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**REFORMING THE STUDY PROGRAMS AND CURRICULA  
AT THE UNIVERSITY OF NIŠ  
FROM THE PERSPECTIVE OF THE PROVISIONS  
OF THE BOLOGNA DECLARATION**

**A Case Study (January 2003)**

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## **I. Introduction**

Serbia has 6 state universities, excluding university in Prishtina, and 3 fully recognized private universities, as well as several "fachhochschule" and fully dependant faculties.

According to the available data, the Serbian state universities have a student body of 145,046 students (the data for the University of Kosovska Mitrovica are still unavailable), and 11,002 teaching staff. Exactly 28,370 students enrolled the academic 2001/2002 year. The number of students at five state universities in Serbia, and their actual number in the academic year 2001/20002 are presented in the tables given by Djuricic B.

Out of the total number of 90,000 children enrolling the primary school, only 50,000 graduate from the secondary school, and 28,370 enter the university. According to this source, roughly 11% get the Bachelor's degree in time.

According to the data from the Ministry of Science and Technology (from 1996) in Serbia there are 56 scientific institutions, completely independent from universities, that are predominantly engaged in research. Those institutions are not involved in education, even though many of them have scholars with Master degree or PhD.

Although the University Law which is currently in force is not a reformatory one, it is considerably liberal, leaving enough room for initial steps in reforming Serbian universities in line with the Bologna Declaration. It provided to the universities a sufficient framework to set up appropriate working groups aimed to explore possible reform models and initiate changes in all relevant segments of academic life.

Yet, the new university law which is expected to be adopted within a year will hopefully be more providing firm legal grounds for essential changes intended by the Bologna process.

At present, the public investment for higher education covers only 0.4% GDP. Regarding funds coming from the state, they are in the scope from 56% to 85% of all universities' revenues.

Another problem pressing our universities lies in the fact that under the current regulations HE institutions must state their financial needs in advance, fixing their financial demands with precision, as they will be particularly financed from the State budget. This is evidently a deviation from the financial principles of the European state universities and it would affect the financial autonomy of the University. Ironically, the new Serbian budget for 2003, as proposed, is characterized by lesser public investment compared to the previous one (a decrease amounting to roughly 72 million Dinars which approximates 12 million Euros), which will cause additional problems in financing Serbian HE institutions.

## II. The State Of Curricula

### 1. Present situation of the University of Niš

The University of Nis is often referred to as a medium-sized, and well-developed academic community comprising thirteen academic units, i.e. faculties, namely:

Faculty of Civil Engineering and Architecture; Faculty of Economics; Faculty of Electronic Engineering; Faculty of Law; Faculty of Mechanical Engineering; Faculty of Medicine, Faculty of Occupational Safety, Faculty of Philosophy, Faculty of Physical Education; Faculty of Science and Mathematics; Faculty of Technology; Teacher-Training Faculty, and a newly funded Faculty of Fine Arts.

Two of the mentioned faculties are dislocated from Nis: the Faculty of Technology is located in Leskovac (45 km to the south from Niš) and the Teacher-Training Faculty is in Vranje (some 120 km southward of Niš).

Furthermore, the University of Niš houses the University Library "Nikola Tesla" and operates several academic centers: the University Computer Center, the Center for Multidisciplinary Studies, as well as a joint Research Center with the Serbian Academy of Arts and Sciences.

Almost all of the faculties of the University of Nis have composite academic structure, i.e. various departments or divisions offering considerably wide and diversified study and research opportunities. Each of them operates its own academic facilities - specialized libraries, research institutes, computer centers and adequate laboratories, as well as separate administrative services in charge of student documentation and graduation certificates, scientific research, financial matters, etc. etc.

Yet, at this point it is important to mention that, under the current legal regulations, faculties enjoy the status of fully independent legal persons (both academically and financially), making the University only a loose association of faculties. Although the University should play a more important role in defining general policies in higher education, faculties, as entities recognized by the Law, have full autonomy in organizing their curricula and educational policy.

#### ***Curricula Organisation***

##### ***Teaching and learning***

The faculties operating within the University of Niš offer a full range of academic degrees - Bachelor's Degree, Specialist's Qualification, Master's Degree and PhD Degree.

