



ASIIN Seal

Accreditation Report

Bachelor's Degree Programme
Natural Resources Management Engineer

Provided by
Universidad Autónoma de Nuevo Leon (Mexico)

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A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for ¹	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) ²
Ba Ingeniero en Manejo de Recursos Naturales	Ba Natural Resources Management Engineer	ASIIN	–	08
<p>Date of the contract: 08.08.2016</p> <p>Submission of the final version of the self-assessment report: 13.04.2017</p> <p>Date of the onsite visit: 31 May and 1 June 2017</p> <p>at: Campus Linares</p>				
<p>Peer panel:</p> <p>Prof. Dr. Carsten Mann, University for Sustainable Development Eberswalde;</p> <p>Emily García-Montiel, PhD student at Durango University;</p> <p>Dr. Timothy Synnott, Independent Forester in Mexico;</p> <p>Prof. Dr. Christiane Soerensen, HafenCity University of Hamburg</p>				
<p>Representative of the ASIIN headquarter: Dr. Siegfried Hermes</p>				
<p>Responsible decision-making committee: Accreditation Commission for Degree Programmes</p>				
<p>Criteria used:</p> <p>European Standards and Guidelines as of 15.05.2015</p>				

¹ ASIIN Seal for degree programmes

² TC: Technical Committee for the following subject area: TC 08 – Agronomy, Nutritional Sciences and Landscape Architecture

A About the Accreditation Process

ASIIN General Criteria, as of 28.03.2014 Subject-Specific Criteria of Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture as of 09.12.2011	
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B Characteristics of the Degree Programme

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF ³	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Ba Natural Resources Management Engineer	B.Sc.	n/a	6	Full time	n/a	9 Semesters	198 ECTS	Fall semester / June 11, 2003

For the Bachelor's degree programme Natural Resources Management Engineer the institution has presented the following profile on the website of the Faculty of Forest Sciences (in Spanish; English translation):

„Engineering studies Natural Resource Management taught in our institution are based on the integral formation of students, based on the integrated management of natural resources and concatenated relationships of organisms and environments in nature.

The graduate will have knowledge and skills that empower them to perform specialized work in the sustainable management and conservation of natural resources field. Also, [they will] have a solid and specialized training in their area of expertise that allow [them] to participate in research for the generation, adaptation and improvement of techniques for optimization and management of natural resources.“

³ EQF = The European Qualifications Framework for lifelong learning

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Sec. 2.1 of the Report; actual qualification profile available at: <http://www.fcf.uanl.mx/oferta-educativa/licenciatura/imrn/> (access: 12.07.2017)
- Module Handbook, see Appendix C of the SAR
- Objectives-Module-Tables, see Module Handbook in Appendix C of the SAR
- Survey results according to sec. 6.2 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

Objectives and learning outcomes for the Bachelor's programme have been set up. These objectives and learning outcomes altogether combine to a qualification profile which overall convincingly indicates a programme-specific set of scientific, technological and managerial competences in the broad field of natural resources management. Generally, this competence profile could also be considered substantially equivalent to the exemplary learning outcomes attributed to the level 6 of the European qualification framework.

However, it has been noticed at the onset that the Faculty of Forest Sciences has drafted and disseminated different versions of the study objectives and learning outcomes which are partly coinciding, partly differing, in one case tend to be more specific, only to turn significantly generic in the other. It may be inferred that the "Specific objectives" of the degree programmes to be found on its website – and, though to a lesser extent, the phrasing of "the main objectives of the NRME-program" – are most explicit and detailed in describing the content and aims of the programme. In particular, the intended holistic view on the Natural Resources, which can be considered as the main distinctive feature as

compared with other programmes, comes to the fore in these descriptions. Thus, it has been argued in the onsite-discussions, that the scope of the degree programme has been significantly shifted from the traditional preoccupation of the Faculty programmes with the forest, its protection and management to the conservation, production and management of Natural Resources in the broadest sense. This implies that the intended management qualifications are aiming at the meaningful use, conservation, restoration and development of Natural Resources covering environmental problems of big cities and the countryside alike (from water management and control of air pollution to urban landscape architecture and protection of biodiversity with respect to wild species). This principal idea of the Natural Resources Management Engineer is neatly covered in the published *programme objectives* which, however, are not framed as *learning objectives* or learning outcomes. In comparison, the programme-related learning outcomes that could be read in the SAR – but not, for instance, on the website of the degree programme – are much more generic and summarizing. Only four of these learning outcomes could be judged programme-related in a literal sense, the others being rather generic (as for instance the ability “to manage technology and modern tools required for the professional practice”). The more programme-related learning outcomes broadly, in turn, address study-related legal knowledge as well as analytical, methodological and problem-solving competences which students are expected to gain during their studies: “[Applying] knowledge to evaluate the natural resources to take adequate and opportune decisions for their management and conservation”, “[Knowing] the use of the theory and methods for the administration, management, conservation and restoration of the ecosystems”, “[Using] the legal framework to identify the environmental regulations in benefit of the natural resources and the society”, and finally: “[Becoming] consultants and members of natural resources professional and related societies”. Although these programme-specific learning outcomes may actually be said to cover all relevant aspects of the programme, this is true more implicitly, than it is stated explicitly.

Consequently, it seems to be easy to draft more detailed and down to the core of the programme-aimed *learning outcomes* along the line of the already existing programme *objectives*. Doing that would be all the more desirable in terms of a consistent and homogenous communication of programme-related skills and competences. Regarding the transparency of the relevant information about the degree programme, this is in fact a goal in itself, since it might serve possible employers or other universities as a meaningful information base for the qualification profile of graduates.

Another layer of programme learning outcomes, used to classify the module objectives (objectives-module tables in the Module Handbook) is different from those referred to already. They are on the one hand strictly aligned to competence levels (“Knowledge”,

“Skills” and “Competences”), but framed wholly generic on the other. Consequently, they indicate the competence level of the individual learning outcomes of modules and thus far provide a generic standard for the module learning outcomes. However, starting from here in order to get at first sight a picture of whether the curriculum appropriately implements the defined programme-specific learning objectives is only possible with the intermediate reference to the above mentioned subject-related learning outcomes (see below, sec. 1.3).

Nevertheless, the peers consider the status quo of the defined programme-specific objectives and learning outcomes already suitable with regard to the accreditation requirements. They come to the conclusion that the combined objectives and learning outcomes of the programme broadly correspond to the exemplary learning outcomes of the Subject-Specific Criteria (SSC) of the relevant Technical Committee Agronomy, Nutrition Science and Landscape Architecture. As to that, one may summarize that the mostly generic programme learning outcomes enumerated in the Module Handbook can be attributed by and large to the competence areas as defined through the SSC (i.e. “Knowledge and Understanding”, “Engineering Analysis”, “Investigations”, “Engineering Design”, “Engineering Practice”, and “Social Competences”). Additionally, they could be easily specified with respect to the contents of the programme by taking into account its “*specific objectives*” detailed in the SAR and on the website of the Faculty. The latter is exactly what remains to be done. Therefore, it seems recommendable to further specify the programme-related learning objectives so that they serve as a significant description of the actual qualification profile of the graduates.

It is noteworthy that the process of (further) developing the degree programme and its learning objectives has been undertaken with the involvement of the main stakeholders, employers, Alumni and recently graduated students in the first place. Results of surveys conducted among those groups indicate a significantly high approval rate for the programme learning objectives.

Criterion 1.2 Name of the degree programme

Evidence:

- Website of the Natural Resources Management Engineer programme; see <http://www.fcf.uanl.mx/oferta-educativa/licenciatura/imrn/> (Access: 12.07.2017)
- Sample Leaving Certificate, Appendix E of the SAR
- SAR and audit discussions

Preliminary assessment and analysis of the peers:

The peers consider the name of the programme clearly indicating the decisive change to a holistic perspective on the Natural Resources – from a management point of view. However, it also explicitly addresses an “engineering” discipline in a sense that significantly differs from its meaning in the international and, in particular, European community of engineers (normally implying an allusion to the technical features of Electrical, Mechanical, Civil etc. Engineering). Engineering competences and even fundamental engineering knowledge in the more common technical sense of “engineering” are scarce to virtually being non-existent in the curriculum under consideration. Some basics of water management in the compulsory curriculum and several elective technical courses do hardly compensate for that. Thus the engineering reference in the name of the programme might be misleading if used in an international context without any specification, the more so since there are engineering-related management programmes in the environmental sector as well (like, for instance, “environment engineering”). Thus, the peers consider it necessary to clarify the particular meaning of the “Engineering” term in the title of the degree programme in order to avoid misconceptions of the programme by applicants and other stakeholders.

