



SUBJECT-SPECIFIC CRITERIA

Relating to the accreditation of Bachelor's and Master's degree programmes in agriculture, nutritional sciences and landscape architecture

(27 March 2015)

The following specifications complement the "ASIIN General Criteria for the Accreditation of Degree Programmes".

1 Classification

1.1 Function

The Subject-Specific Criteria (SSC) of the Technical Committee for Agriculture, Nutritional Sciences and Landscape Architecture have the premise that the intended learning outcomes framed by Higher Education Institutions in their own responsibility and according to their academic profile concerning the programmes submitted for accreditation build the main scale for their curricular review.

Above this the Subject-Specific Criteria of all ASIIN Technical Committees meet a number of important functions:

The SSC are the result of an assessment, regularly performed by ASIIN Technical Committees, which summarize what is considered as good practice by a professional community formed equally by academics and professional practitioners in higher education and is required as future-oriented quality of training in the labour market. The expectations outlined in the SSC for the achievement of study objectives, learning outcomes and competency profiles are not developed statically. They are rather subject to constant review in close cooperation with organizations of the professional community, such as associations of faculties and university departments, professional societies and federations relating professional practice. Applicant universities are asked to study critically the interaction between the intended learning outcomes they strive for, the curricula and their relating quality expectations by using SSC and to position themselves in the light of their own higher education goals.

In their role in the accreditation process the SSC also provide a professionally elaborated basis for discussion among experts, Higher Education Institutions and bodies of ASIIN. By this they make an important contribution to the comparability of national and international accreditation procedures, since it should not be left to chance of the characters of the individual evaluators which technical parameters find their way into discussion and individual assessment. Simultaneously the SSC enumerate those abilities, skills and competencies which may typically be considered as state of the art of a discipline, but which can always be exceeded and varied, and also should be in accordance with the objectives of the university.

For inter- and multidisciplinary studies the SSC of ASIIN can provide orientation for presentation and evaluation. However, they are basically aligned on the core subjects of particular disciplines.

The SSC of the ASIIN are positioned and coordinated internationally and thus contribute to the achievement of the unified European Higher Education Area. They act on requirements of the "Bologna 2020" European strategy to formulate subject specialized, discipline-oriented learning

outcomes as one of the most important means for the promotion of academic and professional mobility in Europe as quality requirement. The SSC consider, among others, the many preparations in the context of European projects (e.g. "Tuning") and professional networks.

The study objectives and learning outcomes for bachelor and master degree programs in agriculture, nutrition science and landscape architecture as described in the following sections are intended to support HEI's application and the assessment of the accreditation procedure

1.2 Responsibility

The Technical Committee Agriculture, Nutritional Sciences and Landscape Architecture of ASIIN is engaged in study programs who deal with the development, design, production and consumption of food and environmental goods and services as well as the preservation and development of landscapes in the sense of obtaining the natural resources of the earth.

Due to the variety of job opportunities within this field, the Technical Committee is responsible for a variety of study programs such as agricultural science, forestry, horticultural science, nutrition science, dietetics, domestic science, food technology, landscape architecture, landscaping or open space planning, as well as specialized courses of study such as dairy farming, viticulture, agribusiness, nutritional economics, environmental and resource management or the area of renewable raw fabrics. The variety increases in line with developments in research and professional fields.

1.2 Collaboration of the Technical Committees

The Technical Committee Agriculture, Nutritional Sciences and Landscape Architecture works together with the other Technical Committees of ASIIN, mostly to give consideration to the requirements of interdisciplinary study programmes. The universities are called upon to submit their assessment of the assignment of one or several Technical Committees in the course of the application for an accreditation procedure.

Degree programmes with a proportion of more than 50 percent of content related to agriculture, nutrition science and/or landscape architecture are overseen by the Technical Committee Agriculture, Nutritional Sciences and Landscape Architecture. The latter is, as a rule, in charge of the accreditation procedure and seeks advice of auditors from other areas, if needed. When it comes to interdisciplinary study programmes with a weighted share of content related to agriculture, nutrition science and/or landscape architecture (below and up to and including 50%) the Technical Committee Agriculture, Nutritional Sciences and Landscape Architecture and the disciplines involved are jointly responsible or simply provide auditors.

2 Educational Objectives and Learning Outcomes

The educational objectives are outlined by the description of the competences required by the graduates for practising their profession or for post-graduate studies. The outcomes vary in extent and intensity in accordance with the differing objectives of Bachelor's and Master's degree programmes.

2.1 Requirements for Bachelor degree programmes

Successfully completed Bachelor's degree programmes are to facilitate early professional careers (professional qualification) as well as qualify the graduates for taking up scientifically advanced or consolidated studies.

The fields of competences are derived from requirements of professional life and are each to be understood, interpreted, and transferred in the context of the specific programme profiles and the professional fields strived for (cf. paragraph 3.).

