



The Mining Faculty in the Process of Transformation

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Abstract: this contribution deals with the successful transformation of the classical mining faculty under the conditions of current recession of the mining industry.

The Mining Faculty is the oldest faculty of the Technical University in Košice, Slovak Republic. It was founded in 1954. In 1992 it had 600 students and offered mining majors. Today it is known under the name BERG Faculty and has diversified into the fields of environmental studies, control and management, geotechnology, and geodesy. It is being attended by 1800 students.

Key words: mining, study streams, transformation, credit system.

1. Introduction

The Faculty of Mining of the Technical University of Kosice is the successor of the well known Mining Academy (Bergakademie) in Banská Štiavnica. Since its establishment there graduated more than 3500 engineers, hundreds of candidates of sciences and tens of doctors of sciences. The most intensive co-operation is with the Faculty of Mining at the Technical University in Ostrava.

Due to the transformation processes in 1989 and the following economical changes in the former Czechoslovakia, remarkable changes were introduced on the state level into the policy of raw materials. Very intensively went down the productivity of the ore and non-ore mining industry. Due to these facts it was necessary during the years 1900-1994 to transform the classical Mining Faculty into modern faculty with provision of wide range of specialization aimed not only to support the branch of mining but also for providing graduates with the possibility of their employment in wider range of industrial branches. The expert knowledge of the teachers and other staff of the TU were involved into this pedagogical process.

2. State-of-the-art in 1989

The Faculty of Mining provided graduate study in the following study branches and study streams:

1. Mining
 - 1.1 Mining
 - 1.2 Mining Mechanization
 - 1.3 Mining Surveying
2. Economical and Mining Management
3. Quarry Mining
4. Mining Geology and Geological Investigation
5. Mineral Processing
6. Automatization Systems in Mining
7. Deep Hole Drilling
8. Mining Surveying

It is evident from the names of the specialisations that the faculty prepared engineers only for the mining and partly also for the processing industry. Their perspectives were tightly coupled with the progress of the mining industry.

The number of students in 1989 (before the transformation) is depicted on Table 1.

Table 1. Number of students at the faculty in 1989.

	study branch (1-5 together)								total.
	1.	2.	3.	4.	5.	6.	7.	8.	
number of students	190	39	36	49	39	43	67	0	463

The syllabi were different in study branches from beginning from the first year of study. There was a common feature to prefer gaining computing skills, study automatization, electronics and economy. Those times the faculty employed 50 teachers and 24 research staff.

Transformation of the faculty during the period of 1990-1994

Due to recession in the mining industry the existence of the Faculty was endangered in its original structure. Because of these facts the management of the faculty introduced continually several decisive steps in order to transform the faculty into its new, more perspective structure. The following steps were established:

- **widening the professional profile of faculty**

30 research and pedagogical staff from the Institute of Computer Technology and the “Department of Economy and Control in the Industry” was shifted to the Faculty of Mining. By this means conditions for the informatisation and economisation of the study streams were established.

- **accreditation of new system of study branches and study streams of the graduate and bachelor study**

The accreditation commission of the government of the Slovak Republic gradually accredited the system of study streams. By this means the faculty on the one hand side ensured the education of experts for the mining industry and processing industry. On the other hand side diversified into new, perspective branches which have common theoretical basis in geotechnical disciplines including environmentalistics. This step allowed to expand further the faculty in the next years. The structure is as follows:

Graduate study:

