

REAL-TIME SYSTEMS

Reflections on Higher Education in the Czech Republic, Hungary, Poland and Slovenia

Jon File and Leo Goedegebuure (Eds.)

Real-time systems *(An ICT definition)*

In real-time multiprocessing there is the extra requirement that the system complete its response to any input within a certain critical time. This poses additional problems, particularly in situations where the system is heavily loaded and is subject to many simultaneous demands. Real-time systems are always dedicated. Most systems are not real-time.

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4. Poland

Frans Kaiser & Piotr Wach

A short Sketch of Developments

Poland has a long tradition of university education. The oldest Polish university is the Jagiellonian University in Krakow founded in 1364 by King Kazimierz Wielki (Casimirus the Great). The other old universities are the University of Vilnius (1578) founded by King Stefan Batory and the University of Lvov founded in 1661 by King Jan Kazimierz (these universities are currently the oldest universities in Lithuania and Ukraine respectively.) Before the Second World War there were six state universities in Poland (Krakow, Vilnius, Lvov, Warsaw, Wroclaw (Breslau) and Poznan), and three universities of technology: the Warsaw and Lvov *Politechnikas* and the Academy of Mining and Metallurgy in Krakow. A seventh university, founded in 1918, is the Catholic University of Lublin, which belongs to the church. In addition to the institutions mentioned above there were several artistic academies in the larger cities.

Before 1989, higher education and research in Poland were completely controlled by the state. The higher education system was limited with respect to the number of institutions and to enrolment. Each faculty of each university had limits on entrants. The only non-public, and hence independent, higher education institution was the Catholic University of Lublin, funded by the church and the people of Poland.

In September 1990, a year after the communist state in Poland was abolished, a new Higher Education Act was ratified in the Polish Parliament (*Sejm*) and paved the way for a free, liberal and autonomous higher education system in the country. The main characteristics of this new act were the enhanced autonomy of higher education institutions, and the new, quite liberal, rules defining the establishment of non-state (private) higher education institutions. This has led to a substantial expansion of the system (see Table 1).

Table 1: Higher education institutions in Poland

Year	State HEIs	Non- State HEIs	Total Number of students
1990	88	3	385,000
1991	91	3	408,000
1992	91	11	474,000
1993	90	30	561,000
1994	90	50	658,000
1995	90	75	770,000
1996	90	115	904,000
1997	91	148	1,068,000
1998	101	158	1,252,000
1999	105	181	1,403,000
2000	118	206	1,568,000
2001	126	239	1,698,000

The Basic Structure of the System

The clearest division of higher education institutions in Polen is between the state (public) and the non-state (private) sector of higher education.

State institutions

Structure

Public higher education institutions include all state¹ institutions as well as two universities that belong to the Catholic Church but are in great part funded from the state budget. There are 126 state higher education institutions funded from the state budget and supervised by the Ministry of National Education and Sports (85 institutions) or by one of the other ministries (41 institutions).

Universities and Universities of Technology offer the broadest range of study programmes, enrol the bulk of the students, and employ more than half of all academic staff in Polish public higher education (see Table 2). The latest type of state higher education institutions are the vocational higher education schools which were first established in 1997. In that year, the Parliament passed the Vocational Higher Education Schools Act. As of 2003, there were 25 state vocational higher education schools and their number is expected to grow. However, their size in terms of enrolment is still very small (less than 4% of enrolment in public higher education institutions).

¹ In Poland the term school refers to an educational institution: the terms higher education school and higher education institution refer to similar institutions.

Table 2: Characteristics of state higher education institutions (2001/02)

Type of Institution	Students (x 1000)	Full-time (x 1000)	Academic staff	Fields of study offered	No of HEIs
Universities	498	254	25,600	83	17
Univ. of Technology	325	203	18,000	42	18
Agriculture Academies	90	53	5,500	31	8
Academies of Economics	76	32	3,100	10	5
Educational Academies	92	37	4,700	29	6
Medical Academies	33	27	8,800	13	11
Academies of Arts	12	8	2,700	24	18
Acad. of Physical Culture	23	12	1,600	5	6
Maritime Academies	12	5	600	8	2
Vocational HE Schools	43	27	1,800	66*	25
Army and Police Acad.	12	6	1,900		10
Total	1,216	655	73,000		126