The teaching programs incorporate general-education, theoretical, methodological, scientific, research and professional contents. The syllabi are implemented through various forms including lectures, laboratory classes, seminars, tutorials, practical sessions, professional practice, etc. Instruction is carried out in Serbian, and only exceptionally in a foreign language.

Undergraduate studies (the Bachelor's degree) extend over four to six academic years, depending on the faculty. Teaching courses are divided into two semesters for each year of study. Duration

of studies is six years at the Faculty of Medicine; five years at the Faculty of Civil Engineering & Architecture, Faculty of Electronic Engineering, Faculty of Mechanical Engineering and Faculty of Technology. Other faculties have four-year study programs.

The majority of subjects constituting faculty curricula last two or more semesters. According to the new university law there are four mandatory examination periods (January, June, September, October), but many faculties provide more than four periods during one academic year.

Examinations usually combine oral, practical, and/or written parts. Some faculties have recently introduced preliminary tests based on multiple choice questions (the Faculty of Medicine).

Some faculties have introduced mid-term quizzes as a precondition for seminar papers or final exams (the Faculty of Civil Engineering and Architecture, the Faculty of Mechanical Engineering, the Faculty of science and Mathematics, the Faculty of Philosophy, etc.).

### **Study of Physics**

The Physics Department belongs to the Faculty of Science and Mathematics. **Students of Physics** are generally offered three undergraduate options culminating in three professional titles: B.Sc. in General Physics, B.Sc. in Applied Physics and B.Sc. - Education in Physics (Teaching Degree). Studies are of four years' duration. Most of the courses are two-semesteral. There are no optional courses, except for one general first-year course (Sociology, Philosophy and Language Culture). In the period from the sixth to the eighth semester students are expected to elaborate a term-paper which preconditions enrollment in the final, eighth semester. A written or a practical examination preconditions oral examination which is taken at the end of the course. The studies culminate in a degree examination that involves defense of a graduation thesis in a professional field of student's choice.

The undergraduate studies of History are also of four years' duration (each year has two semesters) and are based on a full range of mandatory courses (no optional courses). Examinations are mostly oral. Upon graduation students are awarded Bachelor's degree with entitlements to teach history in the primary and secondary school. There are plans to change the structure of the studies and the curricula in line with the Bologna Declaration. One of the ideas is to organize three-year undergraduate studies. The Faculty of Philosophy (to which the History Department belongs), aiming to accelerate, facilitate and guide structural change in line with the basic objectives of the Bologna Process, has made the first steps in connection with curricular reform:

1. **first internal evaluation** (a pilot project) in May 2002 that included two out of nine departments (English Studies and Sociology)
2. **amending of the Faculty Bylaw to include obligatory evaluation** of the teaching process at the end of each academic year (July 2002)
3. **permanent assessment** introduced for the students of the English Department (starting from the beginning of 2002/2003 academic year) with very encouraging results in terms of students' efficiency
4. **adoption of the recommendations to improve academic efficiency and students' assessment procedures** (Faculty Educational and Scientific Council, Nov. 2002)
5. **drafting of the Faculty strategic and action plans.**

The mentioned recommendations (intended for the current 2002/2003 acad. year) focus on the following short- and long-term tasks to be accomplished by the Faculty teaching staff:

- to innovate all course programs and redefine objectives, including precise definition of the corpus of knowledge and skills to be adopted by students at the end of each separate course, as well as reduction (where possible and rationally justifiable) of teaching contents up to 30% to ensure exclusion of non-functional or superfluous contents.
- to embrace as many forms of teaching as possible with respect to the nature of the course: lectures, discussions, home assignments requiring reading or writing, individual or group presentations, individual or group projects, etc.
- to introduce as many students' assessment procedures as appropriate with the following core elements constituting the basis for assessment: regular attendance, active participation in classes, successfully done class and home assignments, individual and group presentations, individual and group projects, knowledge and skill tests, and practical work (where the nature of the subject requires such work).
- to strive towards the following goals: continuous assessment of students' progress, splitting of the course into conceptual wholes (modules) that would allow for partial, step-by-step assessment, introduction of several knowledge/skills checkings (where possible)

Students will thus get an opportunity to choose between step-by-step and traditional assessment. Full-scale final examining would remain the option for students who have not undergone testing during the course of the year, students who have failed to get a positive average grade during the course of continuous assessment, students who are not satisfied with the grade they accomplished on tests, students who have passed only some parts of the program.