Criterion 1.3 Curriculum

Evidence:

- Curriculum of the programme as depicted in the Appendix of this report
- Objectives-module-tables in the Module Handbook; see Appendix C of the report
- Module Handbook; see Appendix C of the SAR
- Survey results according to sec. 6.2 of the SAR
- Results of internal/external evaluations, see Appendix G of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

In general, it has been positively noted that the programme developers are highly responsive to the suggestions and recommendations of major stakeholders like students, Alumni and employers for the disciplinary further development of the curriculum. Therefore, it must not be underrated that the curriculum clearly illustrates the Faculty’s serious efforts to implement the programme objectives and intended learning outcomes in a plausible manner.

This general judgment notwithstanding, a thorough discussion of the concept and details of the curriculum has brought to light some critical issues regarding the implementation of the self-defined objectives and learning outcomes, which from the peers' perspective need to be reconsidered. The programme objectives define basically four fields of competence, which were disputable at least regarding their proper implementation into the curriculum. Reference here is made a) to the specific management competences of students, b) to the students' competences in analysing socioeconomic and political conditions and impacts of Natural Resources Management, c) to their professional competences and ability to compete in a volatile job market and, lastly, d) to the English language skills that are a crucial precondition for the students' professional career. The programme objective with overriding importance explicitly stated in the SAR is enabling students to deal with environmental problems "from a holistic point of view". Thus, it is clear that the above mentioned competence areas are indispensable parts of the picture that the programme coordinators present as focus point of the Natural Resources Management Engineer programme (apart from others).

To begin with, a brief glance at the curriculum shows that mathematical and Natural Science courses are by far prevailing in the curriculum. It is doubtless that the students need to have a solid fundament of knowledge in Mathematics and Natural Sciences in order to be able to work professionally in the public or private management of Natural Resources. And it is also for sure that fundamental knowledge in Chemistry, Botany, Zoology, Geomorphology, Plant Physiology, Mycology, Hydrology, Statistics etc. has to be acquired and immersed before management issues of Natural Resources can be dealt with meaningfully. On the other hand, the students are taught a mass of piecemeal courses on a wide range of disciplinary topics without, apparently, conveying from the very beginning a clear idea of its use with respect to the ultimate study objectives. Although the lecturers underpinned that the coherence and interrelation of the different modules and subjects is made explicit in each course, this could hardly be deduced from the module learning outcomes and content descriptions in the module handbook. The fact that students complain about a rather superficial treatment of a broad array of natural science subjects, which at least some of them would even like to have deepened, does also indicate the contrary. The crucial role ascribed to the *field practices* in the fourth and eight semesters in this respect cannot be overstated and needs to be clarified in corresponding module descriptions missing so far.

Courses relating to the management of Natural Resources are for the most part integrated in the later periods of the study (from the sixth semester on). Moreover, these management courses are comparatively small pieces concerning manifold management topics like "Soil and Watershed Management", "Business and Project Management",

“Wild Fauna Management”, “Rangeland Management”. These courses do certainly cover relevant themes regarding the management of Natural Resources. Still, an integrated perspective on issues of land use management can hardly be found in the curriculum. Moreover, management topics are very limited in size and – according to the module descriptions – in scope as well. Asked whether graduates of the study programme are able to draft, install and monitor, for instance, land management programmes for public or private land owners, employers from both the public and private sphere reported that many times graduates obviously lack the methodical skills and also the field experience to do so. It is only fair to say that this observation and judgment is about students having finished their studies according to the “old” curriculum which is going to be substituted by a new one. And seemingly the “new” curriculum, provided for the purpose of the accreditation procedure, does entail changes obviously responding to these demands, at least to a certain degree. Thus, some management courses from the “old” electives catalogue seem to be transferred to the mandatory curriculum, albeit in a somewhat reorganized form and under a modified title. Principally confirming the responsiveness of the quality assurance of the programme, the new curriculum thus might improve the management abilities of the graduates and along with that their professional qualification with respect to the needs mentioned above. Otherwise, the management courses still appear too small in size to realistically impart students with the management knowledge, skills and competences which are needed and described in generic, virtually all-encompassing terms in the module descriptions. Indeed, most senior resource managers spend more of their time managing people (human resources, training, gender equity, social license etc.) and money (budgets, profits, accounts, salaries etc.) than in studying or handling the natural resources. As a consequence, peers consider it necessary to enlarge the students’ competences in the management and planning of Natural Resources in order to better align title, intended learning outcomes and curriculum of the study programme. Furthermore, the bottom-line topic of the programme (management of Natural Resources) should be communicated to the students’ more transparently, particularly in the early study phase.

Taken seriously, the intended “holistic” view on the environment and related problems should embrace socioeconomic and political conditions and effects of the management of Natural Resources as important groundwork. Neither the actual curriculum does entail that much content to this end, nor does the new curriculum. At least, some courses of the new curriculum like “Policy and Environmental Legislation”, “Sociology and Sustainable Development” and “Environmental Impact Assessment” (in the sixth and seventh semester) point into this direction. However, these courses are considered too small with respect to the ambitious but, again, very widely formulated learning objectives. They seem not quite adequate in size and content when taking into account the ability “To evaluate

and propose a system, component, or natural processes to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability” as an explicitly stated qualification goal. Consequently, from the peers’ point of view the students’ competences in the field of socioeconomic and policy aspects of Natural Resources Management should be broadened.

In close connection with this, it has been stated by alumni, students and employers concurrently that the curriculum should include more practical/field training. Again, the modules *Field Practices I* and *II* are obviously integrated into the new curriculum as a reaction to the feedback from main stakeholders. Their contribution to a more conscious perception of the interdisciplinary approach and practice orientation of the programme, however, remains to be made explicit in relevant module descriptions missing as yet. In this context, the module descriptions generally provide only poor information regarding the range and intensity of practical training within the modules (references in the list of components of the module assessment). Whether major changes in the curriculum have been carried through in terms of practical, profession-oriented training can hardly be stated from the information available. In order to allow a final assessment in this respect, the programme coordinators are requested to additionally deliver the module descriptions for the modules *Field Practices I* and *II*.

And yet another aspect of the graduates’ qualification has raised questions with regard to their job perspectives and professional career. The peers noticed that the English language skills of the students are limited, although the curriculum contains four English courses with a total of 16 credit points. All relevant stakeholders (students, teaching staff and employers) confirm the notion that foreign language skills and in particular, English language skills, do have overwhelming importance for the job opportunities and professional career perspectives of Natural Resources managers. Following that, the Faculty should take appropriate measures to more effectively enable students to communicate subject-specific matters also in English (be it within the curriculum, for instance through an implementation of a certain number of modules taught in English, or extracurricular).

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report chapter 2.5
- General Regulation on procedures for admission and permanence of Students (Reglamento General sobre los Procedimientos de Admisión y Permanencia de los Estudiantes); available on the internet at:

http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/06admission.pdf (Access: 12.07.2017); on the programme-specific website of the Faculty: <http://www.fcf.uanl.mx/aspirantes/requisitos/> (Access: 12.07.2017)

- Audit discussions

Preliminary assessment and analysis of the peers:

Student admission for all faculties and schools within UANL is defined in the “General Regulation on procedures for admission and permanence of Students” which is published in Spanish on the website. The admission requirements are clearly outlined on the subject-specific websites and for all new students the same. Thus, students must take the National Enrolment Exam (EXANI II) provided by the National Center for Educational Evaluations C.O. (CENEVAL). This examination includes a section on Agri-Biological Sciences for applicants to the Natural Resources Management Engineer (NRME) Programme. The EXANI II consists of five modules and a section on General Education that includes 110 questions per test and an English Language section. An examination guide for applicants, including a general description of the exam, sample questions and their analysis, suggestions on how to answer them, a sample test, and other relevant information, is provided by UANL and CENEVAL. According to the Faculty facilities (Classrooms, Computer rooms, Labs, Teaching capacity) a maximum of 30 to 35 students will be accepted per year or rather generation. The minimum and maximum scores for the exam have been varying from one admission period to the next and steadily rising since the year 2011 (with the only exception of 2011), thereby taking into account the significance of the scores in the light of the study success of applicants admitted to the programme. Overall, the admission numbers during the last five years lay within the target number of up to 35 students.

The peers assume that the admission regulations for the study programme contribute to the quality assurance of the programme since minimum and maximum scores for the entrance examination are in place and have been adapted according to their prognostic value for the programme-related eligibility of the students. However, in order to come to a more meaningful assumption on that, it would be helpful to have reliable information on the students’ average duration of studies and/or the drop-out rate in this programme that has not been provided with the SAR. The Faculty is kindly requested to provide such information for the previous study years, if available.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 1:

Taking into account the comments of the programme coordinators as well as some additional material (module descriptions *Field Practice I* and *II* and statistical data concerning the average duration of study and drop-out rates), the peers consider the standards of criterion 1 as *partially not fulfilled*.