* Number of specialisations offered

The degree structure in Poland is a two track system: a two-tier track and a uniform track. The first level of the two-tier track is completed with the *licencjat* (lic.) which is equivalent to the Bachelor's degree and has a minimum length of six semesters. In engineering studies the first degree is the *inżynier* (inz.) degree. Engineering programmes must last at least seven semesters. There is no formal difference as to whether these degrees are conferred by vocational higher education schools or by academic institutions. This distinction can be made only by inspecting the diploma or by reading the diploma supplement.

The second higher education degree is called the *magister* (mgr.) or Master's degree. It may be obtained in two ways. One is to complete the uniform Master's program, which lasts four to five years, and to pass the final examination. The other way is to undertake second tier postgraduate studies, which last three to five semesters at the Master's level. These studies are intended for people holding a *licencjat*. In engineering, the second tier degree is called the *magister inżynier* (mgr. inz.) which means a Master of Science and Engineer or MSc. Eng.

In medical studies there is only one degree level, the Master's level, and this programme lasts six years. This degree is called *lekarz* – medical doctor, but it does not equate with the scientific degree of Doctor.

The two-tier degree structure in Poland is still a novelty and, until now, many students at the universities prefer the uniform Master's programmes. However, this situation is slowly changing. There is a growing number of universities offering regular (full-time) courses in a two-tier Bachelor-Master structure. Most universities are also adapting to the demand from non-state first-tier degree holders for second tier programmes. These programmes are often organised as part-time studies (for which universities may charge fees).

Since 1990, an increasing number of doctoral programmes have been developed in academic higher education institutions. The nominal duration of doctoral studies is four years, but the actual time to degree is much longer.

Access

Applicants to any higher education programme must hold a *Matura* or secondary school final examination certificate. Admission may be open or it may be based on an entrance examination or a qualifying interview. This is determined by the Senate of the institution. Generally, entrance examinations are required for the most popular programmes such as law, medicine, psychology, economics, popular linguistic studies, architecture, and computer science. At most prestigious universities the number of programmes that require entrance examinations is much higher than in other higher education institutions. In these institutions the access criteria most often applied are: secondary school marks; qualifying interviews; or some combination thereof. In some universities a defined number of places are reserved for high scorers in the entrance examination while the rest are reserved for the high school results competition winners. Access to part-time programmes is open; students have to have a *Matura* and pay a fee.

Vocational higher education institutions are located in smaller cities outside the academic centres in a governmental effort to stimulate the cities that lost their status as capital of a province in the last administrative reform, and to distribute higher education institutions in a more uniform way throughout the country (the majority of state academic higher education institutions are concentrated in several big cities).

Participation

Enrolment (headcount) in Polish higher education more than quadrupled in the 1990s (see Table 3 - page 89 - and Figure 1 and 2). Full-time enrolment in 2001 was almost three times the number of students enrolled in 1991. Part-time enrolment has grown even more spectacularly. 2001 enrolment was more than ten times the 1991 enrolment, and its share in the total enrolment grew from 23% to 55%. The growth was highest in economics and humanities. Relative enrolment in the medical/health sector has decreased.

Figure 1: Distribution of full-time students by age and rate of participation by age, 2001