The purpose of said recommendations is to make necessary grounds for the major changes of the curricula and programs to be accomplished in the forthcoming period, synchronously with the changes in the legal background (a new law to cover the entire area of higher education is currently being prepared with expectations to be adopted during 2003).

**Specialization studies** at the University of Nis provide graduate students with a combination of theoretical contents and practical techniques necessary for the performance of highly specialized professional duties. The studies extend over one, or in some cases, two academic years (Faculty of Electronic Engineering and Faculty of Technology), while specialization in various areas of Medicine and Stomatology requires 3-5 years, depending on the chosen field. Fulfillment of all formal requirements and a successful defense of the final thesis lead the student to the Specialist's Diploma and the appropriate specialist's title.

**Master programs** (the Master degree) combine two-year course work with individual research culminating in a final thesis. Upon completing the course work, students are expected to pass a range of comprehensive exams and to defend their master's theses, on the basis of which they are admitted to the degree of Master of Arts/Science in the pursued area.

**Doctoral(PhD) studies** involve three-year course work which, if successfully completed, qualifies the candidate to work on a doctoral dissertation. However, this type of studies has not yet become a practice within the University of Niš, although all of its faculties offer the PhD degree scheme, based on individual research work that is supposed to culminate in a doctoral

dissertation. This degree offer is restricted to those scholars who have demonstrated superior ability in a recognized academic discipline.

Didactic approaches in all the levels of studies correspond to the nature of subjects taught, as well as to the technical facilities of the faculties. Unfortunately, major part of the teaching process is conducted in a traditional manner, *ex cathedra*, with large groups of students. There are only a few courses that are oriented towards teaching through a dialog, case study or other forms of closer teacher-student communication. Moreover, there are no legal means to interfere or influence any changes in the teaching methods, being that teachers have full academic freedom both in teaching and in grading students.

### The quality culture

There is a strong tendency toward quality assurance, but still the University of Nis is lagging behind, having no possibility to establish comparable criteria regarding teaching and research capabilities of the teaching staff.

At present, no formal system exists to monitor quality at the University of Nis. The first experience at the institutional level is the present one. It is worthwhile to repeat that the self-evaluation process has activated a rather large number of people at the University and that it was combined with self-evaluation processes carried out also at the faculty level. One of the positive implications of this process is that the issue of quality was constantly present in all our discussions. The establishment of a quality culture at the University and its Faculties is a necessity accepted by more and more people in the academic community. One of the important things for the internal monitoring of the quality at the University of Nis is the standardized **Form for teaching staff's appointments** with selective criteria as an attempt to be more comparable and competitive with other universities in Serbia, and later on, with other universities in the Region.

There are several factors relevant for the appointment of the teaching staff: a) publishing papers in journals of international reputation; b) the participation in scientific projects; c) the guidance of postgraduate students.

The national agency for accreditation, which has been established only recently is going to be of great importance for further quality control at the universities of Serbia.

At the moment each qualification, period of study and degree are mutually recognized by each University in Serbia.

Staff/student mobility is possible between our universities. Many students from the University of Kosovska Mitrovica moved to the University of Nis (over 200 moved to the Medical Faculty in two academic years, and approximately 40 who have moved to the Faculty of Philosophy), but a significantly small number of professors or students left our University.

Credit accumulation and transfer system is in infancy, and is going to be implemented at two departments in the near future.

## **Envisaged development**

Regarding the future reforms in a way to respond to the provisions of the Bologna Declaration, the University of Nis is in the process of preparing and implementing structural and substantial changes. Each of our faculties (except Medicine) are trying to reduce the duration of studies toward a two-tier degree structure organized in undergraduate/postgraduate phases(3+2 or 4+1). The Diploma Supplement is seen as a major instrument to facilitate readability and comparability, but still is not in effect at our university for the reasons mentioned above.

