Agentur für Qualitätssicherung und Akkreditierung Austria

Summary report on the accreditation of the Bachelor and Master programme “Genetics and Bioengineering” at International University of Sarajevo (IUS), Sarajevo, Bosnia and Herzegovina

Upon the request for accreditation of the International University of Sarajevo (IUS) from 27th January 2016, AQ Austria conducted the accreditation procedure of the Bachelor and Master programme “Genetics and Bioengineering”. In accordance with the “Guideline for International Accreditation of Bachelor, Master and PhD Programmes” adopted by the Board of AQ Austria in July 2013, AQ Austria publishes the following summary report.

1 Accreditation decision

At its 36th meeting on 20th/21st September 2016 the Board of AQ Austria decided to grant accreditation to the Bachelor programme Genetics and Bioengineering and the Master programme Genetics and Bioengineering for a period of six years, subject to conditions.

The fulfilment of these conditions must be documented in writing within nine months (i.e. until 21st June 2017) and is subject to assessment by AQ Austria. In case of non-fulfilment, the accreditation will be withdrawn immediately.

2 Short information on the application for accreditation

Name of the programme	**Genetics and Bioengineering**
Academic degree awarded	Bachelor of Science in Genetics and Bioengineering (B.Sc)
Date of introduction	23 June, 2004/ Pursuant to the Article 14 of the Law on Higher Education (Official Gazettes of the Canton Sarajevo, issues 17/99, 14/00, 15/01, 13/02, 12/03 and 15/03)
Regular study period	8 semester/ 4 years
Number of ECTS credits	240
Full time/Part time	Fulltime
Tuition fees	As per Semester in EUR for academic year 2016/17: **Foreign students:** First cycle: EUR 2,750/semester Second Cycle: EUR 1,250/ semester Third cycle: EUR 3,000/ semester **BiH citizen:** First Cycle: EUR 1,925/semester Second Cycle: EUR 1,250/ semester Third cycle: EUR 3,000/ semester
Name of the programme	**Genetics and Bioengineering**
Academic degree awarded	Master of Science in Genetics and Bioengineering (M.Sc)
Date of introduction	23 June, 2004/ Pursuant to the Article 14 of the Law on Higher Education (Official Gazettes of the Canton Sarajevo, issues 17/99, 14/00, 15/01, 13/02, 12/03 and 15/03)
Regular study period	2 semester/ 1 year
Number of ECTS credits	60
Full time/Part time	Fulltime
Tuition fees	As per Semester in EUR for academic year 2016/17: **Foreign students:** First cycle: EUR 2,750/semester Second Cycle: EUR 1,250/ semester Third cycle: EUR 3,000/ semester **BiH citizen:** First Cycle: EUR 1,925/semester Second Cycle: EUR 1,250/ semester Third cycle: EUR 3,000/ semester

3 Short information on the accreditation procedure

International University of Sarajevo (IUS) submitted an application for accreditation of the study programmes in April 2016.

In circular resolutions on 15th April 2016 and 2nd June 2016, the Board of AQ Austria passed the proposal for experts for the review and assessment of the study programmes.

Members of the Expert panel

Name	Institution	Role
Alexandre Carmo	Institute for Research and Innovation in Health, University of Porto	Head of the expert panel Expert from academia
Matthias Mack	Institute for Technical Microbiology at Mannheim University of Applied Sciences	Expert from academia
Daniela Reinisch	Director of the Upstream Development Microbials, Boehringer Ingelheim, Vienna	Expert with professional practice
Andreas Weber	Student of Biotechnology at the University of Natural Resources and Life Sciences in Vienna	Student Expert

A site visit at IUS took place in Sarajevo on 14th July 2016, which was attended by the expert panel and coordinators from AQ Austria.

The Board of AQ Austria took the accreditation decisions in its 36th meeting on 20th/21st September 2016. Both, the accreditation of the Bachelor programme and the master programme are subject to conditions and are valid until 20th September 2022.

