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Review Analysis of current MSc programmes	

Review of existing basic professional studies in High Business-technical School of professional studies in Uzice (HBTS)

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1. Current provision in Serbia

Institutions	Titles of Programmes	Number of students
High Business-Technical School of professional studies in Uzice	Basic professional studies in Environmental Protection Engineering	50 students

2. The students

2.1. Entry qualifications:

Among ten Serbian consortium members, four have established master studies in environmental disciplines. HBTS has been accredited for study programme – bachelor (180 ECTS): Environmental Engineering.

General requirements for enrollment of students on bachelor level are: finished secondary vocational school or grammar school; ranking is performed on the basis of average grade and duration of the first cycle education and qualification exam.

Number of new bachelor - degree students on HBTS is 50 and 45 of them are supported by government funding.

2.2. Destinations:

Most students come from Zlatibor district. A considerable number of students come from neighboring countries sharing the same language (Bosnia and Herzegovina, Montenegro).

HBTS enrolls students in the manner set by University law in Serbia. The entrance exam is mandatory.

Two categories of students exist at HBTS, on budget and self-financed.

The ranking of applicants usually is done combining the scores achieved in high school with the achievement on admission exam. The best ranked students are waived of enrolment fees.

2.3. Performance

Bachelor programme: Passing from first to second year is about 70 %, from second to third about 85 %, and about 15 % of students leave studies.

2.4. Recruitment:

2.4.1. *How are students recruited?*

Call for enrollment is broadcasted and published in press. Occasional appearance in media makes institutions visible for general public. Application for student's admission is announced in public media and on School's website with stated conditions regarding entry qualifications.

School popularization is performed by School members presenting Study Programmes to target groups using printed materials, student references participation on Employment fairs, etc.

3.The programmes

3.1. Programme design

On the HBTS the basic professional studies (180 ECTS), in accordance with the Bologna Declaration, last 3 years (6 semesters). Basic professional studies in Environmental Protection Engineering include compulsory and elective subjects, professional practice and final work, necessary for the education of professional engineer of environmental protection. The types of subjects are academic general-education, vocational and vocational-applicative.

The study programme encompasses a total of 23 courses:

- first year – 9 courses (8 compulsory);
- second year – 9 courses (7 compulsory)
- third year – 5 courses (3 compulsory) + Professional practice + Final Work.

The number of the courses in the third study year, both compulsory and elective, is smaller, one half of hours of active teaching being allotted to the work on the Final Work.

Out of the total of courses, 18 are compulsory and the other 5 the student chooses from the list of the corresponding elective blocks. In each school year, the student is free to choose the courses from the offered list of elective courses.

The study programme is conducted through lectures, calculation and computer practice, laboratory (experimental) exercises, seminars, independent student's work, professional practice, production and presentation of the final work. The student is required to pass all compulsory and elective subjects.

Topic for the final work student has to choose in consultation with the mentor. The final work is a result of the independent student's work, which represents the final exam for obtaining the vocation Professional Engineer of Environmental Protection. In the preparation and defending of the final work, the student demonstrates the capacity for independent work and creativity in the application of all the acquired theoretical knowledge and practical skills. The final work is approved by a three-member Professor School Commission. The procedure for examination and assessment of students is determined by a general act of the School.

3.1.1. Aims and Objectives

The aims of basic professional studies are to educate competent professionals with a formal qualification in environmental protection. Knowledge, skills and competences acquired by professional engineer of this study programme, make them relevant to the job market, and also enable them to continue their education.

The objectives include the achievement of competencies and vocational skills in the areas of waste management, preparation and recycling of industrial wastes, wastewater treatment, pollution and protection of air, safety at work and environmental monitoring.

The level of the knowledge acquired will enable a further upgrading through the continuation their education and practical application. Depending on the selected elective courses chosen, the students are prepared:

- to collect, evaluate and interpret information relevant to the quality control and environmental management, and, after the interpretation of the obtained data, get the necessary grounds for management and improvement of the quality of the environment,
- for the work in professional and developmental inspection, as well as in governmental offices.
- Organization of environmental protection in the business system, and monitoring in the field of protection, implementation of integrated prevention and pollution control.
- Students who complete basic professional studies are able to lead technological processes and products in the relevant field of technology and deal with protection of environment in accordance with the conception of sustainable development and the right of future generations to have healthy environment.
- Students acquire knowledge for further studies at specialized professional studies.