Knowledge and Understanding

Graduates:

- know and understand the principles of natural sciences, social science, mathematics, medical science, economics and engineering their discipline is based on;
- have a coherent knowledge in their discipline including knowledge of the latest findings in their discipline;
- know concepts of identification and safeguarding of quality in their respective fields of work;
- know the essential legal regulations relating to their discipline;
- are aware of the further multidisciplinary context of agriculture, nutrition science, or landscape and neighbouring fields.

Engineering Analysis

Graduates:

- have the required knowledge and understanding to identify and formulate problems arising in agriculture, nutrition science, or landscape architecture (which may contain aspects stemming from areas other than their field of specialisation);
- are able to apply different methods orientated on fundamentals – such as mathematical, statistical, and experimental (laboratory) analysis;
- are qualified to plan and conduct respectively suitable experiments, interpret the data, and draw conclusions.

Investigations

Graduates:

- are able to pursue literature searches in a targeted way and to use data bases and other sources of information;
- are qualified to carry out assessments on the basis of comparisons with literature references and plausibility considerations.

Engineering Practice

Graduates:

- have the skills to solve practical problems;
- can combine theory and practice to solve subject-specific practical problems;
- are able to select and apply suitable devices, processes, and methods;
- have developed an understanding of applicable techniques and methods and their limitations;
- recognise the technical, health and safety, social, ecological, and legal implications of engineering practice in their field of scientific expertise;
- can apply methods relevant for their profession;

- are aware of the usability and the restrictions of concepts and solution strategies;
- can resort to experience with problems, topics, and processes relating to their scientific discipline;
- are able to consult adequate literature and information sources and coordinate the work of experts.

Social Competences

Graduates:

- are able to work efficiently on their own and as team members;
- are qualified to apply different methods to communicate effectively with the scientific community and the society as a whole;
- feel obliged to act in accordance with professional ethics and the responsibilities and standards of practical engineering;
- are aware of the methods of project management and business practices such as risk and change management and understand their limitations;
- recognise the necessity of independent life-long learning and are qualified to do so;
- depending on the professional field they have competences in the fields of management and marketing, in particular project management, acquisition, personnel management, controlling etc,
- are adequately competent in the area of communication, e.g. presentations or moderation.

2.1 Requirements on Master's Degree Programmes

As a continuation of an initial university degree Master's degree programmes advance and extend the technical competences acquired in first-cycle degree programmes.

The competence fields are derived from the requirements in professional life and are, therefore, to be understood, interpreted, and transferred within the respective context of the specified programme profiles and the professional fields aimed at.

Knowledge and Understanding

Graduates:

- have profound knowledge and understanding of their technical including engineering specialisation and the further scientific context;
- have developed differentiated knowledge and critical awareness of the latest findings in their discipline;
- have differentiated and advanced knowledge of the legal provisions relevant for their professional field;
- have advanced knowledge of quality standards and quality processes as well as their management.

Engineering Analysis

Graduates:

- are qualified to formulate and solve problems arising in new and developing fields of the area of their specialisation;
- are able to use their knowledge and understanding to design scientific including engineering models, systems, strategies, and processes;
- are able to design and apply different methods – such as mathematical analysis, computer-aided model design, practical (laboratory) experiments or plans;
- are able to recognise the relevance of the ecologic and economic framework conditions relating to social and health and safety issues;
- are qualified to plan, conduct, and evaluate field and laboratory experiments.

Investigations

Graduates:

- are qualified to apply suitable methods to pursue investigations or detailed research as to technical-scientific issues in accordance with the status of their knowledge and understanding;
- are able to identify, locate, and procure required information;
- can define and conduct investigations using the means of analysing, modelling, and experimenting;
- are qualified to assess data critically and to draw conclusions,
- are able to investigate the application of new emerging technologies in their scientific discipline.

Engineering Design

Graduates:

- are qualified to solve problems which are incompletely defined or unusual and show conflicting targets or competing specifications;
- are able to analyse and assess system performance;
- are able to use their knowledge and understanding to develop solutions for unusual problems together with the integration of other disciplines;
- can apply their scientific ability to judge when working with complex, technically impure, and incomplete information;
- are qualified to apply innovative methods to problem solving processes.

Engineering Practice

Graduates:

- can combine theory and practice to achieve quality of structures, processes, and results;
- can deal with complex facts and combine knowledge from different fields;

- can develop and implement deductive and inductive methods;
- have developed a comprehensive understanding of applicable theories, models, techniques, and methods and their limitations;
- recognise the social, economic, and ecological implications of practical engineering and can assess them.

Social Competences

Graduates:

- fulfil the requirements on graduates of Bachelor's degree programmes with a view to key qualifications on the higher level of Master's degree programmes;
- can work effectively as leaders of teams comprising different disciplines and levels;
- can work and communicate in national and international contexts.