Learning objectives

It is appreciable that the NRM Committee is going to revise and improve the objectives and (intended) learning outcomes of the study programme with a view to their subject-related significance. In this connection, it is also noteworthy that the HEI is at the same time working to conciliate different versions of internally published objectives and learning outcomes. The peers do not have the impression that there is immediate need for taking action. Nevertheless, they confirm a recommendation in this respect as drafted earlier during the audit visit (see below, chap. F, E 1.).

Name of the degree programme

The peers welcome that the programme coordinators have been receptive of their criticism with regard to the somewhat misleading “Engineering”-phrase within the name of the programme. They welcome that the HEI is considering either to altogether drop it or otherwise clearly indicate its concrete meaning. Since any binding decision has not been taken as of now, they keep up a requirement to this end (see below, chap. F, A 1.).

Curriculum

The expert team notes that the coordinators plan to review the curriculum with special reference to the alignment of programme learning objectives and curricular contents. This is generally acknowledgeable as an important measure in the course of the regular quality assurance of degree programme. In undertaking this review the coordinators are expected to be especially aware of the above detailed critical remarks concerning the students’ competences in the management and planning of Natural Resources, in the field of socioeconomic and policy aspects of Natural Resources Management as well as with respect to their English language skills. In comparison, the audit team has been persuaded by the module descriptions of the *Field Practice* modules that the practical, profession-oriented skills of students will in fact be substantially increased through these modules, which have been newly introduced into the curriculum. Though these profession-oriented competences should be pointed out clearly in the relevant module descriptions, wherever applicable and as yet lacking, no further action is considered necessary in this respect.

It is taken note of the fact that regarding the module descriptions the peers have been provided with the so-called “synthetic programme”, a summary version of a more detailed “Course implementation plan” (Programa Analítico), which is available in Spanish only. Due to this circumstance, some of the subject-related intricacies of the curriculum might have gone unnoticed by the peers. As to that, the peers consider it necessary that the module descriptions as presented to them in a “Module Handbook”, i.e. the “synthetic programme”, is revised according to the indications given in this section and below (see especially sec. 5.1).

Taken together, however, the peers confirm their preliminary assessment, especially regarding the necessity to enlarge the students’ competences in the management and planning of Natural Resources, in the field of socioeconomic and policy aspects of Natural Resources Management, and considering professional English language skills as well (see below, chap. F, A 2., A 3., A 4.).

Admission requirements

Peers are thankful for the submission of statistical data concerning the cohort pattern in terms of study success (admission numbers, graduation rate, drop-out rate, and average duration of study). They can see that in the last four student cohorts graduation and drop-out rates are varying significantly (between 30% and 54% drop-outs on the one hand, and 45% to 70% graduates on the other). It can hardly be decided on how and to which extent the admission rules play into these results, but it should be stated at the same time that successful students mostly complete their studies well within the standard period of study (9 semesters). In order to allow for any meaningful conclusion about the suitability of the admission rules, the timeframe and content-related set-up of the curriculum and the manifold support activities of the university / faculty in a quality assurance perspective, it would be conducive to systematically gather cohort-wise statistical data (see below sec. 6; also chap. F, E 5.).

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Sec. 3 and 6 of the SAR
- Module-objectives tables in the module handbook; see Appendix C to the SAR

- Study plan (new curriculum) of the degree programme according to the SAR; actual version available on the internet at: <http://www.fcf.uanl.mx/oferta-educativa/licenciatura/imrn/> (Access: 12.07.2017)
- Reglamento General sobre los Procedimientos des Admisión y Permanencia de los Estudiantes; available on the Internet at: http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/06admission.pdf (Access: 12.07.2017)
- Results of internal/external evaluations; see Appendix G of the SAR
- General Rules of International Relations; available on the internet at: http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/RelacionesInternacionales.pdf (Access: 12.07.2017)
- Audit discussions

Preliminary assessment and analysis of the peers:

In general, the peers consider the curriculum as being adequately set up, with modules ordered in a plausible and logically consistent manner. From their point of view the modules are framed coherently and consistently as self-contained teaching and learning units. This does not rule out specific shortcomings in the curricular concept – as has been detailed in section 1.3.

Apart from this, the general structure of the programme to proceed from basic knowledge in related natural sciences, the design of fieldwork, data analysis and interpretation to fundamental principles of ecology and ecosystem function, genetic diversity and resources, hydrology systems and ecosystem erosion, and further on to fundamental knowledge on legislation and conservation management in order to lastly integrate all these skills and outcomes to be competent for the Natural Resources Management, appears to be plausible.

Against the background of its highly interdisciplinary character and the necessarily multi-disciplinary basic education, the peers consider a total of six elective modules in different categories (“Basic Professional”, “Fundamental Professional” and “Compiler Professional”) as adequate to deepen the subject-specific knowledge in the individual student’s path of interest. Assembling the electives in the said categories according to university-wide requirements makes good sense, since particularly the electives of the “Fundamental Professional” and “Compiler professional” categories offered in the later stages of the programme are based on certain prerequisites which have be obtained before.

Regarding the practical training parts of the curriculum, it is well received that there has been some progression in the curriculum development with the integration of the modules *Field practice I* and *II*. In addition to that, a host of modules does also consist of certain practical components (“Laboratory”, “Practical Training”, and “Practices”). In principle, this is considered to be a meaningful step in dealing with the essentially concurrent⁴ feedback from students, Alumni and employers. However, the respective module descriptions only entail an indirect reference to the extent and character of these practical components through the weight it is attributed in the assessment, or are missing at all, as in the case of the *Field practice* modules. The module descriptions generally need to be more explicit in this regard. Apart from that, it remains to be seen whether the new curriculum keeps its promises in terms of the profession-related practical skills of the students. Anyway, the peers deem an adequate share of practical training, for instance in methodically setting up, conducting and monitoring land management programmes, to be of utmost importance for the acceptance of Bachelor graduates in the job market. For a better understanding of the weight of those skills in the new curriculum, they therefore ask the programme coordinators to additionally deliver the module descriptions for the modules *Field Practices I* and *II*.

All in all, the peers are convinced that the conceptual approach of the curriculum is principally suitable to achieve the intended objectives and learning outcomes, provided that the Faculty works successfully on the above identified shortcomings and ultimately removes them. In this context, they particularly praise and emphatically support the feedback loop the Faculty has already implemented regarding the different stakeholder surveys on the “Programme Educational Objectives” and “Student Outcomes”. The follow-up process should be strengthened along the line of the planned future steps, as for instance the prospected reorganisation of the Alumni-network (including employers), in order to enlarge the feedback-base of the surveys.

Internationalization of the programme in terms of international *mobility of students* seems to be intended and supported by the Faculty by way of recognition of academic qualifications acquired at other universities or, alternatively, within the framework of an international academic exchange programme of different size and duration (particular internship programme of one academic year, six months, or one month duration). A lack in English knowledge skills however appears to be a major hurdle in actually making use of these mobility opportunities, as is apparently also the partly poor information basis, students blame for their reluctance in going abroad. Peers assume that the Faculty and

⁴ As to that, the peers consider the slightly different results from Alumni and employer surveys conducted in 2016 for the first time (see SAR, p. 31ff.) hardly meaningful when looking at the poor response rate on the employers side (n=2).

teaching staff will make every effort to adequately inform about the exchange opportunities and thus promote the mobility of the students. As regards the English language skills, measures have to be taken to enable students to make more effective use of the already existing mobility opportunities.

Chapter VII of the General Regulation on procedures for admission⁵ explains the rule and procedure for recognition of academic achievements gained at other (also foreign) institutions of higher education. Students have to submit proper documentation of the academic accomplishments elsewhere; an academic board analyzes the documents and decides whether the achievements can be recognized as substantially equivalent to certain modules. The regulation basically refers to levels of learning, grades or learning units, not directly to knowledge, skills and competences gained. The description of the recognition procedure in the SAR then leaves little doubt that the Faculty implements the rules of recognition primarily by assessing the equivalency of module content and credit volume. Taken together, the peers understood that rules for recognition of academic achievements were in place and applied transparently. Nevertheless, the regulation might give more room for an assessment of acquired competences and qualifications as opposed to contents and credits. This would allow a greater flexibility in face of differences of curricula and credit point systems across countries.

