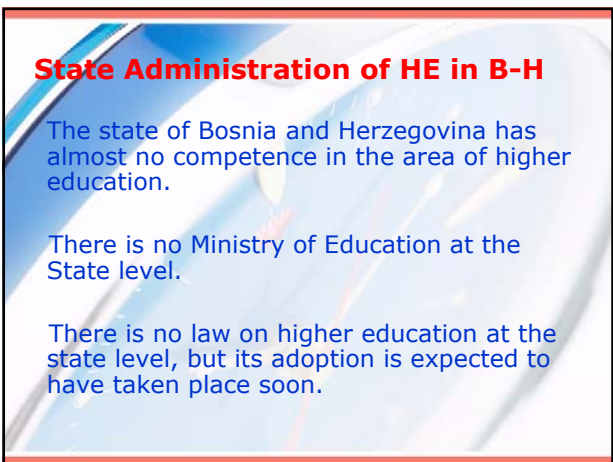




The Bologna Process and its Implementation at Universities in Bosnia-Herzegovina

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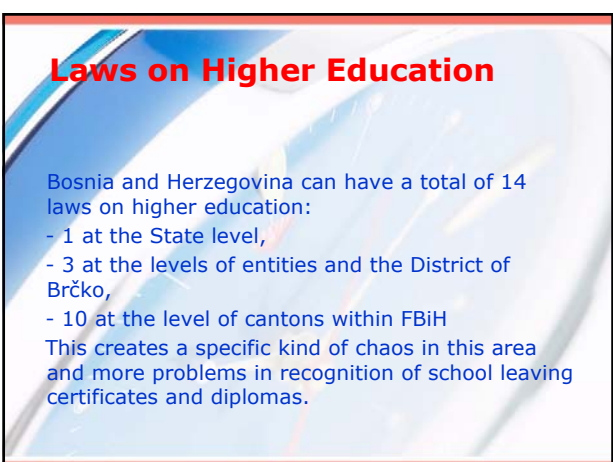


State Administration of HE in B-H

The state of Bosnia and Herzegovina has almost no competence in the area of higher education.

There is no Ministry of Education at the State level.

There is no law on higher education at the state level, but its adoption is expected to have taken place soon.



Laws on Higher Education

Bosnia and Herzegovina can have a total of 14 laws on higher education:

- 1 at the State level,
- 3 at the levels of entities and the District of Brčko,
- 10 at the level of cantons within FBiH

This creates a specific kind of chaos in this area and more problems in recognition of school leaving certificates and diplomas.

Accreditation and Standards

- Universities and faculties do not undergo the process of **accreditation**, since the current laws do not envisage such a possibility.
- The new Law will have to regulate this issue as well.
- In the area of higher education the appropriate **standards and norms** that apply to a diverse set of issues (dealing with education, teaching and other staff and personnel, space requirements, etc.) have not been passed and implemented.

Universities in B-H

There are currently eight Universities in the country:

University of Bihać,
 University Banja Luka,
 University of Tuzla,
 University of Sarajevo,
 University East Sarajevo,
 University "Džemal Bijedić" Mostar (East),
 University Mostar (West) and
 University Zenica.

Statistics for B-H Higher Education

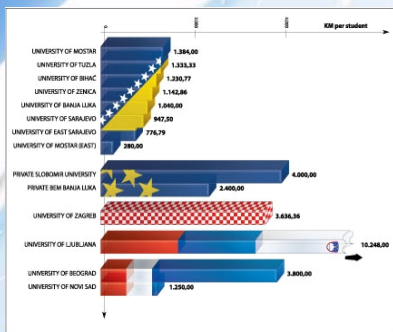
A Statistical Look at BiH Universities	
NUMBER OF PUBLIC UNIVERSITIES	8 (6 in FBiH and 2 in RS)
NUMBER OF PRIVATE UNIVERSITIES	4 (1 in FBiH and 3 in RS)
NUMBER OF BRANCHES RUN BY PUBLIC UNIVERSITIES	14
NUMBER OF LICENSED PRIVATE FACULTIES INDEPENDENT OF UNIVERSITIES	8 (2 in FBiH and 6 in RS)
NUMBER OF UNLICENSED PRIVATE FACULTIES KNOWN TO BE OPERATING IN BIH	1 (in FBiH)
NUMBER OF BRANCHES RUN BY PRIVATE FACULTIES	11
PERCENT OF BIH STUDENTS WHO MOVE FROM SECONDARY SCHOOLS INTO UNIVERSITIES	about 20%
PERCENT OF BIH POPULATION HOLDING SECONDARY DEGREES	about 3%
PERCENT BIH YOUTH WHO SAY THEY WANT TO LEAVE THE COUNTRY PERMANENTLY	25%
NUMBER OF PEOPLE UNDER 30 WHO EMIGRATED FROM BIH FROM 1996-2001	92,000
AVERAGE TIME TO ACQUIRE DEGREE IN BIH	8 years
STUDENT ENROLLMENT	about 100,000
NUMBER OF PROFESSORS	about 4,300