3 Curriculum

In the following the individual curricular proportions are defined subject to the programme profiles. The design of concrete curricula must ensue from the educational objectives of the degree programmes.

According to the variety of issues the topics comprise areas relating to natural sciences, economics, technological sciences as well as social sciences, health and design. Moreover, modern research work and progressive theory are characterised by bringing topics and processes into correlation. This system approach governs in particular environmental and ecologic research and socio-economic research approaches. Systematic consideration takes structures, processes, people and the relevant correlations into account, next to nature and natural resources.

As to sciences "acting" on the basis of their self-understanding, i.e. research work orientated on the solving of problems with a holistic approach, the activities serve the purpose of the creation of a knowledge basis which, in the sense of the term "applied sciences", is directed at the transfer of knowledge. The findings aim at a sustainable positive use in the sense of a gain in welfare accepted by the people.

3.1 Agriculture and Dietetics

Traditional degree programmes such as Agriculture, Horticultural Science, Forestry, Viticulture and Dietetics as well as more recent degree programmes with a stronger interdisciplinary approach such as Environmental Sciences or Renewable Resources Technology are characterised by application-related components rooted in natural sciences and/or technical sciences and/or social sciences and/or economics. As a rule, the broad fundamental education is followed by profile-creating specialisations.

The key qualifications required for the professional fields, functions, and activities, respectively, are to be explicitly considered in the curriculum.

The general fundamentals cover fundamentals of natural, technical, ecologic, social, and economic sciences, the scope of which depends on the specifications of the relevant degree programme.

Subject-specific fundamentals contain fundamentals of the production, processing, and distribution as well as the consumption of foodstuffs. They comprise knowledge of soils, plants, and

livestock as well as their nutrition and health. This is added by the societal, social, economic and legal aspects of human cohabitation. The fields of application extend to agriculture and dietetics as well as to forestry or horticulture.

The creation of profiles comprises modules establishing a focus on technical fields, qualifying for specific professional activities, outlining special fields of studies, corresponding to the profile of the location, and offering the students the creation of individual profiles, too.

In the curriculum one multidisciplinary cross-subject project is to be provided for at the minimum.

Next to technical competences key qualifications and cross-subject qualifications lead in particular to professional qualification. They can be derived from the requirements relating to the professional fields, functions, and activities aimed at and are to be explicitly outlined in the curriculum.

The admission of "career changers" from related or other technical disciplines, i.e. non-consecutive studies, to Master's degree programmes is welcomed. In this respect, special consideration is to be given to paragraph (3.2, therein point 3.1) "Admission Requirements and Transfers" of the ASIIN Requirements and Procedural Guidelines. It is to be substantiated by way of which procedures a harmonisation of the entrance qualifications is possibly safeguarded. This aspect is also to be adequately considered in the quality assurance system.

3.2 Nutrition Sciences

The *general fundamentals* cover fundamentals of natural, medical, ecologic, social, and economic sciences, the scope of which depends on the specifications of the relevant degree programme.

The *subject-specific fundamentals* contain physiological, anatomical, and biochemical fundamentals and knowledge orientated on the ingredients of foodstuffs and their mechanisms of action as well as scientific social and cultural findings relating to nutrition and the determinants of nutritional behaviour. This is added by a basic understanding of the production of foodstuffs.

The *creation of profiles* comprises modules establishing a focus on technical fields, qualifying for specific professional activities, outlining special fields of studies, corresponding to the profile of the location, and offering the students the creation of individual profiles, too.

Next to technical competences key qualifications and cross-subject qualifications lead in particular to professional qualification. They can be derived from the requirements relating to the professional fields, functions, and activities aimed at and are to be explicitly outlined in the curriculum.

3.3 Landscape Architecture / Open Space Planning / Landscaping

Landscape Architecture is an interdisciplinary field, that includes components of the humanities, social and natural sciences as well as economics, technology and arts. According to the German architect laws the job of landscape architects is the formative, ecological, technological, economical and social planning for outdoor plants, landscape and environment.

The function of landscaping is the technical and creative transfer of plans by taking economic, resource-efficient, sustainable, eco-logical and socially acceptable methods as well as the maintenance, development and the implementation of conservation measures into account.

The profiling includes functional focal points that qualify for specific professional activities, correspond to the profile of the site and also offer the students individual profiling opportunities. Multidisciplinary, interdisciplinary projects in the curriculum particularly satisfy the high complexity of planning processes.

4 Engineering Practice

Bachelor's Degree Programmes

Relevant practical professional experience is required for the attainment of professional qualification prior to and during the course of studies. This comprises:

- practical technical experience;
- knowledge of a basic range of plants and their possible application;
- integrated practical phases based on activities in the professional field.