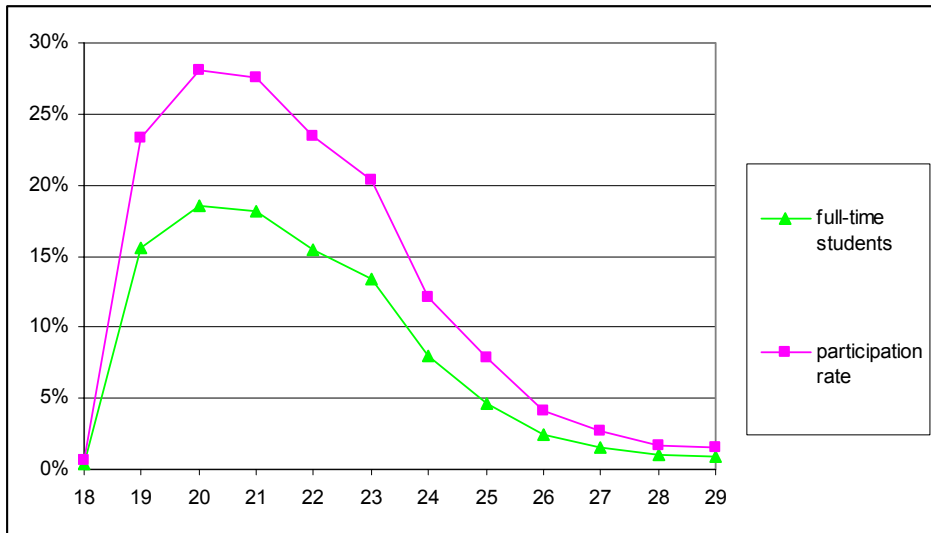
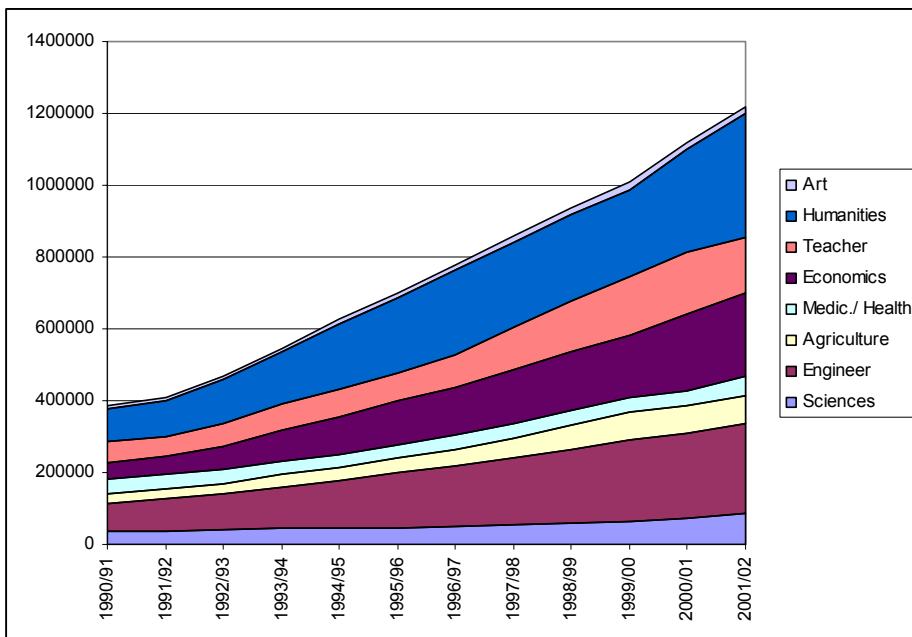


Figure 2: Students at state higher education institutions by discipline



The number of PhD students grew steadily from 2,700 in the 1990/91 academic year to 13,350 in 1996/97, and to more than 28,300 in 2001/2002 (see Table 4).

Table 4: Enrolment and new entrants in PhD programmes

Year	Total	Full-time	Part-time	New entrants
1990/1991	2,695	1,926	769	869
1993/1994	4,428	3,069	1,390	972
1994/1995	7,133	4,697	2,436	1,464
1995/1996	10,482	6,779	3,703	1,946
1996/1997	13,351	8,355	4,996	2,740
1997/1998	16,419	10,819	5,601	3,691
1998/1999	19,735	14,538	5,197	5,061
1999/2000	22,239	16,261	5,978	5,341
2000/2001	25,622	18,882	6,740	6,107
2001/2002	28,345	21,455	6,890	7,016

Outflow

Graduates

The number of graduates has paralleled the growth in the number of students over the past decade. This is presented in Table 5 with a distinction between MSc and vocational degrees. In state higher education institutions the share of undergraduate vocational degrees grew from 6% in 1990 to more than 32% in 2001.