Criterion 2.2 Work load and credits
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Evidence:

- Sec. 3.2 of the SAR
- Module Handbook, see Appendix C of the SAR
- Study plan (new curriculum) of the degree programme according to the SAR; actual version available on the internet at: <http://www.fcf.uanl.mx/oferta-educativa/licenciatura/imrn/> (Access: 12.07.2017)
- Information about the Credit Point System of UANL, “Modelo Académico de Licenciatura”; available on the internet at: <http://www.uanl.mx/sites/default/files/dependencias/del/ma-lic11-web.pdf> (Access: 12.07.2017)
- Sample of survey sheets for different stakeholders, see Appendix G of the SAR
- Audit discussions

⁵ Capítulo VII: De la equivalencia y revalidación de estudios realizados en otras instituciones, tanto del Sistema Educativo Nacional como del extranjero

Preliminary assessment and analysis of the peers:

The UANL has devised a credit point system that is almost similar to the main features of the ECTS system. That is say, that the estimated amount of work students are to bear for the completion of a module does include both attendance-based learning and self-study time. One credit point is awarded for 30 hours of student workload. On the basis of 20 weeks of attendance time per semester, the number of credit points awarded for each module thus leads to the ratio of attendance time versus self-study time. The overall workload of students per semester appears to be much more moderate compared with the average student workload in any European study programme of approx. 30 ECTS points, ranging from 20 to 24 ECTS points.

In connection with this, it is significant that the modules are limited in size and credit points allocated to them. Consequently, the curriculum appears to be highly fragmented, while on the other hand - as has been argued earlier - the modules are reasonably comprised as self-sustained teaching and learning units. Taking a closer look at the ratio between attendance time and expected time for self-study, it is striking that the programme coordinators have generally assumed an only limited proportion for self-study as compared to attendance time (mostly 1:5 or 1:4), thus attributing the major part of the learning process to the attendance time at the university. Peers agree with the argument, that particularly students of Bachelor's programmes, having just acquired their high-school certificate, need to be more closely guided in the transition phase to the university. And they also concede that supervised self-study periods to a small extent have already been integrated in the workload calculation of the Faculty (as differences between the figures for self-study time in the SAR and those resulting on a purely mathematical calculation suggest). But then, they would have expected a significant increase in self-study time in the later periods of the study, which - aside from the Bachelor's thesis - obviously is not the case with the actual credit point distribution. It is understandable that the Faculty is still in the process of gaining experience with the use of the UANL-version of an ECTS-style credit point system and should be allowed to closely monitor the students' workload over a certain time period in order to adapt the actual credit point allocation, where necessary. And it has to be taken into account here that the students made no significant objections to the workload calculation and credit point attribution.

However, the Faculty's indication of an already existing monitoring mechanism would require an adequate instrument in place. As to that, no evidence has been presented so far. The sample survey forms for graduated students and Alumni provided along with the SAR do not include any question to this end. The peers would therefore be grateful for an explanation on how and when the reported workload evaluation takes place on a routine basis. In this connection, it would be important for the auditors to learn whether results

so far have been prompting any changes in the credit point allocation leading, in particular, to a modification in the ratio between attendance time and self-study time.

It is also noted in this context that the module descriptions at present do not contain valid information about the students' workload. This can only be derived from the combined attendance time and credits award on the assumption that the semester consists of altogether 20 weeks. And yet, the resulting figures would not necessarily fit the numbers given in the SAR (which at some times differ from this purely arithmetical calculation). Consequently, the module descriptions should clearly indicate the total workload of each module and, too, how it is composed of.

Criterion 2.3 Teaching methodology

Evidence:

- Sec. 3.3 of the SAR
- Module Handbook, see Appendix C of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

Reportedly, there are different educational methods in place, with lectures, exercises, laboratories, professional practice, seminars and case studies, field trips to different ecosystems, and projects as the most familiar ones. The peers are told that the application, extent and weight of the teaching methods are up to the individual professor and decided on with particular attention to the intended learning outcomes of the respective module. The intention is to look at specific topics from different angles and to see how different units can make contributions to achieve the learning outcomes. Following that, it can be concluded that the teaching methods and instruments in use generally support the students in achieving the learning outcomes. On request the students confirmed this judgement.

However - apart from a vague hint to different didactical instruments in the column "Evaluation form" - there is no detailed information about teaching and learning methods in the module descriptions which would be helpful with a view to the whole concept of the module and, in particular, the coherence and interconnection of its intended learning outcomes, contents and didactical instruments. The peers noted that the module descriptions need to be supplemented accordingly.

From the quality level of the Bachelor's Theses (see below sec. 3), the peers infer that students are appropriately introduced to scientific standards and enabled to work scien-

tifically during their studies. As it appears, module-integrated practical training parts, which according to the Module handbook contain, inter alia, “Documental research” and “Case studies”, as well as seminars integrating “Presentations” and “Dialogs and debates” as possible evaluation forms in the first place contribute to the students’ ability to deal with subject-related problems scientifically. This, in turn, underpins the necessity that the didactical means used in the respective module should be further detailed in the module descriptions.

Especially noteworthy in this respect is a special “Summer Internship Research Programme for Science and Technology” at UANL giving students the opportunity to actively participate in research projects of the Faculty of Forest Sciences or other faculties of the university. As the peers positively noticed, this programme is explicitly devised to encourage students to learn new methods and/or technologies and also to place her/his study activities in the framework of most recent theories and / or experiments.

Criterion 2.4 Support and assistance

Evidence:

- Sec. 3.4 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

Peers noticed positively that freshmen are well introduced into the Faculty facilities, services and the programme details in an introductory course at the beginning of the first semester. With respect to the counselling and advice of students as well as the monitoring of their study success, the tutoring system the university has put in place is considered as an important effort to support students in acquiring the intended educational objectives and thus assure the quality of the programme. Full-time or part-time students are assigned to each student at the beginning of her/his studies resuming the task to support students and provide advisory services in all study-related issues. It is also laudable, that tutors get a special training for their advisory assignments.

Generally speaking, the students confirmed that they can turn to all professors for support and that a good communication environment was fostered at the Faculty of Forest Sciences. The students underlined that they are highly satisfied with the support measures. All in all, the auditors concluded that there were adequate resources available to provide individual assistance, advice and support for all students. They also underlined that the allocated advice and guidance, namely the tutoring system, assisted the students in achieving the learning outcomes and in completing the course within the scheduled

time. Furthermore, a way of informing students about changes in courses/times is expected to be in place and such changes are assumed to be communicated in advance.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:

Taking into account the comments of the programme coordinators as well as some additional material (module descriptions for modules Field Practices I and II; information about student workload evaluation), the peers consider the standards of criterion 2 as *not satisfactorily fulfilled* in some parts.

English proficiency

As has been thoroughly argued in sec. 1.3 and 2.1, the peers found that students on average appear to have an only limited proficiency in English. The accessible information about the English language skills of students is seemingly evidencing this shortcoming – despite of the language courses within the study programme. With a view to the relevance of English language skills in the job market and for making effective use of the mobility opportunities of the university as well, the audit team considers further steps for improvement in this field indispensable (see below, chap. F, A 4.).

Practical, profession-oriented competences

The HEI provided module descriptions for the two *Field Practice* modules evidencing to a certain degree that a measure of upgrading the students practical subject-related skills could be seen in the “new curriculum”, inter alia – and again at least to some extent – the ability to methodically set up, conduct and monitor land management programmes. As to where and to what extent additional practical competences are acquired in other modules – following the indications of the programme coordinators – could barely be concluded from the module descriptions at hand (“synthetic programme”). The module handbook submitted to the peers should thus be revised and supplemented in this respect, if applicable (see below sec. 5.1). Nevertheless, the audit team positively notes the curricular development mentioned above and does not see the necessity for further action of the faculty in this regard.

Methods of Teaching and Learning

The peers take note of the programme coordinators’ indication that Teaching and Learning methods are described in detail in the program implementation plan (“Programa Analítico”). Since the details of the “Programa Analítico” are not presented to them as Module Handbook, but rather a so-called synthetic programme, they cannot evaluate all module-related information actually available to the student. It is therefore considered

necessary that module descriptions should be provided and made accessible which respond to the peers' critical remarks. Whether these are build on a more detailed and already existing version ("Programa Analítico") or are altogether merged with this version is up to the university / faculty (as to this cf. generally sec. 5.1).

Rules of Recognition of Academic Achievements

For reasons detailed above the audit team recommends to further develop the rules of recognition of academic achievements acquired at other universities and their procedural implementation with regard to their orientation towards learning outcomes (see below, chap. F, E 2.).