1. Mining, Utilization and Protection of Earth's Resources
 - 1.1 Mining
 - 1.2 Utilization and Protection of Earth's Resources
 - 1.3 Rescuing, fire –and safety engineering
2. Underground Construction Engineering and Geotechnics
3. Geoprospecting
 - 3.1 Geological Engineering
 - 3.2 Geoinformatics
 - 3.3 Technology of Mineral Deposit Prospection
 - 3.4 Raw Material's Marketing
 - 3.5 Oil Geology
4. Mining Mechanization, Transport and Hole Drilling
 - 4.1 Mechanization and Transport
 - 4.2 Production and Storage of Hydrocarbons
 - 4.3 Transport and Mechanization Systems
 - 4.4 Rope Transport
 - 4.5 Technology of Oil and Gas Industry
5. Surveying, Geodesy and Cartography
 - 5.1 Industrial Surveying
 - 5.2 Geodesy, Cartography and Land-Register
 - 5.3 Mining Surveying
6. Ecotechnology and Mineralurgy
 - 6.1 Ecotechnology of Waste
 - 6.2 Water and Waste-Water Treatment
 - 6.3 Finish of Raw Material
 - 6.4 Protection of Atmosphere
7. Process Control of Raw Material Extraction
 - 7.1 Technological Management
 - 7.2 Engineering Management
 - 7.3 Quality Management
 - 7.4 Industry Logistic

Bachelor Study

1. Informatization of Companies and Public Administration
 - 1.1 Informatization of Companies and Public Administration
 - 1.2 Industry Logistic
2. Maintenance and Diagnostic of Machines
3. Waste Treatment and Recycling
4. Travelling Rush
 - 4.1 Geo-Tourism

In the graduate study it is possible to split the branches into geotechnical branches and into branches with strong informatics. That is why students choose in the first term of the study as one of the optional subject either *Earth and Earth's Resources* (branches no. 1-4,6) or *Algorithms* (branches no. 5 and 7). Otherwise the first year of study has common syllabi independently on the choice of the study branch.

- **introduction of the credit system compatible with OECD**

Students of the faculty study, according to the study plans, compulsory subjects, optional subjects (compulsory optional for the given study stream) and facultative. The minimal number of the credits is defined in order to successful finish the term. The first two study years are common for all study branches, excluding 1 subject (see above). The management of the faculty makes effort to support the autoprofilation of the students by allowing the mobility in the frame of the faculty and of the university.

- **change of the name of the faculty**

The old “Mining Faculty” seemed to be problematic and did not express the real opportunities offered by the graduate study. The Senate of the Faculty approved the change of the name into the *Faculty of Mining, Ecology, Control and Geotechnolgy* (abbreviation FBERG). Th new name well expressed the heterogeneity of the faculty in the field of education and science.

4. The present state of the Faculty as the result of the transformation

The faculty belongs among the most attractive faculties in the region. 3500 students applied for the study in the academic year 1997/1998. In 1998/1999 and 1999/2000 there were cca 1800 applicants. Thanks to the successful transformation the faculty can, besides preparing students for the mining industry, offer also study in other preferred branches of study. In the enrolment phase students who apply for less attractive branches are preferred. The study plans allow students flexible adaptation to the real requirements of the praxis.

Today the Faculty has 1655 students in the classical and in the distance form of graduate and bachelor study. The increased number of students is depicted on chart No. 1, the number of absolvetvs on chart No. 2. The distribution of students in study branches in the ac. year 1998/1999 is shown in table 2 and 3.

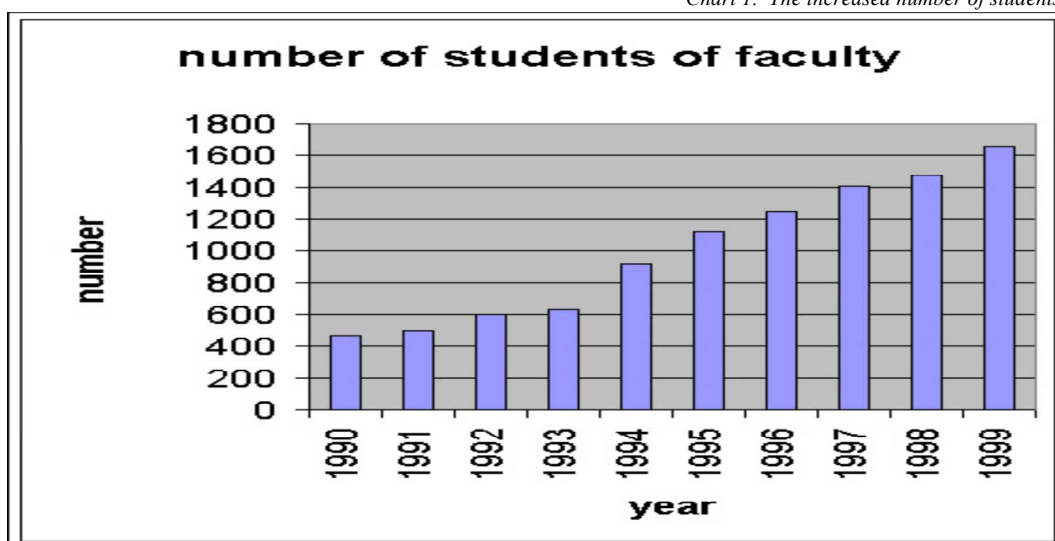
5. The prognosis of the education of the mining engineers.