## **Changing curricula in Physics**

Under the circumstances, there are plans to change and adjust the curricula in line with the Bologna Declaration.

With the implementation of ECTS, many subjects are going to be reduced to one semester duration. The possibility to introduce new courses in accordance with the needs of the regional economy is being considered and their application is expected during the next academic year (2003/2004). The names of study programs to be introduced for Bachelor and/or Master degrees will be "Physics and Information System" and "Applied Physics in Medicine".

Many faculties have their idea how to make their reforms in line with the Bologna Declaration, changing their curricula for Bachelor and Master degrees. Some of them plan to move toward three-year Bachelor study (first degree) and two additional years for the Master degree (3+2)(Faculty of Philosophy, Faculty of Law, Faculty of Economy, Teacher-Training Faculty, Faculty of Occupational Safety) with either two or three semesters per academic year. The others, except the Medical Faculty, still have intention to move toward four-year study programs for the first degree and one year for the second (Master) degree.

The Teacher-Training Faculty plans to have three-year studies with academic year based on trimesters. The majority of subjects are going to last one trimester. The academic offer should include a sufficient number of elective courses. The final grade of each exam will be the result of the cumulative, continual work during trimester with final multiple choice questions examinations. At the end of the study, the Faculty plans to have three types of graduation exam.

The Faculty of Medicine, acting in response to current requirements for higher education reform in line with the Bologna Declaration, particularly concerning the necessity of curricular reform, has drafted the following development strategy to be implemented on short- and long-term basis:

1. Appointment of due reform working groups and councils
2. Preparation of the first questionnaire aimed to measure teacher's willingness to participate in the curricular reform program
3. Preparation of the second questionnaire (to be completed by those who have given positive answers to the first questionnaire). Aimed to assess current competence of the members of the teaching staff on the basis of proposals for modules' contents and "added value" for students (including all that transcends mere attendance of classes, listening to the teacher's exposition and learning facts for the exam).
4. Selection of the teaching staff for the new curriculum
5. Training of the new teaching staff for the new curriculum

6. Preparation of teaching materials to introduce the new curriculum
7. Students must be made aware of the offerings of the old and the new curricula in order to be able to choose whether they want to acquire practical knowledge (new undergraduate curriculum) or would rather attend an academically tailored curriculum (restructured existing undergraduate curriculum)
8. The University shall give legal approval to the new undergraduate and graduate curricula
9. Commencement of implementation of the new curriculum (most probably October 2003).  
It is expected that each course shall require a period of 2 – 3 years in order to stabilize.

### **III. Platform of students' assessment reform**

#### **1. System of assessment**

It is necessary to establish a "knowledge scale" for each particular course. The basic elements of such a scale should be three categories of students' assessment:

1. Students' knowledge: it is necessary to define precisely the knowledge level required for each particular grade.
  - a) Level 1: This group covers the questions that students must know,
  - b) Level 2: Questions that would help a teacher assess the student's ability to distinguish the elements of a specific problem
  - c) Level 3: Questions for higher grades, i.e. questions that can be considered desirable for a student to know, yet above Level 1.
2. Mastering of skills (skills that students should master can be assessed in a similar way)
3. Student's activity (behavior), i.e. his/her interest for a specific course.

#### **2. Examining Forms**

1. Eliminatory test – should contain a certain number of questions belonging exclusively to Level 1
  2. Examination test – final checking of students' knowledge can be in the form of a test.
  3. Midterm exams – would involve checking of students' knowledge of specific fields.
  4. Practical exam – would check the specific level 1 skills mastered by the student
- Oral exam – must be public, giving to all the students an opportunity to attend it if they wish so.  
Proposal: oral exams are carried out by at least two examiners selected by the Head of Department.

Type of examinations: written/oral/practical/combined

#### **3. Credits**

Students can, on account of their activity during the teaching process, gather a certain number of credits that are constituent elements of the final grade

Negative credits

The difference between the total number of credits and the accomplished number of credits would constitute some kind of negative credits that could effect grading. Concretely speaking, the student who has a limited number of credits cannot possibly get a high grade, regardless of the knowledge shown at the final exam.