Student workload

In their preliminary assessment the peers have noticed the disproportionate share of the students' attendance time in relation their self-study time, even in the later periods of study. Regarding that, doubts arose whether the students' self study is paid proper attention, for instance, by means of an appropriate monitoring process. This might ensure a flexible adjustment of the credit point distribution in case of significant mismatches between the actual student workload and the calculated workload (as expressed in the credit point allocation). The HEI has provided several documents supposedly representing the actual process of monitoring the students' workload. From the perspective of the peers, the combined documents in the first instance illustrate that students are routinely requested to assess whether and to what extent the teachers comply with their prescribed course plan. In particular, the evaluation questionnaire (see question 7) relates mostly to the teaching staffs' compliance with the schedule, not so much to the students' actual workload. Therefore it can hardly be seen as an instrument to check the total amount of student work (attendance and self-study time) in order to monitor at the same time the proper allocation of credit points. Therefore the peers recommend supplementing a requirement urging the HEI to put in place a suitable process for monitoring the students' workload and, if necessary adapting the credit point allocation (see below, chap. F, A 5.).

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation
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Evidence:

- Sec. 4.1 of the SAR

- Module Handbook
- General assessment regulations (“Reglamento General de Evaluaciones” as of 8 September 2011); available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/07evaluaciones.pdf (Access: 12.07.2017)
- Audit discussions

Preliminary assessment and analysis of the peers:

The university has adopted the concept of multi-component assessments to measure the achievement of course outcomes and thus the programme’s learning outcomes. The possible forms of evaluation are defined in the “General Assessment Regulations”. However, the module descriptions do only contain an indication of the different components of and their individual weight for the overall assessment rather than the exact assessment forms in the different teaching units (e.g. “Practical Training (30%), Seminars (30%), and Examination (40%)”). More precise information about the assessment forms eligible for each module is considered important for the students and should therefore be added to the module descriptions.

Apart from that, the peers judge this examination approach as an appropriate instrument to ensure that the academic performance of the students is assessed in different ways and in a comprehensive manner. They welcome the comprehensive assessment method as it at the same time aims at assessing different levels of competences. In this context, they also convince themselves that subject-related communication skills are monitored in a chain of modules, where students have to give oral presentations. All in all, it has been conclusively demonstrated that the examinations are structured in a way to cover the intended learning outcomes and provide students continuous feedback on their progress in developing competences.

All modules comprise two or three midterm examinations or homework besides a final examination to ensure a continuous assessment of learning. Given the mostly small size of the modules and the big number of modules per semester, the peers explicitly approached the students to understand how they deal with the overall load of examinations. But the latter confirmed that in general the examinations are well distributed over the semester and the examination load appears adequate to them. The peers learnt that there is a two weeks-period at the end of the semester where students can prepare their last examination sections, handle field or lab reports, seminars or other work depicted in the instructions forms. Relating to that arrangement, the students also confirmed that there was sufficient preparation time for the final examination.

During the onsite visit, the peers have analyzed the examinations and confirmed that they were of adequate standard at the level aimed at.

According to the “General Assessment Regulation” states, after failing an examination a student has altogether five extra opportunities to pass the modules. The number of repetition opportunities appears to be unusually high; however, it lies within the responsibility of the university to decide how many times an examination can be repeated and therefore the peers only take note of the respective provision. Thereby it is taken into account that the students and the teaching staff concurrently consider the provision allowing six re-sits in fact to be largely theoretical, and that in only very rare cases students make use of all repetition opportunities. As regards further aspects of the organisation of the examinations (like for instance examination period, preparation time, application and de-registration, remediation period etc.), the peers found all issues appropriately addressed in the exam regulations and respective work instructions.

At the end of their studies (in the ninth semester), students do have either to prepare a thesis work comprising knowledge, skills and competences gained in the module work of the preceding semesters or, alternatively, can opt to take seven elective modules (with an overall volume of 21 credit points). The description of the Thesis module does contain only scarce information about this essential module or its substitute, respectively. This applies for its learning outcomes as well as its content and procedural elements. As has been generally stated earlier in this report, this module description, too, should deliver more precise and detailed information particularly regarding the intended learning outcomes, contents, and didactical methods. From the information available in the SAR and in the module description as well as from the explanation of the programme coordinators, the peers gained the impression that the Bachelor’s theses are thoroughly planned major academic projects conducted in several distinct stages from the submission of a proposal through an individual research and drafting stage to the final version and a presentation of his/her findings before the Programme Academic Committee of the Faculty. The sample of Bachelor’s theses inspected during the onsite visit has revealed more descriptive in contrast to more analytical methodological approaches; in either case the theses illustrate unusual high problem awareness and the ability to take on subject-related issues methodically. From the peers’ perspective these Bachelor’s theses are excellent proof that the study objectives and intended learning outcomes have been achieved on the level aimed for.

However, as noted before, the students still have the opportunity to opt for seven elective modules instead of a Bachelor’s thesis – even when, as the programme coordinators pointed out, 95% of the students decide to take on the Bachelor’s thesis. It is principally doubted that the alternative option aiming at the immersion on certain subject-related

topics is suitable to evidence that students are competent to apply research methods independently to a set task. Thus, in order to assure that students have developed this ability during their studies and also are required to proof evidence for that, the peers consider it necessary that a Bachelor's thesis or an equivalent "capstone project" is mandatorily integrated into the curriculum of the degree programme.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:

Taking into account the comments of the programme coordinators, the peers consider the standards of criterion 3 as *only partially fulfilled*.

Bachelor's thesis

The peers highly appreciate that the general possibility to opt for seven elective modules instead of preparing a Bachelor's thesis is planned to be excluded. Until evidence for the implementation of this announcement has been provided, the peers consider a requirement to this end necessary (see below, chap. F, A 6.).

4. Resources

Criterion 4.1 Staff

Evidence:

- Sec. 5.1 of the SAR
- Proof of Sufficient Teaching Capacity, Appendix A of the SAR
- Staff handbook, Appendix B of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

Reportedly, 22 full-time professors as well as 30 more technicians are at the disposal for conducting the Bachelor's programme under review. After consulting the Staff handbook, the peers conclude that the teaching personnel are well-qualified to assume its teaching responsibility in the study programme. Notwithstanding that, they also noted that enlarging the students' competences in the management and planning of Natural Resources (see above sec. 1.3) might force the Faculty to bring in extra staff or at the least to have significant contributions from practising management professionals.

Unfortunately the evidence of sufficient teaching capacity provided in the SAR (Appendix A) is hardly reliable. In particular, the Appendix A2 only gives an account of the percentage share of teaching and research activities of each staff member in two Faculty programmes (Ba and PhD), leaving out to clearly state how much hours for teaching, administration and supervision tasks have to be granted in total for the programme and also how this information is to be related to the normal teaching load of the staff members. That is all the more regrettable, since the peers gained the impression that the teaching load of the lecturers, including administrative and supervising activities, is generally felt to be comparatively high. This, in turn, at least occasionally seems to hamper other activities of the teaching staff, particularly regarding their professional and didactical development (as to that see the following chapter). After all, the Faculty is requested to present a reliable account of the workload of the teaching staff, including the teaching, administrative and supervisory assignments of each member of the teaching staff of the programme.

Apart from this, the university's and Faculty's incentives to encourage the teaching staff to participate in significant research work (sabbatical leave, university research grant, research stays, participation in workshops, conferences and symposia) is highly appreciated. Such incentives, related programmes and opportunities in all events contribute considerably to the Faculty's expertise and research capabilities and, although more indirectly, to the integration of the students in research activities as well. Plenty of already existing cooperation agreements could also benefit this perspective. But all of this will be undermined by overburdening the staff with teaching assignments (see previous chapter).

Criterion 4.2 Staff development

Evidence:

- Sec. 5.1 of the SAR
- "Reglamento del Personal Académico" as of 16 Diciembre 1996; available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/14personalacademico.pdf (Access: 12.07.2017)
- Research programmes of UANL; information available on the internet at:
<http://www.uanl.mx/universidad/investigacion/apoyos/apoyos.html> (Access: 12.07.2017)
- Audit discussions

Preliminary assessment and analysis of the peers:

The Human Resource Department of the university keeps a register of all staff members and therefore has an overview of the further training in the field of teaching and learning that has been conducted. The University organizes workshops aiming at strengthening the teaching competencies and practice of the teaching staff. Staff members regularly receive information about further training opportunities that are going to take place at the university in the near future. Reportedly, they can apply for it and have to receive permission from their superiors to participate in it. Thus, it can fairly be stated that sufficient opportunities to further develop the professional and teaching skills of the staff are available.

However, as has been noticed in the previous chapter, the staff members appear to be impaired to a certain degree in making use of these opportunities, due to onerous teaching, administration and supervision/counselling obligations. Thus, the Faculty is advised to effectively take pressure from the teaching staff and, hence, leave more room for them to broaden their didactical and/or subject-specific abilities.