4 Subject matter of the application

The International University of Sarajevo (IUS) has been established in 2003. The founder of IUS is the Foundation for Education Development Sarajevo (SEDEF – Sarajevo Education Development Foundation). IUS offers, as of the academic year 2015/16, 53 study programmes in total in all cycles organized within five faculties:

- Faculty of Business and Administration
- Faculty of Engineering and Natural Sciences
- Faculty of Arts and Sciences,
- Faculty of Law
- Faculty of Education preparing our students to life and market realities.

All study programmes are offered in English. IUS is open to students from all over the world; however the majority of students are from the Republic of Turkey. As of the academic year

2015/16 1931 students are enrolled. 1201 are foreign students and 730 from BiH. Out of the 1201 1053 are from the Republic of Turkey. According to its own vision and mission IUS considers itself as one of the largest educational projects in the Balkan region and being a hub between east and west. IUS is an associate member of European University Association (EUA), and a full member of International Association of Universities (IAU) and European Consortium of Political Research (ECPR).

The Bachelor and Master programme in "*Genetics and Bioengineering"* (GBE) pursues the goal to convey knowledge about the principles of genetics and biological technologies. The students will learn how to investigate biological mechanisms and circumstances from the engineering perspective. Further, they will understand the fundamentals of molecular biology, biochemistry, genetics, cell biology, biomaterials, biodynamics, bioinformatics, and proteomics by establishing a strong ground on basic sciences like Biology, Chemistry, Physics, Mathematics, and Engineering.

The aims of the **Bachelor programme** are:

- To equip students with successful education about engineering and basic sciences
- To provide students with genetics and bioengineering knowledge and experience
- To teach students to conduct basic and experimental researches and to apply engineering and physical sciences to medical and biological problems
- To provide students with biological background in order to safely apply engineering technologies to living systems
- To equip students with the appropriate techniques to solve scientific problems and develop skills necessary for genetics and bioengineering career
- To provide students with techniques to develop effective communication abilities to join and work in interdisciplinary teams
- To give education to the students in a broad spectrum and their preparation for career in a wide range

The aims of the **Master programme** are:

- To demonstrate an in-depth mastery of advanced concepts in Biological Sciences
- To demonstrate independent scientific thinking
- To provide students with the specific skills that are required for a rapid integration into the job market, as well as promote their skills to pursue a further academic qualification
- To contribute to and execute an original research project

5 Summarizing results from the assessments of the expert panel

The overall assessments of the expert panel of all standards may be summarized as follows:

Standard 1: Study programme and programme management

(a) Statements

The expert panel considers that the **Bachelor programme** "is well designed to equip the students with the tools and knowledge they need in their future field of work or research. The

emphasis of the programme lies on the use of biological, chemical and physical knowledge to better understand biological processes and to later on engineer them in a way that goods and products helping humanity and society are generated. The approach of "standardized workload" used for the design of the curriculum leads to a very broad education for the students while at the same time still enables specialization. The theoretical part of the education is well divided into the different fields of natural sciences and is supported by lab and practical work as well as internships. To further ensure the development of the study programme as well as to provide the students with better education, investments into laboratory equipment have to be made. This will allow for more practical work performed by the students as well as more research opportunities, possibly providing cornerstones for building up biotechnology and bioengineering-related industry in the region in the foreseeable future" (review report, p.18).

Further, the panel feels confident that "the corresponding **Master programme** Genetics and Bioengineering will also equip the students with the tools and knowledge they need in their future field of work or research. The programme is relatively short compared with most other programmes in the field that cover three or four semesters" (review report, p.19).

(b) Assessments

Bachelor Programme: The panel has assessed the standard as **"partially met"** under the following **conditions**:

1. "Assure the thorough use of the European Credit Transfer System for all courses and correct the courses listed in this report by either changing the workload/learning outcomes or the ECTS credit points received after course completion" (review report, p.18).
2. "Define learning outcomes and workload for the work placement/internship. Assure issuance of individual learning agreements for every internship taken" (review report, p.18).

Master Programme: The panel has assessed the standard as **"partially met"** under the following **condition**:

1. "Assure the thorough use of the European Credit Transfer System for all courses and correct the courses listed in this report by either changing the workload/learning outcomes or the ECTS credit points received after course completion" (review report, p.19).

