical engineering with the knowledge obtained just during the preparatory course. Those preparatory courses always start in the first term of the year and end just before the beginning of the bachelor study in the third term of the year. Thus problems of the transition from practice to study at the University are eliminated.

5. Conclusions

Moreover, the FEI of VŠB-Technical University of Ostrava co-operates with experts from power companies also in the postgraduate doctoral study intended for obtaining the PhD degree. Topics for research studies are chosen so that their utilisation can have not only the theoretical benefit, but also a practical utilisation. The commission for evaluation of doctoral dissertations must always cover an expert from practice. What is of great importance for the quality of decision-making concerning the serious tasks of the FEI of VŠB-Technical University of Ostrava is the participation of important top managers of power companies in the Scientific Board of the Faculty.

The realisation of goals and the quality of energy management of the Czech Republic in the 21st century will be wholly ensured by our present students, future engineers.

The aim of co-operation between the FEI of VŠB-Technical University of Ostrava and power companies is to educate from present students graduate engineers, managers and research workers who will influence one of the principal economic branch in the Czech Republic of the 21st century.