Criterion 4.3 Funds and equipment
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Evidence:

- Sec. 5. 2 of the SAR
- Cooperation Agreements, Appendix H of the SAR
- List of Acquired Books, Appendix J of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

As the SAR shows, the main financial source for the Faculty of Forestry Sciences is the state general fund allocated to the university and then transferred to each Faculty or department. The budget is provided on a yearly basis. The general funds are – according to the SAR – considered to support the programme’s basic operating needs: faculty and staff salaries, supplies and physical services, and to some extent, equipment and specific requisitions. The peers especially noted that the Faculty also receives a significant amount of financial support from major external sources: funds from specific partnership agreements with private and state organizations such as Mexican Petroleum (PEMEX), national and international research grants from state and private institutions and in some instances, from donations. Summing up all this, the peers consider the financial basis of the degree programme appropriate and secured for the accreditation period.

Concerning the Faculty's infrastructure, facilities and laboratory equipment, the peers at first praise the high quality facilities. It is noticed in this context that the acquisition of major equipment and instruments to support the educational objectives is principally regulated and closely monitored by the university. National research grants may also function as a financial source for the acquisition, maintenance and upgrading of major equipment. The basic equipment for the degree programme, which the peers encountered during the onsite-visit, was found to be adequate, though there is room for refurbishment with regard to some advanced technologies, for instance in the laser field. However, the peers do not conceive this as a matter urging for immediate action, but rather trust the Faculty's quality development procedures to effectively deal with this issue in the medium term.

Concerning the multidisciplinary approach of the Bachelor's programme and the necessity to develop an awareness of the coherence of heterogeneous disciplines, theories and methods, it would be especially helpful to intensify the cooperation of the faculties which are already involved in the offer of the programme.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:

Taking into account the comments of the programme coordinators as well as some additional material (overview of workload teaching staff), the peers consider the standards of criterion 4 as *generally fulfilled*.

Workload of teaching staff

The additional information concerning the workload of the teaching staff clearly confirms the impression of a comparatively high workload of the staff members on average, spanning from 40 to 50 hours a week. Admittedly, the numbers include teaching, administrative, research and attendance hours. As has been stated above, the audit team nevertheless suspects that these duties could amount to impede other activities, in particular the opportunity to participate in professional and didactical training opportunities. Regarding this, the peers keep up a recommendation formulated during the onsite visit (see below, chap. F, E 3.). Reducing the overall workload, particularly the teaching load, of the permanent staff members might otherwise raise opportunities to bring in operational natural resource managers as part-time lecturers and thus contribute to the enhancement of the students' competences in the management and planning of Natural Resources.

Cooperation between faculties

For reasons, detailed above, the audit team also corroborates a recommendation to improve the cooperation of faculties representing the different disciplines of the programme (see below, chap. F, E 4).

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module handbook, Appendix C of the SAR

Preliminary assessment and analysis of the peers:

Module descriptions have been provided for the degree programme along with the SAR. As has been noted as a general characterization, the information on learning outcomes, contents, teaching and learning formats, workload distribution etc. given in the module descriptions is generally brief and often lack more precise indications. These would be worthwhile to get a more complete picture of the module and its status within the curriculum. This is especially true with respect to the learning outcomes and the contents of the modules which are often put into generic phrases mixing learning outcomes with contents and / or summarizing the contents in a short list of keywords. Also, there is no information about the teaching and learning methods applied in each module (except of scarce indications in the rubric "Evaluation Form"). Furthermore, no subject-related prerequisites of the module are registered in the description which would be essential concerning the sequence of the modules and possible dependencies. Also, persons responsible for the respective module are not named in the description. As the module coordinator is the "natural" contact person for the respective module, the necessity for naming the module coordinator in each module description is evident. Lastly, the peers could not identify that the module descriptions are published on the internet or otherwise made accessible to all relevant stakeholders (particularly students and teaching staff). This is considered necessary as well, if not done yet.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Leaving Certificate for the Degree programme, see Appendix E of the SAR
- Transcript of Records, see Appendix E of the SAR

Preliminary assessment and analysis of the peers:

The peers took note of samples of the Leaving Certificate and the Transcript of Records. Obviously, these documents only provide information about the individual achievements and performance of the student. Upon request, the Faculty indicates that no Diploma Supplement has been issued so far specifying the information about the educational objectives, intended learning outcomes, the structure and academic level of the degree programme as well as about the relevant national higher education system. In order to enable external stakeholders to classify the achievements and performance of the graduates and make them comparable to the performance of other graduates, the peers strongly suggest introducing a Diploma Supplement or equivalent document. Insofar they welcomed that university and the Faculty of Forest Sciences are actually considering the issuance of a Diploma Supplement.

Criterion 5.3 Relevant rules

Evidence:

- Organisational Rules, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/01LeyOrganica.pdf (Access: 12.07.2017)
- General Regulations, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/03EstatutoGeneral.pdf (Access: 12.07.2017)
- General Regulations on admission procedures and student standing, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/06admission.pdf (Access: 12.07.2017)
- General Regulations on Evaluations, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/07evaluaciones.pdf (Access: 12.07.2017)
- Social Service, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/08serviciosocial.pdf (Access: 12.07.2017)
- Graduation requirements, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/09titulacion.pdf (Access: 12.07.2017)

- General regulations on discipline and good behavior within University Installations, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/11disciplina.pdf (Access: 12.07.2017)
- Regulations to recognize the Academic outstanding merit (Chapter V), available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/13meritoacademico.pdf (Access: 12.07.2017)
- Academic staff regulations, available on the internet at:
http://transparencia.uanl.mx/normatividad_vigente/archivos/LyR09/14personalacademico.pdf (Access: 12.07.2017)

Preliminary assessment and analysis of the peers:

The auditors could see that all necessary rights and duties of both UANL and students were clearly defined and binding. All rules and regulations are published on the university website and hence available to all relevant stakeholders.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:

Taking into account the comments of the programme coordinators, the peers consider the standards of criterion 5 as *not fulfilled satisfactorily in some parts* (Module descriptions, Diploma Supplement).

Module descriptions

The audit team understands that the university / faculty actually provide basically two sorts of module descriptions, the so-called synthetic programme on the one hand and the Course Implementation Plan (“Programa Analítico”) on the other. Thereby, the former appears to be essentially a summary of the latter. According to one example submitted along with the statement of the programme coordinators, the more detailed Course Implementation Plan (“Programa Analítico”) seemingly contains some of the information the peers found to be lacking or at least rather scarce in the module handbook handed to them. However, this evidence is not only exemplary, but the extended version is also available in Spanish only. Thus, peers are unable to decide whether and to what extent the course / module information, the students do actually have access to, already meet the needs they observed in their preliminary assessment. It is therefore seen as indispensable that the shortcomings of the Module Handbook submitted to the peers should be removed, thereby referring either to the short-cut version or to the Course Implementa-

tion Plan as the basis for the revision. In the end there should be at least one set of module descriptions entailing all relevant information with regard to the (intended) learning objectives, contents, teaching and learning methods, workload distribution, credit point allocation, literature etc. In order to enable the peers to thoroughly assess the module descriptions the latter must be provided in an English translation (see below, chap. F, A 7.).

Diploma Supplement

Referring to the reasons stated in sec. 5.2 of the preliminary assessment, the expert team endorses a requirement that requests the faculty to issue a Diploma Supplement with relevant information about the degree programme as well as the individual study success (see below, chap. F, A 8.).

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Sec. 6 of the SAR
- Samples of survey formats (2016): Student Exit Survey 2016, Alumni Survey 2016, Employer Survey 2016
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers note that the Faculty has put in place a process for defining, evaluating and assessing the educational objectives and student's outcomes of the National Resources Management Engineer-Programme. At the same time, responsibilities for the proper conduct of these processes are clearly assigned and with the "Program Assessment Board" an organisational unit has been set up resuming supervisory responsibility.

In terms of quality assurance, the Faculty mainly relies upon a multitude of survey instruments (Student Exit Survey, Alumni Survey and Employer Survey). These instruments, which have been applied in 2016 for the first time, are basically aimed at information about whether the programme educational objectives actually fit the academic and professional needs of the graduates, alumni and employers. Additionally, they are designed and expected to deliver findings about the degree to which the defined educational ob-

jectives and intended learning outcomes actually have been realized from the perspective of relevant stakeholders (alumni and employers in this case). Evidently, the significance of these quality assurance tools with respect to their capacity in detecting weaknesses or major shortcomings of the programme is highly dependent on the respective response rate. And the particularly low feedback rate at least in the employer survey markedly illustrates this issue. Programme coordinators themselves point to the fact that any meaningful conclusion in this case can be drawn from the results only with reservation. Nevertheless, the Faculty has made a strong case for the use of the results in certain instances. Thus, the employers' apparent discontent with the ability of graduates to find solutions for environmental problems in a holistic manner – evidently one of the signature competences of Natural Resources Management Engineers – has been taken as a cause to enlarge interdisciplinary modules and student projects in order to strengthen the students' ability to work on subject-related assignments more comprehensively.