Table 5: State higher education institution graduates

Year	MSc degrees*	Vocational degrees	Total number
1990	47,704	3,200	50,904
1991	50,788	4,179	54,967
1992	52,709	4,604	57,313
1993	56,258	7,178	63,436
1994	58,664	7,956	66,620
1995	68,398	14,294	82,692
1996	74,892	25,492	100,384
1997	87,861	32,937	120,798
1998	96,916	43,153	140,069
1999	111,486	48,512	159,998
2000	124,837	55,738	180,575
2001	135,270	64,195	199,465

* graduates of uniform MSc studies and postgraduate (second degree) studies

Table 6: Scientific degrees conferred by higher education institutions in 2001

	PhD total	PhD female	Habil. Dr total	Habil. Dr female
State HEIs	4261	1922	726	222
Non-state HEIs	4	1	1	
Catholic Univ.	135	34	12	

Labour market position

The position of higher education graduates (both from state and from non-state higher education institutions) in the labour market is much better than workers with a lower educational status (see Table 7).

Table 7: Number of unemployed people registered monthly (in an average month)

	Unemployed	Unemployed HE graduates	Unemployed HE graduates as % of total number unemployed
1992	129,983	1,100	0.77
1993	164,192	1,117	0.63
1994	174,500	1,242	0.70
1995	197,608	1,525	0.80
1996	185,425	1,008	0.50
1997	170,942	1,333	0.80
1998	177,317	1,783	1.00
1999	213,575	2,933	1.40
2000	206,325	3,925	1.90
2001	206,367	4,933	2.36
2002*	194,183	4,550	2.28

* Data are not complete

Personnel

Academic staff positions in Poland consist of full professors, who require the academic title of professor and who are appointed by the minister; associate professors, who must have a habilitated doctoral degree and who are appointed by the institution; and assistant professors who are required to have a PhD. Additional academic staff include senior lecturers and lecturers who are required to have a Master's degree but preferred to have a PhD, and assistants and language teachers who must have a Master's degree.

The title of professor is the highest academic degree in the country and is conferred by the president of the State on the basis of academic and teaching results. The requirements are presented in the 1990 Academic Title and Academic Degrees Act. Candidates for this title are forwarded by the Central Commission for Academic Degrees.

Table 8 (page 90) presents the data on academic staff in the last decade, and Table 9 (page 90) shows the academic and non-academic staff in state and non-state higher education schools in general.

*Non-state institutions**Structure*

The non-state (non-public) institutions started in 1991, after the passage of the 1990 Higher Education Act. Since that time their number has grown continuously (see Table 1). A second legal change that boosted the development of the non-public sector was the passing of the Vocational Higher Education Schools Act in 1997. New non-public higher education institutions are registered as vocational higher education schools and are obliged to fulfil the requirements that stem from this Act. As a result, the latest 104 non-public higher education

schools have the status of vocational institutions and operate in terms of the above-mentioned Act, while the 135 non-public higher education institutions that had been registered before the 1997 Act are ruled by the earlier 1990 Higher Education Act. This means in practice that the 104 vocational non-public higher education institutions may not apply for Master's degree programmes before they change their status.

According to the law a physical or a legal person – called a founder – may establish a non-public higher education school, after he or she obtains permission issued by the Minister of Education and Sports. Before the permission is granted and the new higher education institution registered, the minister asks for the opinion of the State Accreditation Commission. Due to the limited number of professors available², most of the non-public higher education institutions offer only one or two programmes on the bachelor's level (three years), most often in economy, business, management, education or languages.

Among the 239 non-public higher education schools, two have all academic rights, four have the right to confer PhD. degrees in a single discipline of science, more than 70 are authorised to offer master's degree programs, and 160 offer programs at the Bachelor's level. Non-public higher education institutions are not evenly distributed across the country; many of them are concentrated in and around large academic centres.

Access

The *matura*, is always a legal requirement for access as set out by the Higher Education Act. In addition, non-state schools very often use interviews as the prime selection instrument. Most popular programmes utilise entrance examinations.

Participation

Although the number of students in the non-state higher education sector has grown dramatically over the last decade, growth has levelled off in the last few years. Whether this is due to demographic reasons or saturation is not clear.