The IUS should also consider fulfilling the following recommendations of the expert panel:

Bachelor and Master Programme:

- The expert panel recommends further developing and diversifying internships outside the IUS, establishing more partnerships and obtaining additional offers associated with more practical experience.
- The name of the study programmes ("genetics and bioengineering") is relatively broad and carries with it possible ambiguities but also opportunities. While "genetics" is a purely biological discipline, "bioengineering" connotes with more diversified tools. There is an opportunity to evolve the course to tackle the variable societal challenges and hence, the name of the course may be adjusted to better fit the expectations of students but also the deliverables of the courses. Nevertheless, the expert panel recommends that the course description should be rigorous and adjusted to its reality, correctly informing the students on the nature and expected outcomes of the courses.
- The syllabus describes the learning outcomes satisfactorily; however, for prospective and current students, a more detailed description should be used. The title of the

course should be subjected to a comprehensive analysis and discussion, but of course one of the possibilities is to maintain as it currently stands.

- The expert panel feels that the learning goals can be attained with the present conditions but strongly recommends that further support for more practical studies should be considered/implemented. We also recommend that BSc thesis work should be carried out in the laboratories, with the proportion of theoretical studies of about 50% being too high for a BSc. Furthermore, we recommend improving the course descriptions with regard to the prerequisites and course names.
- The expert panel recommends the implementation of a survey addressing the possible replacement of some university and/or faculty courses by modules with a stronger emphasis on bioengineering or related subjects.
- The expert panel acknowledges that important ties between the IUS and the Turkish nation are rooted in the genesis of IUS, that substantial IUS funding originates from Turkey and that many students from Turkey are attracted by this programme. It is important that these relations can be kept and further explored, and the funders have of course in mind that many graduates may proceed their studies in Turkey, which also fosters the internationalization of institutions of higher learning in Turkey. Nevertheless, the consultation to a large audience of students for matters that are of wide concern should be carried out.
- The expert panel recommends the implementation of standardized questionnaires for the application interviews to achieve objective assessment of candidates.
- The expert panel also recommends that rules for validation and recognition of prior non-formal and informal learning be clearly defined.

Standard 2: Staff

(a) Statements

The panel states that the teaching staff of the GBE **Bachelor and Master programme** at the IUS "is composed of a very competent and enthusiastic group of professionals that have the knowledge and skills to educate the students in all the areas of knowledge covered by the curricula, with partial coverage provided by external teaching staff. The professors have at their disposal a number of measures and support, provided by the IUS, to further increase their professional development. They also provide opportunities for the students to develop their scientific competences through internships in their research laboratories. The professors have at their disposal a number of measures and support, provided by the IUS, to further increase their professional development, and benefit from the availability of GBE Master students to contribute to their research projects" (review report, p. 21f).

(b) Assessments

Bachelor Programme: The expert panel has assessed the standard as **"met"**.
Master Programme: The panel has assessed the standard as **"met"**.

The IUS should also consider fulfilling the following recommendations of the expert panel.

Bachelor and Master Programme:

- The expert panel recommends the recruitment of additional professors, not to replace the classes given by external lecturers, but to reduce the current teaching burden of

the existing professors. This hiring can be progressive, also to meet with the predictable increase in the number of student in the near future.
- The expert panel recommends that the question of leadership and coordination should be solved in the shortest time-frame possible.
- The expert panel recommends that all important information on human resource development and further education support be made available in a simplified and accessible form for fast consultation

Standard 3: Quality assurance

(a) Statements

The panel considers the Quality Assurance (QA) system set up by the IUS and faculty-wide as suitable to support the GBE **Bachelor and Master programme** as it currently stands and in future developments. The panel states that "detailed documentation and regulation of different levels of QA is done at the IUS providing the tools fit for study programme development. All internal (especially students and teachers) and external stakeholders are involved in institutionalized QA processes. The different QA competences are well defined and meet the standards" (review report, p.25).

(b) Assessments

Bachelor Programme: The panel has assessed the standard as **"met"**.
Master Programme: The panel has assessed the standard as **"met"**.

The IUS should also consider fulfilling the following recommendation of the expert panel.

Bachelor and Master Programme:
- The expert panel suggests that the way pre-requisites are written down should be clearly defined, and to implement one standardized nomenclature for all pre-requisites.