Competencies of graduated students are completely aligned with EU standards: ability for critical and self-critical opinion and approach, ability to apply knowledge in order to solve different problems, ability for recognition and analysis of problems and planning strategies how to solve them, etc.

3.1.2. *Benchmarking*

Benchmarking is not present in our School.

3.1.2.1. What is the role – if any – of benchmarking in programme design and content?

The role of benchmarking in programme design is to raise the quality of teaching.

3.1.2.2. Are there national benchmarks for Master programmes?

No, there are not.

3.1.3. *Is there a role for potential employers in programme design?*

There is a close link between the School, business (industry) and the Chambre of Commerce in Uzice through the implementation of practical teaching and the implementation of the programme of Environmental Department.

3.1.4. *What is the role of government in programme design?*

There is only general frame on number of ECTS and request of accreditation procedure according to the Law on higher education. The studies are designed in compliance to the Bologna Process. National Council is governmental body which defines standards and monitor outcomes. Within the program which is going through the process of accreditation number of students is defined, which can be served for setting the financial scheme.

Ministry of Education each year decides how many students can be funded from the budget. The government provides inputs through directives and communications with ministers of education, science and environmental protection, as well as through the process of accreditation.

3.1.5. *Is there a role for NGOs?*

Informal communication is present.

3.1.6. *Is there a role for Chemical Societies?*

The Serbian Chemical Society does provide inputs regarding current trends in education and research.

3.1.7. Credit rating of courses

All courses are rated by ECTS. Number of ECTS for each course is determined on the basis of estimates of student workload, with account taken of hours of lessons, number and type of exercise classes (calculation, cabinet or laboratory exercises, etc.) and number of hours of other forms of active teaching.

Students can assess the credits via brochures and web.

There is no properly developed methodology for the assessing the ECTS rating of courses.

3.2. Programme delivery

3.2.1. Assessment procedures:

Exams are conducted by professor on the basis of educational material; performed by tests of knowledge evaluated by professors, who decide the final score. Assessment procedure is defined by the Teaching Council. The implementation of the procedure is done by the teachers themselves. External and internal control is still in the development phase. So far no external evaluation was applied at the level of one professor or subject, except marginally during accreditation procedure.

Students regularly assess the work of professors and contents of courses. The evaluation of the students' performance is achieved by a constant monitoring of their in lecturing, laboratory work, writing and defending seminar works, preliminary exams, and the like, and it is expressed by points. By fulfilling all the pre-exam assignments and passing the exam, the student can earn up to 100 points (of which minimum 30 and maximum 70 should be the points earned before attending the exam). The final grade is formed on the basis of the criteria from the following table:

Grades	Classification	Percentage of the overall number of points*
10	Excellent, with distinction	95-100
9	Excellent	85-94
8	Very good	75-84
7	Good	65-74
6	Sufficient	55-64
5	Insufficient	up to 54

* Intervals listed in this column may vary a little.

3.2.2. *Content*

Content of the programme is a mixture of: a) self experience earned by tradition and years of good practice, b) “best practice” of prominent world academic institutions and their experience, and partially, c) demands and positive comments of potential employers.

3.2.2.1. How is it decided?

Proposal is made by professor in charge who has to have references for the field where subject belongs. Professors make their research work, whenever is possible in content delivered to students. Effectiveness of Criteria Used for Evaluating New Ideas will always be accompanied. Imperative need is to provide quality basic education and skills and to improve the quality of learning and teaching. New technological developments are beneficial for basic education.

3.3. Programme documentation

Each course within the study programme is defined in the book of courses of the study programme, and has the content, aim, outcome, method of examination, the bibliography; available at the website of the School.

3.3.1. *How are aims and objectives linked with programme outcomes?*

The goal of study programme is that all the students listen and learn from programme courses and form a knowledge bases, which can be used in future work. Structure of curriculum, and syllabus for each course are designed as integrated structure which include the purpose and the objectives of study programme with the competence of graduates. The outcome of the programme is strongly linked with mentioned aims and objectives for this study programme. The links between the aims and objectives and programme outcomes are given in the accreditation material at the study programme level and at the level of every subject.

