RE-ACCREDITATION OF
FACULTY OF FOOD TECHNOLOGY OSIJEK,
"JOSIP JURAJ STROSSMAYER" UNIVERSITY OF OSIJEK

Date of the site visit:

24-25 April 2013

April, 2013

COMPOSITION OF THE EXPERT PANEL

- Prof Borut Bohanec, PhD, Biotehniška fakulteta, Univerza v Ljubljani, Slovenia
- Dr Jelena Đugum, Ministry of Agriculture, Croatia
- Prof Clemens Karl Peterbauer, PhD, University of Natural Resources and Life Sciences, Vienna, Austria
- Prof Jarmo Juga, PhD, Department of Agricultural Sciences, University of Helsinki, Finland
- Nikola Zima, student, Faculty of Food Technology and Biotechnology, University of Zagreb, Croatia

Expert panel was supported by:

- mr.sc. Sandra Bezjak, coordinator, Agency for Science and Higher Education
- Nika Matjanovski, assistant coordinator, Agency for Science and Higher Education
- Marko Hrvatin, interpreter at site visit
- Lida Lamza, report translator, Agency for Science and Higher Education

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INTRODUCTION

Short description of the evaluated institution

NAME OF HIGHER EDUCATION INSTITUTION: Faculty of Food Technology Osijek

ADDRESS: Franje Kuhača 20, 31000 Osijek

NAME OF THE HEAD OF HIGHER EDUCATION INSTITUTION: Prof Drago Šubarić, PhD

ORGANISATIONAL STRUCTURE: The Faculty consists of departments, sub-departments, labs, secretary's office, library, Centre for Engineering and Technological Development as an independent organizational unit. Under the Statute of the Faculty, Faculty bodies are: the Dean and the Faculty Council. The Faculty has two Vice-deans: the Vice-Dean for Education and the Vice-Dean for Science.

LIST OF STUDY PROGRAMMES: The Faculty carries out eight study programmes in total (one undergraduate, three graduate and four postgraduate study programmes).
The first level of study is the **Undergraduate university study programme in Food Technology**. This study programme lasts for six semesters (three years) during which students acquire a minimum of 180 ECTS credits.
In the second level, there are three graduate study programmes, each lasting for four semesters (two years) during which students acquire a minimum of 120 ECTS credits.

1. **Graduate university study programme in Food Engineering**
2. **Graduate university study programme in Process Engineering**
3. **Graduate university study programme in Food Science and Nutrition**

Postgraduate studies are the third level of university education at the Faculty:

1. **Postgraduate (doctoral) university study programme in Food Engineering,** which qualifies for the degree of Doctor of Science in the scientific area of biotechnology, is organised as a three-year study programme during which postgraduates gain a minimum of 180 ECTS credits.
2. **Postgraduate specialist university study programme in Food Safety and Quality** is organized as a two-semester study programme during which students earn a minimum of 60 credits and the academic title of University specialist in Food safety and quality.

3. **Postgraduate specialist university study programme in Technologies of Traditional Meat Products** was developed in cooperation with the Croatian Veterinary Institute in Zagreb and is organised as a one-year study programme during which students earn a minimum of 60 ECTS credits. Upon successful completion of the programme, students are awarded the academic title of University specialist in Technology of traditional meat products.
4. **Postgraduate specialist university study programme in Nutrition** is organised as a one-year study programme (a minimum of 60 ECTS credits). Upon successful completion of the study programme, students are awarded the academic title of University specialist in nutrition.

NUMBER OF STUDENTS

- 559 full-time students
- 79 part-time students

NUMBER OF TEACHERS

- 43 full-time teachers appointed into scientific-teaching grades
- 2 full-time teachers appointed into teaching grades
- 12 assistants and 10 junior researches

NUMBER OF SCIENTISTS

- 43 full-time scientists

TOTAL BUDGET:

- 22.265.312 kuna

MSES FUNDING:

- 85%

OWN FUNDING (percentage):

- 15%

SHORT DESCRIPTION OF HIGHER EDUCATION INSTITUTION:

In 1970, the Department of Food Technology at Higher School of Agriculture was founded. In 1971, the Higher School of Agriculture was turned into the Faculty of Agriculture and Food Technology, and in 1975 it became a constituent of the University Josip Juraj Strossmayer in Osijek. The Faculty of Agriculture and the Faculty of Food Technology became separate entities in 1976.