Table 10: New entrants in non-state higher education schools

Academic year	Total	Full-time
1992/1993	2,900	400
1994/1995	19,300	6,500
1996/1997	122,000	15,000
1999/2000	141,900	29,600
2001/2002	151,100	35,600

² Standards and requirements are the same for the state and non-public HE institutions, except that non-public schools may employ professors over the age of 70 (who count as staff members), while in the state schools this group of professors does not count formally in financing and staff formulas. In consequence, many of the non-public schools have a problem with employing enough professors, even if they engage retired ones, to meet the standards necessary to offer courses at the Master's level. The standards for the Bachelor's (licencjat) level programs are less demanding – a minimum of four professors are necessary for such programmes, and such employment could be their second position, in addition to, for example, their employment at their university.

The majority of new entrants (approximately 80%), are part-time students. This proportion is almost twice as high as the proportion of part-time students in public higher education institutions (2001).

Graduates

The number of graduates in non-state higher education institutions still shows increasing growth. This growth is largely due to the growth in vocational degrees conferred by these institutions.

Table 12: Non-state higher education institution graduates

Year	MSc degrees	Vocational degrees	Total number
1990	959*		959
1991	963*		963
1992	671*		671
1993	765*		765
1994	807*	478	1,285
1995	1,659	2,100	3,759
1996	2,875	10,035	12,910
1997	3,879	18,870	22,749
1998	5,850	26,145	31,995
1999	10,031	43,202	53,233
2000	14,407	65,332	79,739
2001	18,823	84,786	103,609

* graduates of Catholic Universities

Staff

Academic staff in non-state higher education institutions consist of nearly 9.500 people and constitute only 13% of the total academic staff of the country. For many of these people work in a non-public higher education institution is a second job. A comparison of academic and non-academic staff in state and non-state higher education institutions is presented in Table 9.

Labour market position

There is no reliable breakdown available of labour market opportunities for state versus non-state higher education degree-holders.

Academic versus non-academic institutions

The third classification of higher education institutions divides institutions into those that are academic and those that are non-academic. Academic higher education institutions have the right to confer doctoral degrees in at least one scientific discipline³. The class of non-academic higher education schools comprises all vocational higher education institutions and other schools that offer Bachelor's or Master's level programmes but do not have enough full-time professors necessary to obtain the rights to confer PhD. degrees. The division between academic and non-academic higher education schools is not a formal one and the category of

³ Altogether there are more than 100 academic higher education institutions in Poland; their rectors are organised into the Conference of Rectors of Academic Schools in Poland (CRASP).

academic higher education institution is open. Each higher education school that obtains the rights to confer the PhD. degree becomes an academic institution. However, there is also a formal distinctive characteristic within the class of academic schools, which stems from the Higher Education Act. Among academic institutions there are some that have so-called 'extended autonomy'. Those schools that employ more than 60 full professors and that have half of their faculties with the right to confer habilitated Doctoral degrees, may have extended autonomy. These schools have a number of prerogatives such as the freedom to create new study programmes or the discretion to validate its own statute (by vote of the Senate).

The Research Infrastructure

Research in Poland is funded and supervised by a separate ministry called the State Committee for Scientific Research (KBN). State expenditure for research is 0.6% GDP. Research is carried out by higher education institutions, various branches of the institutes of the Polish Academy of Science, Research and Development Units, and industrial research laboratories. The academic higher education institutions play a leading role in research in the country.

The average research budget in an average state academic higher education institution is only about 16% of the whole budget (teaching accounts for nearly 80%). The highest share of research money goes to Technical Universities – about 25% of the overall budget. The average structure of research in a state higher education institution shows that 39% of the funds for statutory research come from the State Committee for Research, 15% are the institution's own research funds, 18.6% comes from grants, and 24% is from contracted research for business and industry. The highest share (approximately 30%) of the contracted research in the entire research budget takes place in technical universities and medical academies.

