Creation of European Educational Area on the Example of Silesian University of Technology

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Abstract *— Higher education differs in European countries. It makes the following issues difficult: students exchange, recognition of diplomas, evaluation of graduates, usefulness in European trade. The Bologna Declaratio n signed in 1999, assumes that educational systems in Europe reach a specific standard till 2010. Conferences in Prague and Berlin confirmed the assumptions. Assumptions of Bologna Declaration and further activities within this field in Europe, our country and SUT will be presented in the paper.*

Index Terms *— differences in educational systems in Europe, harmonization of education, Bologna Declaration*

INTRODUCTION

The beginnings of higher education institutions go back to the 12th century when the first universities , specializing mostly in theology, law, medicine and arts, were founded.

- Bologna University (Italy) 1140
- Paris University (Sorbonne) (France) 1198
- Oxford University (England) 1257
- Cambridge University (England) 1261
- Valladolid University (Spain) 1346
- Jagiellonian University (Kraków-Poland) 1364
- Technical University ”Bergakademie Freiberg” (Germany) 1765

FIGURE 1
POLITICAL MAP OF EUROPE

Jagiellonian University was the first university to be founded in central Europe. Technical higher education institutions in Europe are basically rooted in academies of mining. It is considered that the first academy of mining was founded in 1765 in Freiberg. The diversification of higher education systems results from different historical and geopolitical conditions (FIGURE 1).

The situation led to significant differences regarding students exchange programmes, comparison and equivalence of diplomas and graduates evaluation at the European market.

In order to find a solution to this situation a declaration "Joint Declaration on the Harmonization of the Architecture of the European Higher Education System" was signed by ministers of France, Germany, Italy and Great Britain in 1998 to honour the 800th anniversary of Sorbonne.

The fundamental idea of the Declaration is:

The international recognition and attractive potential of our system are directly related to their external and internal readabilities. A system, in which two main cycles, undergraduate and graduate should be recognized for international comparison and equivalence, seems to emerge.

BOLOGNA PROCESS

Sorbonne Declaration gave way to the unification of the European system of higher education. However, it was only the Bologna Declaration, signed on 19th June 1999 in Bologna by 29 Ministers of Education, including Poland, which created the political grounds for introducing changes in higher education structure. It was settled that by 2010 the following rules are to be implemented:

- adoption of a common framework of readable and comparable degrees, also 'through the implementation of the Diploma Supplement'
- introduction of undergraduate and graduate levels in all countries, in first degrees no shorter than 3 years
- establishing a system of credits, such as the European Credit Transfer System (ECTS)
- introduction of European dimension in quality assurance, with comparable criteria and methods
- elimination of remaining obstacles to the free mobility of students and teachers

Further regulations called Prague Communique were introduced two years later at the Conference of Ministers of Education. The crucial resolutions are:

- to establish, shape and promote the European higher Education area
- life-long learning is an essential element of the European Higher Education Area

On the 19th September 2003 another conference took place in Berlin, resulting in further resolutions. The need to speed up the implementation of the Bologna resolutions was emphasized by the ministers. The following priorities were set:

- promoting effective quality assurance systems
- stepping up effective use of system based on two cycles
- improving the recognition system of degrees and periods of studies
- include the doctoral level as the third cycle in Bologna Process

The vital element of the meeting was joining European Higher Education Area and European Research Area to evoke synergy and reinforce the Basis of the Europe of Knowledge.

BOLOGNA PROCESS IN POLAND

The educational system in Poland gives students an opportunity to study at the following types of schools:

- Universities
- Universities of Technology
- Pedagogical Universities
- Agricultural Universities
- Universities of Economy
- Medical Universities
- Academies of Physical Education
- Universities of Arts

Until 1993 Polish higher education system offered only state schools running one-stage four or five year MSc or MA studies. Only evening studies were run at two stages which meant getting Engineer degree first and then, after further studies, MSc degree. The rapid demand for higher education in Poland after 1994 resulted in the foundation of private institutions of higher education specializing in economy, offering 3-year BA studies.

Now there are 120 higher education state schools and over 300 private schools. The number of students has increased from 400,000 in 1990 to 1,800,000 to date (FIGURE 2).

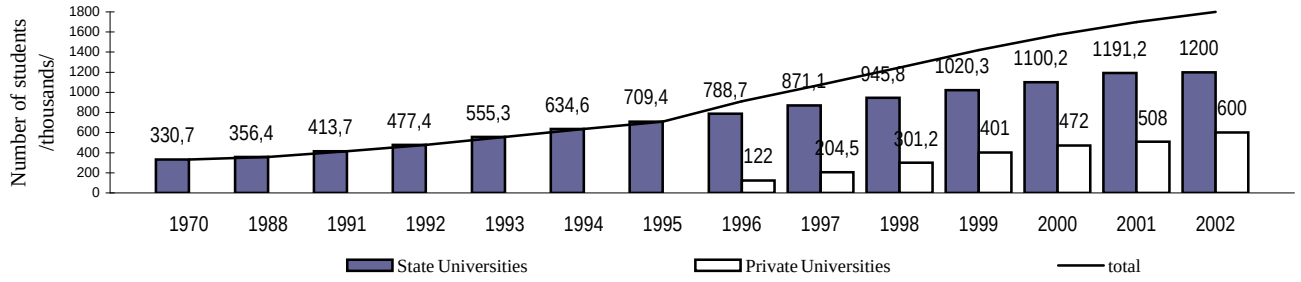

FIGURE 2
DYNAMIC OF GROWTH IN A NUMBER OF STUDENTS AT STATE AND PRIVATE UNIVERSITIES

The dramatic growth in the number of students in recent years has caused a transformation from individual to mass education calling for such regulations that would keep up with high standards of education. The introduction of accreditation system and the selection of students would be the answer to the need. The fact that Poland opened for Europe and the world after 1990 asked for the need to guarantee students possibilities of contacts with foreign universities. It shows that the actions in Bologna Declaration were implemented in Poland before it was officially announced. As early as 1997 universities introduced programmes of Internal Evaluation founding University Accreditation Commission and two years later Accreditation Commission for Technical Universities. Other types of institutions of higher education founded similar commissions. However, only since the beginning of 2002 State Accreditation Commission with superior authority has been working (TABLE 1 AND TABLE 2).