As to the evaluation instruments, it is noted that course evaluations ("teacher evaluation") are conducted on a regular basis and the results also systematically taken into account in the continued programme monitoring. However, feedback to the students in the follow up-process of these evaluations seem to be rather accidental and largely at the disposal of the professor/lecturer. Apart from that the involvement and active participation of the students in the (further) development of the study programme appears to be generally low. Other stakeholders like alumni and employers also report that there is no structured feedback on how survey results or informally given suggestions and recommendations to the programme objectives, intended learning outcomes or contents of the programme are feed in the programme development. Thus, the development of a coherent feedback culture, including the effective closing of feedback cycles and sustainable follow-up processes, should be envisaged as next steps in the development of the quality assurance system.

Furthermore, the only statistical data on student generations presented in the SAR (when describing the samples for the Student Exit Survey and the Alumni survey) show that the graduation rate differs significantly between the student cohorts. Since the data do not exactly represent the study progress of students, the average duration of study and the drop-out rate, it can hardly be identified whether and when students drop out of the programme, change the programme or are still in the programme. This would in turn be necessary, if the Faculty is to receive more precise information about possible hurdles in the programme that may lead to targeted measures of quality improvement. If available, statistical data about the average duration of study and the drop-out rate in the study programme over the previous study years should be presented along with the Faculty's statement to the report.

All in all, the peers come to the conclusion that the Faculty has convincingly demonstrated its awareness of the quality assurance dimension of the degree programmes. To that end and at least to a certain extent, the documentation has illustrated how the collected data and information have been made use of in the revision of the programme under review. Nevertheless, the peers consider the quality assurance system to be improvable, particular with a view to feedback and follow-up processes as well as student and stakeholder involvement. Moreover, it is generally seen advisable to gather meaningful cohort-wise statistical data concerning the graduation rate, the drop-out rate, the examination failure rate and the duration of study. The latter is particularly desirable, if decisions with the purpose of improving the curricular and / or organizational structure of the programme are to be drawn on a quantitatively reliable basis.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

Taking into account the comments and additional material / information of the HEI, the peers consider the quality assurance system for the Bachelor's degree programme as *not fully meeting the standards*.

Student workload

It has been clarified in sec. 2 (2.2) of this report that the expert team sees a need for systematically scrutinizing the student workload in order to identify significant discrepancies and to adapt the credit point allocation or the module content accordingly (see below, chap. F, A 5.).

Quality management

Regarding the instruments and practices of the quality management at the faculty, the peers have found that although there are impressive initial efforts and approaches, there is still some room for improvement. Particularly, this finding applies for the different feedback and follow-up processes as well as collection, analysis and documentation of statistical data. The auditors endorse issuing a recommendation for this purpose (see below, chap. F, E 5.).

D Additional Documents

1. Module descriptions *Field Practice I* and *II* [ASIIN 1.3]
2. Statistical data about the average duration of study and the drop-out rate in the study programme over the previous study years [ASIIN 1.4]
3. Information about how and when the students' workload is monitored on a regular basis, and how possible results have been handled [ASIIN 2.2]
4. Reliable account of the workload of the teaching staff, including the teaching, administrative and supervisory assignments of each member of the teaching staff [ASIIN 4.1]

E Comment of the Higher Education Institution (01.09.2017)

The institution provided a brief statement as well as the following additional documents:

- Module descriptions *Field Practice I* and *II*
- Student numbers, graduation and drop-out rates as well as data about average duration of study for the student cohorts 2009 – 2013, 2010 – 2014, 2011 – 2015, 2012 – 2016
- Documents concerning the students' workload and its continual evaluation
- Documents evidencing workload of teaching staff

F Summary: Peer recommendations (12.09.2017)

Taking into account the additional information and the comments given by the HEI, the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Natural Resources Management Engineer	With requirements for one year	n/a	30.09.2023

Requirements

- A 1. (ASIIN 1.2) Clarify the particular meaning of the “Engineering” term in the title of the degree programme in order to avoid misconceptions of the programme by applicants and other stakeholders.
- A 2. (ASIIN 1.3) Enlarge students’ competences in the management and planning of Natural Resources in order to better align title, intended learning outcomes and curriculum of the programme.
- A 3. (ASIIN 1.3) Broaden the students’ competences in the field of socioeconomic and policy aspects of Natural Resources Management so as to complement the intended holistic view of the degree programme.
- A 4. (ASIIN 1.3, 2.1) Strengthen the English language skills of the students so that they are able to better cope with job-market demands.
- A 5. (ASIIN 2.2) Put in place a process for monitoring the students’ workload and, if necessary, adapting the credit point allocation in order to make sure that there is enough self-study time for preparing and following up the learning units.
- A 6. (ASIIN 3) Ensure that there is a Bachelor’s thesis or an equivalent “capstone project” providing evidence that each student is able to work on a set task independently and at the level aimed for.
- A 7. (ASIIN 5.1) Rewrite the module descriptions so as to include more detailed information about the content, qualification objectives, in particular regarding practical training and competences, teaching and learning formats, workload distribution,

and module coordinators. Make them accessible to students and teaching staff, and add missing module descriptions.

- A 8. (ASIIN 5.2) Issue a Diploma Supplement containing detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student. In addition to that the Diploma Supplement should also contain fundamental information about the relevant national higher education system.

Recommendations

- E 1. (ASIIN 1.1) It is recommended to further specify the programme-related learning objectives so that they serve as a significant description of the actual qualification profile of the graduates.
- E 2. (ASIIN 2.1) It is recommended to develop both the rules of recognizing academic achievements acquired at other universities and their procedural implementation in a way more strictly oriented towards learning outcomes (instead of contents and credits of modules).
- E 3. (ASIIN 4.2) It is recommended to leave more time for the teaching staff to participate in the professional and didactical training opportunities.
- E 4. (ASIIN 4.3) It is recommended to improve the cooperation of faculties representing the different disciplines of the programme in order to strengthen the interdisciplinary approach of the study concept of the degree programmes.
- E 5. (ASIIN 6) It is recommended to fully implement and further develop the quality assurance system in terms of involvement of the students in the programme development, the feedback process of teachers' evaluation, and the follow up-process for the different stakeholder surveys. Moreover, meaningful cohort-wise statistical data concerning the graduation rate, the drop-out rate, the examination failure rate and the duration of study should be gathered in order to provide a reliable basis for the assessment of the study progress.

G Comment of the Technical Committee 08– Agriculture, Nutritional Sciences and Landscape Architecture (18.09.2017)

The Technical Committee essentially agrees with the assessment and recommended resolution of the peers. With regard to the general possibility to classify the overall grade of graduates, it suggests adding the requirement concerning the issuance of a Diploma Supplement accordingly. Additionally, the Technical Committee opts for a minor editorial modification in the wording of this requirement.

The Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture recommends the award of the seal as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Natural Resources Management Engineer	With requirements for one year	n/a	30.09.2023

Recommended supplement according to the Technical Committee:

- A 8. (ASIIN 5.2) Issue a Diploma Supplement containing detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student. In addition to that the Diploma Supplement should also contain fundamental information about the national higher education system. **Provide statistical data according to the ECTS-Users' guide in addition to the final grade.**

H Decision of the Accreditation Commission (29.09.2017)

Assessment and analysis for the award of the ASIIN seal:

The Accreditation Commission discusses the procedure. According to the proposal of the Technical Committee 08, it supplements the requirement concerning the issuance of a Diploma Supplement. Thus, the HEI should include statistical data referring to the cohort-wise grade distribution in order to allow for a proper assessment of the individual study achievements. Besides, the Accreditation Commission agrees with the resolution proposed by the peers and the Technical Committee 08 without any modification.

The Accreditation Commission for Degree Programmes decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Natural Resources Management Engineer	With requirements for one year	n/a	30.09.2023

Requirements

- A 1. (ASIIN 1.2) Clarify the particular meaning of the “Engineering” term in the title of the degree programme in order to avoid misconceptions of the programme by applicants and other stakeholders.
- A 1. (ASIIN 1.3) Enlarge students’ competences in the management and planning of Natural Resources in order to better align title, intended learning outcomes and curriculum of the programme.
- A 2. (ASIIN 1.3) Broaden the students’ competences in the field of socioeconomic and policy aspects of Natural Resources Management so as to complement the intended holistic view of the degree programme.
- A 3. (ASIIN 1.3, 2.1) Strengthen the English language skills of the students so that they are able to better cope with job-market demands.