Statutory research funds, which come to higher education institution from the State Committee for Scientific Research, depend on the research category of the unit (most often it is a faculty or institute)

Table 13: R&D resources (in million Zloty – one zloty = Euro 0.25)

R&D resources spent by:	1994	1995	1996	1997	1998	1999	2000
Business enterprise	710	826	1,130	1,325	1,661	1,897	1,730
Government (research institutes)	603	745	859	1,074	1,234	1,4132	1,546
Higher education	407	561	768	961	1,106	1,2743	1,512
Private non-profit sector			3		2	5	6
Total	1,721	2,132	2,761	3,361	4,0051	4,590	4,796

Higher education expenditure by source of resources	1994	1995	1996	1997	1998	1999	2000
business enterprise	46	64	86	100	107	124	118
direct government	330	446	622	799	925	1066	1,286
higher education	23	35	41	41	51	58	78
private non-profit organisations	3	3	4	5	4	4	10
funds from abroad	3	11	14	15	17	20	18

source: OECD/DSTI, *Basic science and technology indicators 2001*

The higher education sector has a growing part in the spending of R&D resources. The 2000 data show a substantial increase in higher education research funding, whereas business enterprise research monies have decreased. The government provides the majority of R&D resources (85%) in the higher education sector.

Trends and Policy Issues

New legislation

Work has currently started on new legislation concerning the higher education system in Poland. This new legislation is designed to replace the 1990 Higher Education Act and its amendments. Because this is a presidential initiative, the efforts are carried out by a team appointed by the President of the State. The following main issues are expected to be covered in this legislation:

- integration of the various Acts that concern higher education issues (academic institutions, vocational schools, state and non-state institutions, student loans and grants, accreditation and quality assurance, elements resulting from the Bologna process);
- simplification and update of the law, shorter and more general regulations, more space should be left for decisions in terms of the statutes of institutions leading to more autonomy for the institutions;
- resolution of problems that are unclear and unfair in state – non-state relations;
- simplification of the rules covering student fees.

The Act should be ratified by the end of 2003.

Financing HE from the state budget

There is sufficient evidence to claim that state schools are insufficiently financed from the state budget. This became obvious after an analysis of the state expenditure per student showed a dramatic decline over the preceding ten year period. In 2003 many schools have been faced with serious financial problems which have forced rectors to undertake drastic measures that include the limitation of enrolment. The opinion that tuition fees should be introduced uniformly for all students is spreading but this would require changes to the Constitution of the Polish State. Additionally some non-state institutions could apply for public money to be granted to their students.

Qualified staff problems

The number of high rank teaching staff (professors, habilitated doctors) is too small and this group of teachers is getting older. Precise data concerning aging problems is not available but it is a common shortcoming experienced by numerous universities in the country.

There is considerable discussion about simplifying the academic degree structure by dropping the habilitated doctoral degree and leaving the PhD. only. However, strong opposition to that kind of change prevails with the argument that this change could reduce the academic quality of the staff.

Study programmes offered

There is a problem of harmonization or of achieving a balance between the needs of the market and job perspectives with the study programmes offered by the higher education institutions. In the last few years it appears that in most popular study programmes the number of graduates was much too large. This concerns mainly management, law, economics and educational studies. Many schools offered these programs and a great number of entrants were admitted. Now the notion prevails that the minister should control admission levels in order to reach a state of equilibrium. Opponents argue that ministerial centralization and limitations were never good and were always too late to prevent problems, and that these would risk spoiling a liberal system in which balance is sought and reached. The Ministry has stressed, in any case, that it will promote studies in the sciences and technology.

Demographic changes and growing competition.

The demographic decline that has come slowly to the higher education institutions means the end of the educational boom; many signs of growing competition between schools, especially between the state and non-public sector, can be discerned. The beginning of the collapse of many non-public schools with low enrolment has occurred as a result of their low status and very limited offer of study programs. The competition is reflected in various rankings of higher education institutions in popular periodicals and magazines (*Newsweek*, *Perspektywy*, *Rzeczpospolita*, *Wprost*) that have been published over the last five years. At the beginning, institutions and their rectors kept some distance; viewing this new ranking phenomenon with suspicion. Later, however, those that occupied the top of the list became very involved and gave their full support to this publicity. What is typical for these classifications is that some, but not very many, non-state schools permeate the 'open' or 'general' category and year after year climb up the lists, protecting their future position on the market.