Source: compiled by CEN from United Nations and Council of Europe reports and original reporting

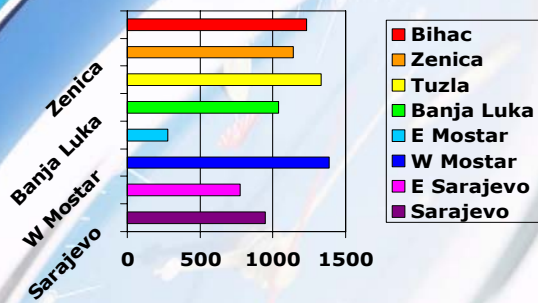
Higher Education Budget

The annual budget for higher education is 113.5 million KM i.e. approximately 1100 KM per student. These funds are not nearly sufficient for the purchase of equipment, the publishing of papers in scientific journals, the expansion of library resources, participation in international exchange or carrying out of reforms.

Comparison with the countries in the region



Universities in B-H: KM/Student/Year



Bologna Reform and financing the HE

- Of course the Bologna Process (of which B-H is a part of it since 2003) do not recognize this type of student.
- The Bologna Process asks for new investments and new funds in other to implement reforms. As far as investments and new funds are concerned, there are major differences in the WB countries.
- For instance: In 2005, while Croatia invested approximately 18 million KM for the implementation of the Bologna Process, B-H did not invest a single mark.

And the titles of individual stories are:

- B-H has pledged to reform and improve higher education, but it hasn't done much
- Students chat, play music but learn little
- Employers say schools are graduating students unprepared for work
- **B-H higher education funds too small, too splintered**
- Paying for passing grades and seats in a class accepted as a way of life
- No experiments, no labs, no real-life lessons for too many BiH university students
- Private schools are springing up as an alternative to public faculties
- Flamboyant businessman opens a private school in a private city
- Here are some ways to change BiH faculties for the better


HE Reform in B-H

- The process of higher education reform in BiH is taking place on three fronts. Firstly a new legislative framework, looking towards the European Higher Education Area needs to be established.
- Secondly, reforming the financing of higher education is essential, as current mechanisms are inefficient, lack transparency and provide opportunities for unacceptable discrimination.
- The third pillar of reform is being undertaken within universities themselves; this key aspect, university governance and management in an integrated university was the focus of an intensive two-year joint EC-CoE project (2003-2005).

But Statistics are not promising:

- They say that public investment in higher education amount about 30KM per inhabitant what makes them less than 6% of European average.

Good news: Bologna is working



B-H in the Bologna Process

Bosnia-Herzegovina joined the Bologna Process in 2003. Soon after that the Draft of the Framework Law on Higher Education was prepared, creating the basic conditions for the implementation of Bologna reforms such as:

- two-cycle system of study
- establishment of an agency for quality assurance and accreditation
- establishment of an agency for the implementation of the ECTS system, Diploma Supplement and recognition of diplomas

However, the law has yet to be adopted.

CURRICULA AND PROGRAMMES OF STUDIE

1. **Major:** Mathematics and informatics
Academic's title : Professor of mathematics and informatics
2. **Major:** Mathematics
Academic's title : Professor of mathematics
3. **Major:** Theoretical computer science
Academic's title: Software engineer
4. **Major:** Mathematics
Academic's title : Graduate mathematician

1. **Major:** Mathematics and informatics *Visoka stručna sprema*
Academic's title: Professor of mathematics and informatics (6 sem.)