The work of the Expert Panel

For its work the Panel drew upon the Self-Evaluation Report, prepared by the Faculty of Food Technology Osijek. A site visit was carried out on 24-25 April 2013. During the visit to the Institution the Expert Panel held meetings with the representatives of the following groups:

- The Management;
- The Working Group that compiled the Self-Evaluation;
- The students, i.e., a self-selected set of students present at the interview;
- The Vice-Dean for Teaching and Students' Affairs, programme coordinators and teachers;
- The Vice-Dean for Scientific Activity and International Cooperation and research projects' leaders;
- Heads of Institutes;
- Administrative staff;
- Teaching assistants and junior researchers.

The Expert Panel also had a tour of the library, IT rooms, student register desk, and the classrooms at the Faculty of Food Technology Osijek, where they held a brief question and answer session with the students who were present.

DETAILED ANALYSIS BASED ON STANDARDS AND CRITERIA FOR RE-ACCREDITATION

1. Institutional management and quality assurance

1.1. The Faculty has a strategic document for the period 2012/2013 - 2016/2017, stakeholders (including local experts, alumni and representatives from regional industry) were included in defining the strategy and writing the document.

1.2. The Faculty is organized in four (small) departments (which are themselves divided in sub-departments), which are not strictly divided but share technical staff. The number and tasks of these departments largely reflects the range of subjects of teaching as well as research (and vice versa), and the actual autonomy of departments is low. As there is no staff allocated directly to the departments and administration is done on Faculty level, this structure does not appear to generate unnecessary administrative workloads.

1.3. The Faculty strategy is in line with the University strategy (Faculty representatives were included in preparing the University strategy).

1.4. The study programmes are in line with the Faculty mission and follow international examples. An additional study programme (Biotechnology) is organized now and will be offered in the near future.

1.5. A Committee for Monitoring and Quality Assurance in Higher Education (with external members) is in place and submits its report the Office for Assurance and Quality Promotion at the University.

1.6. A formal process for continuous data collection about the quality of study programmes and research work is yet to be established, however, the Faculty is already conducting appropriate surveys.

1.7. A separate Faculty survey among students was introduced last year, as it was felt that the survey conducted by the University did not deliver sufficient and appropriate information, mainly because it was very large in scale and cumbersome to follow on part of the students, and consequently return numbers were not satisfactory.

1.8. The Faculty has started with the implementation of formal mechanisms for monitoring and improving the research quality, promotions are partially dependent on research activities as monitored by research reports.

1.9. The Faculty has established mechanisms for assuring ethical behaviour, there is a Committee for Research on Humans as well as a Code of Ethics on University level. Concerning students, a mentor system is established that also supervises ethical behavior and through which unethical behavior can be reported. Concerning plagiarism, the Faculty essentially relies on the peer-review system for publications as well as a three-person panel examining Master Theses.

2. Study programmes

2.1. The Faculty states that it is problematic to attract sufficient numbers of highly qualified students, because Food Technology and/or Nutrition is not a very prestigious education or profession, and the Faculty is often only the second choice behind, e.g., Law or Medicine. It is advisable to revise the study programmes to make them more competitive and more attractive. This should be done in cooperation with stakeholders.

2.2. Enrolment quotas are set by the Faculty itself with respect to the teaching capacity, but information from the labour market is used as well. Accordingly, not all study programs enroll students each year. A new study program Biotechnology (undergraduate and graduate level) shall be established in the near future. Main motivating factors were demands from the labor market, regional stakeholders were involved in a later stage as well.

2.3. The teacher – student ratio is good. One of the biggest problems of the Faculty is a high drop-out rate, particularly after the first year, and consequently a low pass-rate. According to teachers and students, this is due to certain student´s benefits which make it attractive to enroll at a university without actual motivation to study. As soon as tuition fees apply, a large number of students drop out. Enrolment criteria (score on state matura in subjects like Mathematics, etc.) were already revised in order to attract better-prepared and technically minded students, but appear unsuitable or insufficient to tackle that particular problem.

2.4. The concept of "learning outcomes" appears to be entirely new to the Faculty; however, there is awareness that learning outcomes will have to be defined in the future. This will have to be done using appropriate methodology.

2.5. Assessment of the learning outcomes for study programmes is in the starting phase, and the suitability of the so far defined learning outcomes will have to be analyzed.

2.6. The Faculty is aware that the allocation of ECTS points may have to be evaluated and revised.

2.7. All study programmes are internationally recognised as far as acceptance into Master studies or PhD studies at universities in Europe, the US and Australia indicates.

2.8. Teachers use appropriate and up-to-date teaching methods and current textbooks. The use of English-language-textbooks at the level of Master studies is recommended.