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Table 3: New entrants in state higher education schools (x 1000)

	1990/1991		1992/1993		1994/1995		1996/1997		1999/2000		2001/2002	
	stud	ft	stud	ft	stud	ft	stud	ft	stud	ft	stud	ft
Universities	32.6	23.9	53.9	30.0	69.7	33.7	79.8	35.2	97.2	45.5	112.9	61.0
Univ. of Technology	21.5	18.8	42.0	33.0	57.0	40.5	67.3	43.0	81.5	50.7	89.1	60.6
Agriculture Academies	9.1	7.1	13.8	9.7	17.1	11.5	21.0	12.7	20.9	12.0	25.	4.6
Acad. of Economics	6.0	4.4	11.4	5.2	15.7	5.7	14.9	5.4	13.9	5.9	12.9	6.7
Educational Academies	11.1	7.1	12.2	6.8	15.6	6.9	22.2	8.7	24.4	10.1	24.0	11.2
Medical Academies	6.7	6.7	4.5	4.5	4.6	4.3	5.3	4.4	5.6	4.1	8.8	6.4
Academies of Arts	1.7	1.4	1.8	1.5	1.8	1.5	2.1	1.5	2.0	1.5	2.7	1.6
Acad. of Phys. Culture	3.9	2.8	3.7	2.7	3.8	2.5	4.4	2.4	5.0	2.7	5.8	3.3
Maritime Academies	0.7	0.6	0.9	0.6	1.9	0.8	2.0	1.0	2.5	1.2	3.1	1.5
Vocational HE Schools	-	-	-	-	-	-	-	-	7.9	4.9	22.6	14.5
Total	93.3	72.8	144.2	94.0	187.2	107.4	219.0	114.3	260.9	138.6	307.5	181.4

FT: NEW ENTRANTS ENROLLED AS FULL-TIME STUDENTS

Table 8: Academic staff over the last decade

Year	Total number	Female teachers	Professors full & associate	Assistant Professors	Lecturers (senior & junior)	Language teachers & In- structors
1992	59,696	22,515	10,318	38,956	9,234	1,188
1993	61,329	23,393	10,554	39,355	10,182	1,238
1994	62,531	23,934	10,848	40,039	10,384	1,260
1995	63,008	23,393	11,069	40,138	10,527	1,274
1996	64,375	25,281	11,490	40,457	11,120	1,308
1997	65,320	25,799	11,907	40,493	11,614	1,306
1998	66,523	26,459	12,388	40,994	11,851	1,290
1999	67,564	27,144	12,766	41,378	12,168	1,252
2000	80,208	31,087	16,948	46,948	14,298	2,014
2001	82,401	32,369	18,194	47,785	14,612	1,810