Standard 4: Funding and infrastructure

(a) Statements

In sum, the panel considers the rooms and technical facilities as adequate for the **Bachelor and Master programme** at this moment.

(b) Assessments

Bachelor Programme: The expert panel has assessed the standard as **"met"**.
Master Programme: The expert panel has assessed the standard as **"met"**.

The IUS should consider fulfilling the following recommendation of the expert panel.

Bachelor and Master Programme:

- The expert panel views the rooms and technical facilities as adequate for the programme at this stage; however, it encourages the IUS to consider further investments in laboratories and equipment to improve the level of permanent research and training.

Standard 5: Research and development and appreciation of the arts

(a) Statements

The expert panel came to the conclusion that excellent and international scientific knowledge is present at the GBE **Bachelor and Master programme**, and that staff and students are highly motivated. Nevertheless the expert panel considers that the implementation of a scheduled research activities is necessary "to provide a structured strategic research plan within the GBE framework, elect which activities are strategic and formulate a budget that will sustain the jointly planned activities for the following years." (review report,p.30).

(b) Assessments

Bachelor Programme: The expert panel has assessed the standard as "**partially met**" under the following **condition**:

1. "The GBE programme shall provide a strategic research plan (define objectives for research and development) with schedules for implementation in the following years and elaborate a budget to support the proposed activities. On this basis, a suitable organizational and structural framework can be assessed" (review report, p.30).

Master Programme: The expert panel has assessed the standard as "**partially met**" under the following **condition**:

1. "The GBE programme shall provide a strategic research plan (define objectives for research and development) with schedules for implementation in the following years and elaborate a budget to support the proposed activities. On this basis, a suitable organizational and structural framework can be assessed" (review report, p.30).

The IUS should consider fulfilling the following recommendation of the expert panel.

Bachelor and Master Programme:

- The expert panel recommends that the scientific activity be monitored for pre-determined timeframes of, for example, 5 years. GBE Professors and the IUS management should determine specific goals for research, followed by an evaluation of performance. The analysis needs not to be necessarily punitive but as a form of assessing the needs for research and the balance with the teaching load, to optimize the human resources and identify further needs.

Standard 6: National and international co-operations

(a) Statements

The expert panel concluded that in the GBE **Bachelor and Master programme** "scientific staff as well as students show mobility in the international research community. Through the information given, it is evident that GBE programme seeks to encourage and support the advancement of the study programme and the mobility of students and staff" (review report,p.32).

(b) Assessments

Bachelor Programme: The expert panel has assessed the standard as **"met"**.
Master Programme: The expert panel has assessed the standard as **"met"**.

6 Decision of the AQ Austria Board

The Board of AQ Austria based its decision on the self-documentation and supporting documents submitted by IUS, the review report of the expert panel, and the formal statement by IUS.

The Board of AQ Austria decided to grant accreditation to the study programme Genetics and Bioengineering (Bachelor of Science) for a period of six years, subject to three conditions:

1. Assure the thorough use of the European Credit Transfer System for all courses and correct any inconsistencies regarding the workload/learning outcomes and the ECTS credit points received after course completion.
2. Define learning outcomes and workload for the work placement/internship. Assure issuance of individual learning agreements for every internship taken.
3. Provide a strategic research plan for GBE programme, including defined objectives for research and development, schedules for implementation, and elaboration on the budget to support the proposed activities.

The Board of AQ Austria decided to grant accreditation to the study programme Genetics and Bioengineering (Master of Science) for a period of six years, subject to two conditions:

1. Assure the thorough use of the European Credit Transfer System for all courses and correct any inconsistencies regarding the workload/learning outcomes and the ECTS credit points received after course completion.
2. Provide a strategic research plan for GBE programme, including defined objectives for research and development, schedules for implementation, and elaboration on the budget to support the proposed activities.

The fulfilment of these conditions must be documented in writing within nine months (i.e. until 21st June 2017) and is subject to assessment by AQ Austria. In case of non-fulfilment, the accreditations will be withdrawn immediately.

7 Annex

- Review report of the expert panel
- Formal statement by IUS