- A 4. (ASIIN 2.2) Put in place a process for monitoring the students' workload and, if necessary, adapting the credit point allocation in order to make sure that there is enough self-study time for preparing and following up the learning units.
- A 5. (ASIIN 3) Ensure that there is a Bachelor's thesis or an equivalent "capstone project" providing evidence that each student is able to work on a set task independently and at the level aimed for.
- A 6. (ASIIN 5.1) Rewrite the module descriptions so as to include more detailed information about the content, qualification objectives, in particular regarding practical training and competences, teaching and learning formats, workload distribution, and module coordinators. Make them accessible to students and teaching staff, and add missing module descriptions.
- A 7. (ASIIN 5.2) Issue a Diploma Supplement containing detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student. In addition to that the Diploma Supplement should also contain fundamental information about the relevant national higher education system. Provide statistical data according to the ECTS-Users' guide in addition to the final grade.

Recommendations

- E 1. (ASIIN 1.1) It is recommended to further specify the programme-related learning objectives so that they serve as a significant description of the actual qualification profile of the graduates.
- E 2. (ASIIN 2.1) It is recommended to develop both the rules of recognizing academic achievements acquired at other universities and their procedural implementation in a way more strictly oriented towards learning outcomes (instead of contents and credits of modules).
- E 3. (ASIIN 4.2) It is recommended to leave more time for the teaching staff to participate in the professional and didactical training opportunities.
- E 4. (ASIIN 4.3) It is recommended to improve the cooperation of faculties representing the different disciplines of the programme in order to strengthen the interdisciplinary approach of the study concept of the degree programmes.
- E 5. (ASIIN 6) It is recommended to fully implement and further develop the quality assurance system in terms of involvement of the students in the programme development, the feedback process of teachers' evaluation, and the follow up-process

for the different stakeholder surveys. Moreover, meaningful cohort-wise statistical data concerning the graduation rate, the drop-out rate, the examination failure rate and the duration of study should be gathered in order to provide a reliable basis for the assessment of the study progress.

Appendix: Programme Learning Outcomes and Curricula

According to the website of the Faculty of Forest Sciences the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Natural Resources Management Engineer:

“The graduate will have knowledge and skills that empower them to perform specialized work in the sustainable management and conservation of natural resources field. Also [he/she will] have a solid and specialized training in their area of expertise that allows [him/her] to participate in research for the generation, adaptation and improvement of techniques for the optimization and management of natural resources.

Specific objectives

- To manage protected areas so as to conserve biodiversity and the use of natural resources in accordance with the legal framework and cutting-edge scientific criteria.
- To evaluate natural resources to determine the current and potential use depending on the goods and services they can provide.
- To restore degraded ecosystems in order to recover the original and / or production conditions based on the ecological character of the site.
- To protect biodiversity to maintain viable populations of wild species applying methodologies to evaluate stocks.
- To manage the landscape to improve the quality of life of society based on indicators of quality of life.”

Alternatively, the Self Assessment Report (SAR) registers the following objectives and learning outcomes:

“The main objectives of the NRME-Program are denoted in the following emphasis areas:

- To transmit knowledge to its students along with the necessary skills for applying [it] in the service of the profession and society.
- To support the scientific research in its basic and applied forms considering regional, national and international issues.

- To form professionals with knowledge, abilities and attitudes qualify[ing] graduates as specialists in management, production and conservation of natural resources.
- To facilitate knowledge about the structure, process and interactions of the ecosystems.
- To propose adequate tools to resolve environmental problems from a holistic point of view.
- To transmit basic knowledge about the sustainable management of the natural resources according to the social, economic environmental requirement and compromises.
- To prepare students to attend and present technical conferences.
- To encourage students to continue with graduate studies.”

According to the SAR, the following intended learning outcomes are stated:

- “The learning outcomes of the NRME-Program are consistent with the institutional mission since they are founded with the same principles to form integral, competitive and responsible professionals with emphasis on the following:
- To apply knowledge to evaluate the natural resources to take adequate and opportune decisions for their management and conservation.
- To know the use of the theory and methods for the administration, management, conservation and restoration of the ecosystems.
- To manage technology and modern tools required for the professional practice.
- To continue graduate studies (MSc or PhD) in related fields of the NRME-Profession.
- To attend and present their work results in meetings, symposia, and congresses.
- To generate projects attending the society and productive sector requirements.
- To use the legal framework to identify the environmental regulations in benefit of the natural resources and the society.
- To become consultants and members of natural resources professional and related societies.”

Furthermore the following learning outcomes of modules are listed in the SAR:

Knowledge

- a) To provide foundations of natural science and engineering for the professional practice.

- b) Awareness of contemporary issues focused in a local, regional, national and international scale.
- c) To use techniques, skills, and modern tools necessary for engineering practice.

Skills

- a) To design and conduct experiments, as well as to analyze and interpret field data.
- b) To evaluate and propose a system, component, or natural processes to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- c) To be involved and function on multi and interdisciplinary teams.
- d) To identify, formulate, and solve natural resources management problems.
- e) To be involved on wildlife and protected areas management.

Competences

- a) To understand the professional and ethical responsibilities.
- b) To communicate effectively in both oral and writing forms.
- c) Recognition of the need for, and an ability to engage in life-long learning.
- d) To contribute to the profession and society with social responsibility.

The following **curriculum** is presented:

Table 2.6.2. New study plan to be implemented from winter semester 2017. Unit Code (Internal identification code, not available at the moment). Lecture Hours (L), Self-study Hours (S) and the number of Credits per Unit.

Unit Code	First Semester	L	S	Credits
NA	Chemistry	100	20	4
NA	Botany	100	20	4
NA	Zoology	100	20	4
NA	Mathematics	72	18	3
NA	Culture of Peace	48	12	2
NA	Physics	72	18	3
NA	Ethnic Diversity and Natural Resources	48	12	2
	Total	540	120	22

Unit Code	Second Semester	L	S	Credits
NA	Ethic, Culture of Legality	48	12	2
NA	Geomorphology and Geography	72	18	3
NA	Calculus	100	20	4
NA	Earth Science	72	18	3
NA	Plant Physiology	72	18	3
NA	Ecology	72	18	3
NA	Basic Professional (Elective Module 1)	48	12	2
	Total	484	116	20

Unit Code	Third Semester	L	S	Credits
NA	Genetics	72	18	3
NA	Topography	100	20	4
NA	Mycology	48	12	2
NA	Hydrology	72	18	3
NA	Bioclimatology	48	12	2
NA	Statistics Methods and Parametric Statistics	100	20	4
NA	Basic Professional (Elective Module 2)	48	12	2
	Total	488	112	20

Unit Code	Fourth Semester	L	S	Credits
NA	Phytosociology	48	12	2
NA	Geomeasure	48	12	2
NA	Sampling Techniques for Flora and Fauna	100	20	4
NA	Economy	72	18	3
NA	English	100	20	4
NA	Wildlife Principles	72	18	3
NA	Field Practices I	120	30	5
	Total	560	130	23

Unit Code	Fifth Semester	L	S	Credits
NA	Responsibility and Sustainable Development	48	12	2
NA	Geographic Information Systems	100	20	4
NA	Valuation of Environmental Services	72	18	3
NA	English	100	20	4
NA	Multivariate Statistics	100	20	4
NA	Conservation Genetics	72	18	3
NA	Fundamental Professional (Elective Module 3)	48	12	2
	Total	540	120	22

0 Appendix: Programme Learning Outcomes and Curricula

Table 2.6.2. *Continued*

Unit Code	Sixth Semester	L	S	Credits
NA	Soil and Watershed Management	72	18	3
NA	Business and Project Management	72	18	3
NA	Policy and Environmental Legislation	72	18	3
NA	Biodiversity Conservation	72	18	3
NA	Wild Fauna Management	72	18	3
NA	Rangeland Management	72	18	3
NA	English	100	20	4
NA	Fundamental Professional (Elective Module 4)	48	12	2
	Total	580	140	24

Unit Code	Seventh Semester	L	S	Credits
NA	Leadership, Entrepreneurship and Innovation	48	12	2
NA	English	100	20	4
NA	Applied Ecology	72	18	3
NA	Sociology and Sustainable Development	72	18	3
NA	Environmental Impact Assessment	72	18	3
NA	Restoration and Rehabilitation of Ecosystems	72	18	3
NA	Compiler Professional (Elective Module 5)	48	12	2
	Total	484	116	20

Unit Code	Eight Semester	L	S	Credits
NA	Compiler Professional (Elective Module 6)	72	18	3
NA	Field Practices II	110	30	5
NA	Social Service	0	480	16
	Total	182	528	24

Unit Code	Ninth Semester	L	S	Credits
NA	Seminar Professional Performance	30		1
NA	Thesis or professional practices	160	500	22
	Total	190	500	23