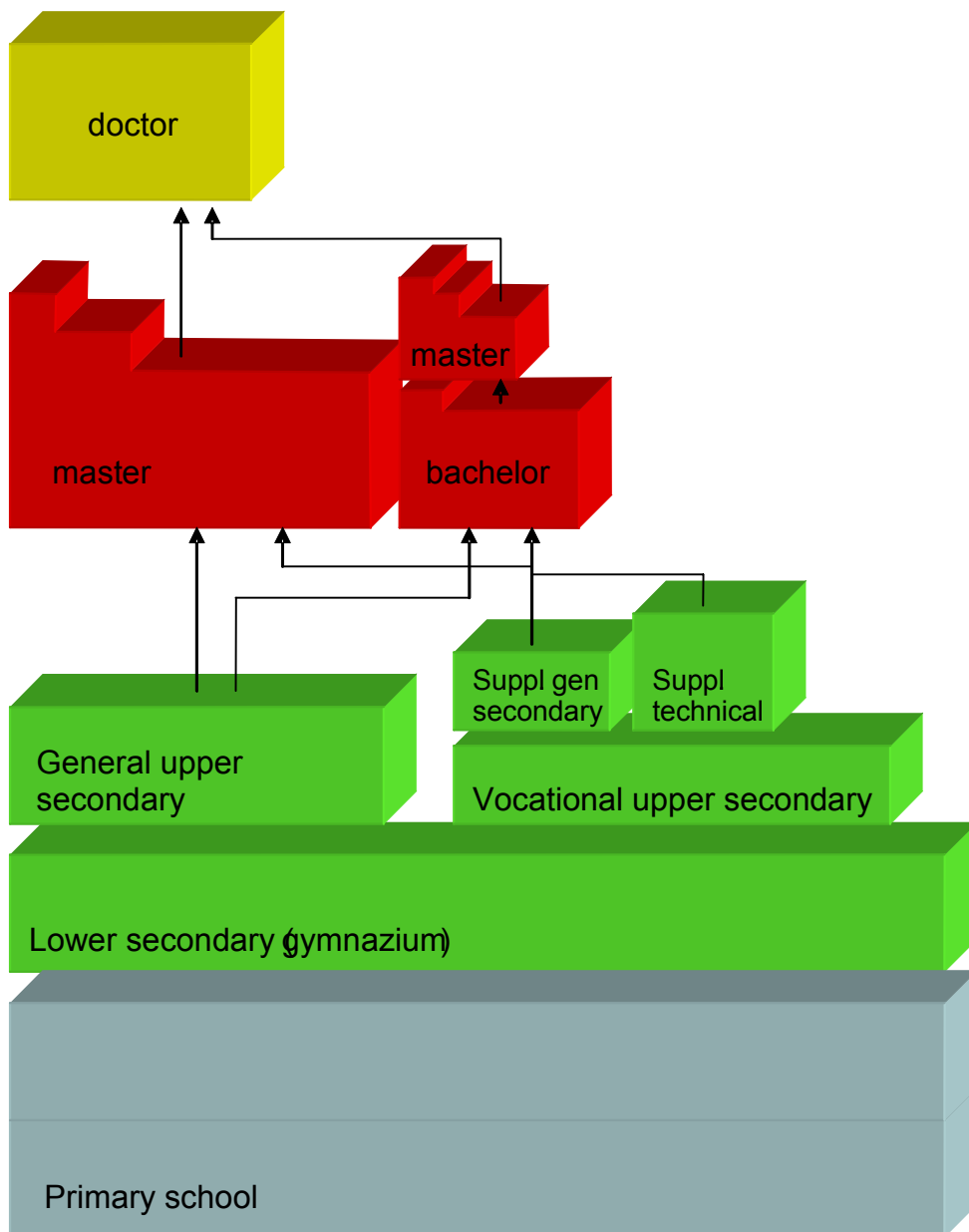
Table 9: Non-academic and academic staff in higher education

Year	Non- academic staff			Academic staff		
	State HEIs	Non- State HEIs	Total	State HEIs	Non- State HEIs	Total
1992	62.459	438	62.897	59.696	497	60.193
1993	60.530	598	61.128	61.329	746	62.075
1994	59.398	998	60.396	62.531	1.214	63.745
1995	58.650	1.415	60.065	63.008	1.792	64.800
1996	58.275	1.690	59.965	64.375	3.132	67.507
1997	57.798	2.641	60.439	65.320	4.904	70.224
1998	58.358	3.317	61.675	66.523	5.948	72.471
1999	59.317	4.301	63.618	67.564	7.630	75.194
2000	63.127	4.929	68.056	71.741	8.467	80.208
2001	63.555	5.840	69.395	72.926	9.475	82.401

Table 11: Students at non-state higher education institutions by discipline

Acad. Year	Sciences	Engineering	Agriculture	Medic./ Health	Economics	Teacher Educ.	Humanities	Art	Total
1991/1992					865				865
1992/1993		105			3,098	255	294	60	3,812
1993/1994		363			9,364	1,118	2,248	243	13,336
1994/1995		1,216			18,374	3,223	8,960	288	32,061
1995/1996		2,285			37,987	7,225	22,440	388	80,325
1996/1997	3,360	5,402	233		69,123	12,088	35,488	491	126,185
1997/1998	5,237	12,759	733		103,827	13,662	70,907	577	207,702
1998/1999	6,708	16,582	1,031		179,892	16,786	93,490	769	315,258
1999/2000	8,779	22,584	2,233	104	224,640	23,020	112,711	916	394,987
2000/2001	10,739	27,394	4,783	1,078	255,520	30,875	117,753	970	449,112
2001/2002	12,481	28,380	3,492	5,520	263,498	44,800	121,621	1,570	481,362

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