2.9. Additional materials are available, including electronic databases and e-libraries, and are used by teachers. E-learning is implemented in principle, but appears to still be largely in its infancy. The development of a concerted e-learning strategy is advised.

2.10. Practical work is conducted through industry internship. The Faculty has signed cooperation agreements with a number of legal entities to facilitate this. The time allocated for these internships is short in comparison with study programmes at foreign universities, an increase is advisable. Feedback from stakeholders (local industry and public services)

indicates varying preferences for an early specialization in the study programme vs. a more general education (to be continued by training-on-the-job). The establishment of a separate undergraduate study program for Biotechnology may reflect this. The lack of a national chamber for food technology and food engineers is perceived as a problem.

2.11. Criteria for student´s assessment, course structure, dates and mode of exams are all publicly available.

3. Students

3.1. The admission criteria (State Matura) were recently adapted, with an increased required level for mathematics and additional points for elective courses and reduced requirements for Croatian language. Information about the necessary qualifications, level of study programs etc. are available on the Faculty website.

3.2. The students are satisfied with the extracurricular activities and the support for these received from the Faculty. The Faculty plans to offer increased extracurricular activities.

3.3. There is an established system of mentorship throughout the study programs, which is appreciated by the students.

3.4. The students acknowledge the efforts of the institution to improve studying conditions.

3.5. A formal procedure for appeal against decisions (exam grades) that are deemed unfair is in place.

3.6. An alumni club was established in 2011. It serves mainly as a source of information for the Faculty about the situation on the job market of its graduates, which influences decisions on study programs. The activities of this alumni club should be encouraged in order to better connect current and former students.

3.7. Students participate in decision-making of the Faculty via representatives from the student's council and can propose improvements. There is general agreement that the students have ample possibilities to express their opinions and receive feedback about changes and improvements that resulted from their initiative.

3.8. The Students feel sufficiently informed about the study programmes, even before enrolling at the Faculty, through information events, science fairs, open days, presentations at high schools, local media and promotional material.

3.9. Overall there is a high level of satisfaction on the part of the students with the study programs, the quality of the teaching, the approachability of and support by their teachers as well as cooperation with industry.

3.10. The structure of teachers and associates is in line with strategic goals and adequately covers core disciplines. Teaching is mostly done by fully-employed teachers, and the capacity is sufficiently large to ensure mostly in-house teaching for the new study program Biotechnology as well.

4. Teachers

4.1. The structure of teachers and associates is in line with strategic goals and adequately covers core disciplines. Teaching is mostly done by fully-employed teachers, and the capacity is sufficiently large to ensure mostly in-house teaching for the new study program Biotechnology as well.

4.2. The Faculty policy on human resources resulted in the reduction in the number of part-time associates engaged in teaching activities. Conditions are provided that continuing employment of the young teaching staff is ensured. Training of the young teaching staff on the structure and work of foreign (EU) institutions is advised.

4.3. The number or full time teachers appointed into scientific-teaching grades is **43** and the number of full time teachers appointed into teaching grades is **2**. Full time teachers appointed into scientific-teaching grade cover a high percentage of teaching (in the range of **54% - 96%,** depending on the study program).

4.4. The ratio between full time teachers and students is 1:13**,** which is well within recommended numbers.

4.5. The Faculty follows the national criteria on qualification for teaching and scientific staff and and did not develop additional criteria.

4.6. The teachers' workload is generally considered acceptable throughout the Faculty.

4.6. Some Faculty staff does part-time teaching at the Faculty of Agriculture and Food Technology of the University of Mostar, the University of Tuzla and the Polytechnic in Vukovar, but claim that these obligations do not compromise their teaching and research responsibilities at the Faculty.

5. Scientific and professional activity

5.1. The Faculty does not have a research agenda as a separate document. Strategic goals for scientific and professional work are defined as part of Faculty's strategy. A research program for a period of at least five years is included in the self-evaluation. It is recommended to define research priorities in more focus - the currently mentioned priorities are rather general and broadly defined.

5.2. Cooperation with other scientific organisations (both Croatian and international) is recognized to be a key component of the efforts to fulfill the research strategy and is actively provided.

5.3. Research is a major contributing component to the role of the Faculty within the University as well as in society. Study advisers for postgraduate students and mentors for doctoral

candidates are required to submit an annual report about the research work and results. Young scientists are funded both by Project funds and Faculty funds.