Diploma supplement documentation exists and can be obtained at request. It contains list of courses which were taken, beside general marks and qualifications. Detailed skills and outcomes could be found in subjects lists related to courses.

3.3.2. *How is this monitored?*

Through the council of study programme and teaching council and through achieved ECTS credits.

3.3.3. Professional recognition

3.3.3.1. Recognition of programmes by professional bodies:

Accreditation Commission recognizes this study programme. National Council for Higher Education recognizes programmes as well Regulation on list of professional, academic and scientific titles (Official Gazette no. 81/2010).

3.3.3.2. Recognition by Chemical Societies

There are no requirements for such recognition.

3.3.4. Alignment with European norms

This study programme has harmonized with at least 3 accredited foreign (EU) study programmes.

3.4. Advertising

3.4.1. How are programmes advertised?

Programme promotion is done by School website, printed materials, radio, TV, by visits to secondary schools through educational seminars and through Popularization Programmes supported by the Ministry of Science and Technological Development Serbia and Ministry of Education Serbia.

3.4.2. What recruitment strategies are used?

Promoting of successful former students of the School, monitoring of public opinion and work of competitive schools, as well as the data produced by the Bureau of Employment.

4. Pedagogic design

4.1. Innovation in teaching and learning

What use is made of:

4.1.1. e-learning: HBTS doesn't have any kind of e-learning.

4.1.2. On-line learning:

HBTS has two modern computer labs and Internet equipped library, and every student has unlimited Internet access. The teachers don't have control or feedback about Internet activities of students. Many teachers have their lectures in electronic form, but their lectures aren't on the web page of HBTS.

4.1.3. *Distance learning:* HBTS doesn't have distance learning.

4.1.4. *Practical experience*

Students of HBTS in professional studies acquire necessary practical training in industry, or economic and business systems of Zlatibor district. The School has poorly equipped laboratories in the field of environmental protection, and practical experience is carried out in laboratories outside School. Experimental and field work is included in curriculum.

5. Institutional procedures

5.1. How are new programmes approved?

This program must be approved by Accreditation and Quality Assurance Commission of the Republic of Serbia. The initiative is started by the Department Council of environmental engineering which prepares proposition of the new/modified study program which is approved by the Education and Science Teaching Staff Committee (ESTSC) at the HBTS.

5.2. How are new programmes agreed on?

The initiative is started by the Department Council and is followed by Education and Science Teaching Staff Committee and finally Accreditation Commission.

5.2.1. *Mechanisms for agreeing content and delivery*

Usually it is done through meetings and discussion at Department Council.

5.3. What quality assurance quality control procedures are in place?

According to accreditation, quality assurance is set through standards related to enough room, space, laboratory equipment, well equipped libraries, and quality of teaching staff. Numbers of different internal regulations are devoted to self evaluation of studies, pedagogic work and working conditions. Periodically (every three years), the accreditation body, does external evaluation. The heads of the departments, together with the Department Council observe the realization of the curriculum for each course and undertake corrective measures in the case when some deviations occurred. The students' polling gives the possibility of checking whether the teachers and associates have correct and professional relations with the students. HBTS implement Policy of Quality assurance and self-evaluation procedures. Statutes regulate the work of internal Quality Control Commission.

5.3.1. *What mechanisms are used for establishing comparability of qualifications between institutions*

5.3.1.1. In Serbia

Sometimes it is done through projects where different faculties participate (mainly TEMPUS projects).

So far, there is no national qualification framework.

5.3.1.2. Internationally

International harmonization of curriculum is necessary in accreditation. The Higher Education Law provides the framework mechanism for quality control and evaluation of the program after five years of program implementation (by accreditation).

Foreign higher education documents can be accepted in the Republic of Serbia after recognition procedures. Two recognition procedures have been established and defined by University regulations: 1) for the purpose of further education; 2) for employment purposes.

5.4. Staff training for programme delivery

No particular procedures are established. Participation of teachers in the Tempus projects would contribute to systematic staff training for programme delivery.

5.4.1. *How are staff training needs identified?*

There is awareness about need of long life learning in staff training. No particular procedures are established. General demand for University staff is the involvement in the research and publication of original scientific papers. They are expected to attend seminars in teaching, too.