The faculty is aware of the responsibility for the provision of experts for the mining industry. In the field of mining and geotechnolgy education delivery is unique in the republic. The *Department of Mining and Geotechnics* assumes that it can ensure provision of experts for the underground and surface mining.

The *Underground Construction Engineering and Geotechnics* seems to be a perspective study branch. The technical and engineering mutual interrelationship between the 2 branches gives possibility to establish of combined and adaptive common study in one study branch.

The diversification of the study into the rescue management, fire and rescue technology is also perspective. According to the possible development of the mining in Slovakia, the Faculty will develop education in area of raw and primary material engineering and recycling of the secondary materials. These branches, besides the teaching of the technology and economy of the mining processes, will be added with the study of the ecological aspects of the studied process.

Chart 1. The increased number of students.



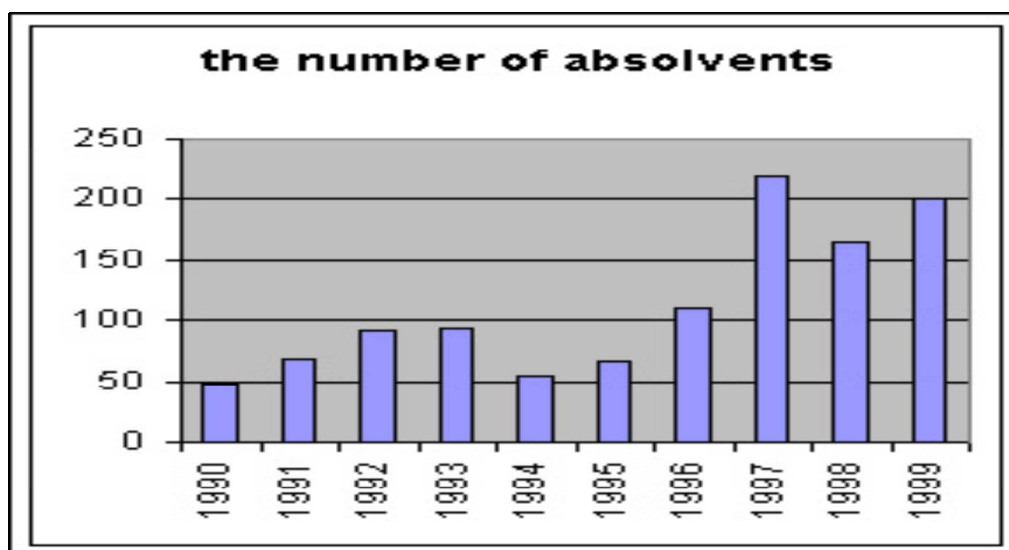


Chart 2. The number of absolvents.

Tab. 2: The distribution of students in engineering study branches in the ac. year 1998/1999.

1.roč.	študijný odbor (2. až 5.roč.) -ing. (viď vyššie)							
	1.	2.	3.	4.	5.	6.	7.	
počet študentov:	458	194	46	84	37	113	148	241

Tab.3: The distribution of students in bachelor study branches in the ac. year 1998/1999.

1.roč.	študijný odbor (1. až 3.roč.) -Bc. (viď vyššie)				
	1.1	1.2	2.	3.	4.1
počet študentov:	97	13	7	43	104