5.4. The Faculty supports its young researches by a mentoring system for their PhD studies as well as their professional development. Requests for outgoing mobility (usually about three months) are generally granted, even though replacement may be an issue. In general the amount of time designated to work in research projects for the completion of a master thesis (one month) or a PhD study (60 ECTS) is low in international comparison. This is mainly due to a shortage of funds, particularly third-party-funding. It is recommended that these funds be increased substantially (which may not be an issue the Faculty can tackle by itself). Student participation in research is possible, but merely on a voluntary basis and without reward in form of an appropriate number of ECTS.

5.5. An Ordinance for rewarding scientific research staff for successful research is in planning, and financial rewards for successful project application (international projects) is established.

5.6. There is currently not yet a systematic policy of encouraging academic publishing. Faculty scientists have published 344 scientific publications in the last 5 years, of which 142 publications are in journals indexed in WoS. Values of the impact factor of international scientific journals were in the range from 2.823 to 4.878. The scientific productivity of teachers is approximately 3.46**.**

5.7. The Faculty supports professional activities, e.g. in the form of services for industry or the public sector, as these are an increasingly important source of revenue. There are, however, no clear rules about the performance of such professional services and the use of publicly funded equipment. The establishment of such rules and guidelines is recommended.

5.8. The current structure demands teaching until approx. 1 pm and allows research work in the afternoons, done by junior scientists and teaching assistants. The time devoted to research by graduate and PhD students is too short. Full-time research work by third-party-funded researchers (PhD students) is virtually impossible as such third-party-funding is almost

non-existent. It is recognized that this is a problem that is not caused by circumstances unique to the Faculty, nor can it be solved by the Faculty itself.

6. International cooperation and mobility

6.1. The Faculty facilitates and supports internal mobility between faculties for elective courses.

6.2. A more active support for mobility of students is needed. The main obstacle is that students are afraid that a semester abroad may prolong their studies at home. The installment of an Erasmus coordinator for course selection and approval on university level is recommended.

6.3. Mobility of teachers is not high. Research stays at foreign universities are possible and are generally supported by the Faculty, but are not a prerequisite for advancement to a professorship and are largely left to personal initiative of the scientist. A more concerted and organized approach (also at University level) is recommended.

6.4. The Faculty is a member of several international associations and regularly organizes an international conference on flour as well as the "Ruzicka-Days" of scientific symposia.

6.5. Approximately 20% of all courses on graduate level are taught in English (which is a satisfying ratio), but there are no entire study programmes in English, which is an obstacle especially for incoming mobility. Consequently only a few foreign students attended the Faculty in recent years. The establishment of an international graduate study program in English is highly advisable.

6.6. Contacts and cooperation with international working groups and institutions as well as joining EU associations with compatible interests should be proactively strengthened with a view to the participation in European-funded projects.

7. Resources: administration, space, equipment and finances

7.1. The number and equipment of classrooms is appropriate. There are complaints regarding equipment, both for teaching and research, especially on a semi-industrial scale. The problem is known to the Faculty, and a build-up of the technical equipment using the Faculties own resources is under way, but is obviously a long, slow process. External funding through the Ministry or possibly in the future the Regional Funds of the European Union is needed to elevate the Faculty to a competitive level in that respect.

7.2. A sufficient number of non-teaching staff is employed.

7.3. Training and education of the non-teaching staff is provided both in occupational safety as well as continual training based on the requirements of the equipment that is being used.

7.4. The equipment is in line with international standards and is up-to-date but is clearly insufficient for training, education and research on a semi-industrial scale. It will be necessary to formulate a strategy for focusing the needs of research as well as teaching, as the need for such large pieces of equipment can certainly only be partially fulfilled.

7.5. It is recommended to strongly and progressively include English textbooks in the teaching process on the master level.

7.6. Financial stability of the Faculty seems assured as the overall budget could be maintained constant over the last years, and decreases in funding from the Ministry could be balanced by increased funds from outside, such as through industrial cooperation.

7.7. Since the amount of available funds from the Ministry has decreased significantly over the previous years, any activity to acquire additional funds has to be encouraged. It may take several years until full participation in European projects can be realized and appropriate funds become available. Until then, the only source of potential additional income appears to be industrial cooperation. This has to be encouraged and should be increased, however, care must be taken to not only engage in industrial cooperation that are merely provision of

services to industry, or product development, but cooperation on topics that allow the publication of scientific results.