Course	Semester						ECTS
	I	II	III	IV	V	VI	
Elementary mathematics	3+3+0						4
Analysis I	4+4+0						12
Introduction in mathematics	3+2+0						8
Introduction to programing technique	2+2+2						6
Analysis II		4+4+0					12
Introduction to linear algebra		3+3+0					8
Elementary number theory		2+2+0					5
Computer systems		2+2+2					5

Analysis III			4+4+0				10
Linear algebra			3+3+0				7
Probability and Statistics			3+2+0				5
Introduction to programing technique			2+2+2				5
Pedagogy			2+0+0				3
Differential equations				3+2+0			6
Euclidean geometry				3+3+0			9
Selective course 1				3+2+0			6
Didactics				3+1+0			5
Psychology				2+1+0			4

Complex analysis						3+3+0	6
Algebra I						3+3+0	8
Real analysis						3+3+0	6
Teaching methods of informatics						2+2+1	5
Selective course 2						2+1+0	5
Functional analysis						3+2+0	7
Algebra II						3+3+0	8
Teaching methods of mathematics						3+2+0	6
Methodical practice						1+1+2	4
Selective course 3						2+2+0	5

Selective courses:
IV semester (one course)

- Combinatorics
- Computers in mathematics classes
- Computers' nets
- Introduction to numeric mathematics
- Discrete mathematics
- Objective oriented programming

V semester (one course)

- Curves and surfaces in R3
- Introduction to WEB design
- Algebraic computer packages
- Operacional research
- Introduction in mathematical modeling
- Data structures and algorithms
- Projective geometry
- Theoy of dates

VI semester (one course):

- Set theory
- Selected topics in analysis
- Selected topics in algebra
- Selected topics in geometry
- Mathematics for gifted students
- Net and WEB programming
- Advanced databases

2. Major: Mathematics (teaching) Visoka stručna sprema
Academic's title: Professor of mathematics (6 sem.)

Course	Semester						ECTS
	I	II	III	IV	V	VI	
Elementary mathematics	3+3+ 0						4
Analysis I	4+4+ 0						12
Introduction to mathematic	3+2+ 0						8
Analytic geometry	2+2+ 0						6
Analysis II		4+4+ 0					12
Linear algebra I		3+3+ 0					8
Euclidean geometry		3+3+ 0					6
Psychology		2+1+ 0					4

Analysis III			4+4+ 0				10
Linear algebra II			3+3+ 0				7
Geometry of triangle and circle			3+3+ 0				5
Pedagogy			2+0+ 0				4
Selective course I			2+2+ 0				4
Differential equations				3+2+ 0			7
Elementary number theory				2+2+ 0			5
Basics in computing				2+2+ 2			4
Numbers and polynomials				2+2+ 0			6
Didactics				2+1+ 0			4
Selective course 2				2+2+ 0			4

Probability and Statistics					3+2+ 0		7
Complex analysis					3+3+ 0		7
Teaching methods of mathematics					3+2+ 0		6
Selective course 3					2+2+ 0		5
Selective course 4					2+2+ 0		5
Introduction to real analysis with applications						3+2+ 0	7
Basics in general algebra						3+3+ 0	7
Methodical practice						1+1+ 2	6
Selective course 5						3+2+ 0	5
Selective course 6						2+2+ 0	5

Selective courses:

III semestar (one course)

- Introduction programing
- Analytical and geometry of inequalities
- Introduction to WEB design
- Philosophy of mathematics and natural sciences
 - Sociology
 - Natural sciences I

IV semestar (one course)

- Set theory
- Objective oriented programing
- Discrete mathematics
 - Combinatorics
- Pedagogical and children psychology
- Natural sciences II

V semestar (two courses)

- Algebraic computer packages
- Projective geometry
- Operaciona istraživanja
 - Teorija podataka
- Geometry – constructive problems
- Introduction to mathematical modeling
- Data structures and algorithms
- History of modern mathematics
 - Topology
 - English language

VI semestar (two courses)

- Computers in mathematics classes
- Mathematics for gifted students
- Selected topics in analysis
- Selected topics in algebra
- Introduction to numeric mathematics
- Introduction to functional analysis
- Complex analysis II

THE END