BOARD	PROCEDURE IN PROGRESS	ACCREDITATIONS GRANTED
University Accreditive Board	80	245
Accreditive Board of the Technical Universities	106	55
Accreditive Board of the Medical Universities	2	13
Accreditive Board of the Agriculture Universities	-	10
Accreditive Board of the Universities of Economics	10	-

TABLE 1
INFORMATION ON ACCREDITATION OF STUDIES BY THE LOCAL ACCREDITIVE BOARDS

	Accepted	Accepted on condition	Unaccepted
STATE INSTITUTIONAL	287	79	11
PRIVATE INSTITUTIONS	85	42	10

TABLE 2
INFORMATION ON ACCREDITATION OF STUDIES BY STATE ACCREDITATION COMMISSION

A three-stage flexible system of studies is gradually being introduced by state institutions of higher education. Because of high recognition of the engineer degree, the three-stage system of education (engineer/BSc, MSc, PhSc) is popular among Polish students of technical universities.

Since BA level is not common in Poland, the implementation of the three-stage system in other types of schools is far more difficult. Most state universities introduced ECTS system which allows easier international student exchange.

BOLOGNA PROCESS IN SILESIAN UNIVERSITY OF TECHNOLOGY

The Silesian University of Technology is located in Upper Silesia. It's the most industrialized region in Poland and one of the most industrialized in Europe (FIGURE 3).

FIGURE 3
SILESIAN UNIVERSITY OF TECHNOLOGY ON THE POLISH MAP

SUT is one of the biggest technical universities in Poland. It consists of faculties, which offer courses covering almost all engineering disciplines (TABLE 3).

Faculty	Disciplines
ARCHITECTURE	ARCHITECTURE AND TOWN PLANNING
AUTOMATIC CONTROL, ELECTRONICS AND COMPUTER SCIENCE	AUTOMATION AND ROBOTICS ELECTRONICS AND TELECOMMUNICATIONS COMPUTER SCIENCE Macrodiscipline in English AUTOMATION AND ROBOTICS, ELECTRONICS AND TELECOMMUNICATIONS, COMPUTER SCIENCE
CIVIL ENGINEERING	CIVIL ENGINEERING
CHEMISTRY	CHEMISTRY CHEMICAL TECHNOLOGY CHEMICAL ENGINEERING AND APPARATUS Macrodiscipline in English CHEMICAL ENGINEERING AND TECHNOLOGY
ELECTRICAL ENGINEERING	ELECTRICAL ENGINEERING ELECTRONICS AND TELECOMMUNICATIONS
MINING AND GEOLOGY	MINING AND GEOLOGY MANAGEMENT AND PRODUCTION ENGINEERING
POWER AND ENVIRONMENTAL ENGINEERING	ENVIRONMENTAL ENGINEERING MECHANICS AND MACHINE CONSTRUCTION
MATHEMATICS AND PHYSICS	TECHNICAL PHYSICS MATHEMATICS
MECHANICAL ENGINEERING	AUTOMATION AND ROBOTICS MECHANICS AND MACHINE CONSTRUCTION MANAGEMENT AND PRODUCTION ENGINEERING
MATERIALS SCIENCE AND METALLURGY	MATERIAL ENGINEERING METALLURGY MANAGEMENT AND PRODUCTION ENGINEERING
TRANSPORT	TRANSPORTATION
ORGANIZATION AND MANAGEMENT	MANAGEMENT AND MARKETING MANAGEMENT AND PRODUCTION ENGINEERING SOCJOLOGY ADMINISTRATION

TABLE 3
THE REGISTER OF FACULTIES AND DISCIPLINES

More than 34 thousand students are being educated here among whom 9 thousand are students of the evening courses. We have also more than 800 PhD students and 1900 teaching staff including over 300 full-time professors employed at SUT, who do research work. The combination of those factors produces huge research and didactic potential.

SUT has always co-operated with universities world-wide (currently with over 80 institutions). To facilitate student exchange programmes the Senate of SUT decided in January 1999 to implement ECTS in the flexible system of studies. Due to this regulation the majority of departments introduced this 3-stage system of studies and ECTS has been used at our university for 5 years. Our university, as one of the first universities in Poland, joined the European student exchange programmes e.g. 'Socrates'. SUT students are given the opportunity to study abroad e.g. at International Hochschulinstitut in Zittau founded 10 years ago by the government of Sachsen (Germany), SUT and Technical University in Liberec (the Czech Republic). Direct contacts between European Universities and SUT are also developed in order to exchange students and grant a common diploma of two universities. To facilitate the international exchange programme, departments of SUT offer lectures and classes in English. Besides, together with Dresden University and Technical University in Prague, European PhD studies have been founded.

Situated in a highly industrialized area of Poland, SUT actively participates in restructuring and modernization processes of the region, not only through scientific research, but also offering a wide range of postgraduate studies.