FINAL REPORT AND RECOMMENDATIONS BY THE EXPERT PANEL FOR THE ACCREDITATION COUNCIL

ADVANTAGES (STRONG POINTS)

1. The small size of the Faculty can be counted as a strong point, as it facilitates a relaxed climate, short ways of communication, quick decision-making and a lower amount of administrative burdens.
2. The teacher-student ratio and the amount of teaching that is done by in-house, fully employed teachers is highly advantageous.
3. The teaching staff, especially the young teaching assistants and junior scientists, are highly motivated and ambitious and are fully aware of the need for continuous development and international cooperation.
4. The Faculty is situated in an area of major agricultural production and traditional food production and is ideally placed to offer extension services and expert advice to local producers. The Center for Meat Quality is an example for that.
5. The Faculty maintains good links to local industries as well as public services, resulting in feedback for the development of study programs, employment opportunities and needs of the producing sector.

DISADVANTAGES (WEAK POINTS)

1. The size of the Faculty can also be seen as a disadvantage as the limits on human resources force a rather strong specialization on certain topics and make the establishments of a "critical mass" for scientific research difficult. Additionally the unit size is too small to hire or provide specific experts for certain tasks (e.g., administrative support for international funding applications).
2. International mobility of the teaching staff is (still) limited.

3. There are not enough financial and human resources available to conduct large-scale, scientific research projects at an internationally competitive level, third-party-funding from national agencies is essentially non-existing.
4. International visibility is low.

RECOMMENDATIONS FOR IMPROVEMENT OF QUALITY

1. Management of the Higher Education Institution and Quality Assurance

- The internal structure of the Faculty should be evaluated to ensure that the small departments do not cause additional administrative work
- Surveys on the quality of the courses and study programs should be continued and developed, either by adapting the existing (but apparently non-satisfactory) university surveys or by conducting tailor-made surveys exclusively adapted for the need of the Faculty
- Research quality and research output should be made a priority in future decisions about hiring and/or promoting staff in order to increase international visibility and profile

2. Study Programmes

- A careful evaluation of the development of the study programs (enrolment numbers, graduation numbers) needs to be done on graduate level in order to ensure proper resource allocation
- The concept of learning outcomes has to be implemented on the level of courses
- Resources permitting, the time allocated to participate in research within the Master´s Thesis and particularly the PhD Thesis should be increased substantially
- The new-to-be-established study program Biotechnology is highly commendable, but needs to be carefully monitored and evaluated in the early phase. The Faculty should not hesitate to implement changes as soon as problems become evident. Additionally, possibilities to organize courses together with the Faculty of Agriculture/utilize courses already taught there should be explored seriously, in order to minimize parallel teaching efforts
- The number of courses taught in English should be increased
- As a mid-term goal the establishment of an international graduate program taught entirely in English is highly recommended

3. Students

- The Faculty should undertake efforts to increase the "prestige" of studying Food Technology or Biotechnology in order to attract motivated and capable students
- The Faculty should look for a possibility to minimize the workload caused by students who never really attend study programs and drop out in the first year
- As per a request from the student body, anonymization of exam results is advised

4. Teachers

- International mobility of teachers should be increased substantially
- Especially Junior Researchers should be able to devote substantial time on research
- Reward programs for scientific output and excellence in research should be implemented

5. Scientific and Professional Activity

- Clear guidelines need to be established about the offering and provision of services to the industry, public offices or private persons and the use of state-funded equipment and state-financed personnel for that.
- The research program is currently rather broadly defined and reflects the personal expertise of the staff as well as the internal structure of the Faculty. In light of the limitations of resources and equipment more focusing will be required
- As the amount of state funding is decreasing, industrial cooperation will have to contribute to the budget. It has to be ensured that this is done not only in the form of (commercial) services, but as true cooperation that allow scientific publications
- Increasing the number of A1-publications in high-ranking international peer-reviewed journals needs to be made a priority
- Adoption of a system to ensure detection of plagiarism is recommended

6. International Cooperation and Mobility

- International cooperation and mobility, especially of teaching staff, has to be made a priority and be given special attention. It is recommended to base hiring and promotion of staff partially on international experience, and reward international research stays and especially international research cooperation with benefits or financial remunerations
- International mobility of students (incoming) should be increased by increasing funds for international exchange, increasing activity of the International Office at university level, and especially more courses given in English

7. Resources, Administration, Space, Equipment and Finance

- It may be necessary to focus financial resources for the purchase of required equipment. This may lead to tensions, as not all wishes can be fulfilled. The respective decision making process needs to be made as transparent and democratic as possible.
- A clear and concerted strategy needs to be developed for the application for international research funding. Expectations for EU funds are high, but can only be met by closely cooperating with successful institutions in other countries
- Wireless internet access should be made available in all public spaces at the Faculty in order to provide an up-to-date modern learning environment for the students