Each course must be precisely defined in terms of:

- the knowledge levels, i.e. knowledge scales
- requirements to be fulfilled by the student in order to get a high grade
- skill levels, as well as minimum of skills to be mastered by the student
- total number of midterm exams and their value
- the value of credits for each specific form of grading and examining
- maximal number of credits for each specific course
- maximal number of midterm exams and/or credits that the student must accomplish in order to
- take the exam
- to be exempted from the obligation to take the practical part of the exam
- which midterm exam preconditions the exam
- effects of certain credits and forms of examination onto the final grade.

Finally, we are about to submit our plan to be adapted by the Collegial Body of our University. As planned, the changes of the teaching process should be implemented in three major phases:

**Phase 1 (January 2003 – October 2003) should involve:**

- improvement of the University Information System (schedule of classes, teaching lessons, training programs, laboratory practical training programs, examinations and report of examinations for all faculties are going to be on our Web side
- restructuring of the study programs,
- transformation of two-semester courses into single-semester courses.

**Phase 2 (October 2003 – October 2004):**

Preparation for the new system of education and application of ECTS:

- reducing of teaching hours for students (no more than 30 hours per week)
- preparations for the new assessment of students (**to** quantify and stress all student`s activities in the scope of each subject as the base of the final grade and number of credits for the appropriate subject)

**Phase 3 (October 2004 – October 2005):**

Implementation of the new system of education including full application of ECTS, with 3 – 4 year undergraduate studies (180 or 240 credits)

Master studies are of 1 or 2 years' duration, with the total number of 300 credits; 60 credits must be accomplished at the fifth year of study.

Doctoral studies (PhD studies) with general model of credit system which can be applicable both to the modular system of education or to the general model of education.

**The basic characteristics of the new model are:**

- In order to become entitled to acquire a certain basic title (for example: mathematician, physicist, etc) it is necessary to determine the total number of obligatory courses essential to

this basic title. The number of credits for obligatory courses should not exceed 55% of the total number of credits.

- In order to get Bachelor Degree within the basic title (for example: industrial mathematician) additional number of obligatory courses should be defined. Generally, the total number of credits to be obtained on the basis of obligatory courses should not exceed 70% of the total number of credits. The remaining 30% of credits are to be obtained on the basis of elective courses. The credits obtainable on the basis of the obligatory courses (70%) should be harmonized within the European HE area.
- The studies of Medicine are excluded from this scheme. Generally, the studies of Medicine will be of six-years' duration with implementation of ECTS, and many of the courses will be based on a one-semester duration.

#### IV. Conclusion

What could be the weakness of the UN concerning reforms in line with the BD at the moment:

- 1.No elective courses, or subjects in majority of our faculties
- 2.ECTS still does not exist in any of our faculties
- 3.Diploma supplement is not available at the moment
- 4.There are several terms for examinations in every subject almost in all faculties.
- 5.No external examiners
- 6.student - examiner relation is very obscure (no standardized criteria for examination)
- 7.No evaluation of professors by students
- 8.The appointment of professors substantially does not depend on professor`s educational capabilities
- 9.Rare opportunity for mobility for students and/or professors from one to another national University
10. European dimension and internationalization still in infancy at the university level. Each faculty has its independent contacts with other European universities through some projects. Tempus project has been established since 2001 year and now the communication is much better.
11. Life-long learning does not exist, but is going to be implemented trough the Center for Multidisciplinary Studies, which has been open just now.
12. Above all, each faculty is an independent unit with full authorizations for its decision-making policy, quality assurance, strategic plan, financial management, etc.

Number of Students at The Serbia Universities:

University of Belgrade	30 faculties	69014 students	5295 teaching staff
University of Kragujevac	10 "	10904 "	740 "
University of Nis	12 "	26657 "	1410 "
University of Novi Sad	13 "	36266 "	3102 "
University of Art -Belgrade	4+1 "	2205 "	456 "
total	70 "	145046 "	11003 "

Number of Students in The Academic Year 2001/2002:

University of Belgrade	14783
University of Kragujevac	3274
University of Nis	3879
University of Novi Sad	6121
University of Art- Belgrade	313
total	28370

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