ASIIN Seal & Euro-Inf® Label

Accreditation Report

Master's Degree Programme
Maestría en Auditoría de Tecnologías de la Información (MATI)

Provided by
Universidad Espíritu Santo (UEES)

Version: 28 June 2019

Table of Content

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]
Maestría en Auditoría de Tecnologías de la Información	Master in Information Technology Auditing	ASIIN, Euro-Inf® Label	-	04
Date of the contract: 17.12.2018 **Submission of the final version of the self-assessment report:** 13.03.2019 **Date of the onsite visit:** 09.-10.04.2019 **at:** Guayaquil				
Peer panel: Prof. Dr. Heinz-Peter Gumm, Universität Marburg; Prof. Dr. Rainer Herpers, Hochschule Bonn-Rhein-Sieg; Ing. Diego Javier Trejo, TechMTC;				
Representative of the ASIIN headquarter: Dr. Martin Foerster				
Responsible decision-making committee: Accreditation Commission for Degree Programmes				
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria, as of 10.03.2015				

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[1] ASIIN Seal for degree programmes; Euro-Inf®: Label European Label for Informatics;
[2] TC: Technical Committee for the following subject areas: TC 04 – Informatics/Computer Science).

Subject-Specific Criteria of Technical Committee 04 – [Informatics] as of 29.03.2018	

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
Maestría en Auditoría de Tecnologías de la Información	Magister / Master in Information Technology Auditing	-	7	Part time, presence or online	-	2 Years / 4 Semester	68,6 ECTS	Fall Semester, 2014

For the Master's degree programme Information Technology Auditing the institution has presented the following profile in the self-assessment report:

„Programme educational objectives

- G01: To equip students with methods, techniques and skill development for the successful implementation of IT processes in secured environments according to current technologies and their future evolution.
- G02: To provide students with theoretical-practical foundations for the appropriate information assets management regarding information security fundamentals and performance improvement in organizations.
- G03: To apply the theoretical-practical knowledge regarding to processes, norms and best practices for auditing to guarantee security and confidentiality.
- G04: To develop skills for international certifications related to IT audit.
- G05: To strengthen values and ethics, vital in an IT auditor considering his interculturality, knowledge, gender and respect for the good living rights of those involved, internal and external, and of the team members in the audit process.

Student Learning Outcomes

MATI student learning outcomes may be characterized in four categories: a) theoretical, b) professional, c) research and d) axiological. They are described as follows:

Theoretical

- T01: Analyses methods, techniques, and tools for the assessment and audit of Information Technologies.

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[3] EQF = The European Qualifications Framework for lifelong learning

- T02: Analyses norms and good practices focused on the IT audit.
- T03: Applies knowledge related internal control and risk management of Information Technologies.
- T04: Applies general knowledge about security and auditing of Information Technologies.
- T05: Develops competences of document management.

Professional

- P01: Executes a project of IT auditing.
- P02: Aligns IT auditing projects with accepted norms and good practices.
- P03: Performs management and advisory functions in IT auditing.
- P04: Aligns the IT Government with the organizational strategy

Research

- R01: Researches in the following areas: (a) Information Security government, (b) risk-oriented IT auditing, (c) organizational change management, (d) business continuity management, (e) IT services management, (f) Fraud and Legislation of computer crimes.

Axiological

- A01: Applies good practices of ethical leadership in all actions carried out by the information technology audit professional.
- A02: Applies competencies of self-regulation concerning auto control, trust, integrity, and adaptability."

C Peer Report for the ASIIN Seal[4]

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Self-Assessment Report

- Appendix A: Objectives Matrices

- On-site discussions

Preliminary assessment and analysis of the peers:

For the study programme the HEI presented a general description of general learning outcomes in the self-assessment report (SAR). The peers approve that in addition, presentation of learning outcomes is provided in combination with a learning outcome matrix matching the described learning outcomes with the respective modules of the programme. A Spanish language description of learning outcomes is also provided on the programme website. Since the programme is taught in Spanish and currently primarily designed for local students the peers deem it understandable, that an English translation of the website is not available at the moment. However, they point out that no description - neither in English nor in Spanish - of the envisaged learning outcomes is given on the Diploma or on any Diploma Supplement. In order to achieve greater transparency of the programme outcomes and the graduates' profile the peers highlight the importance to communicate the learning outcomes on such a document in both languages.

Based on the information presented in the SAR the peers learn that the programme aims at equipping students with the required methods, techniques and skills for the successful implementation of IT auditing processes in secured environments according to current technologies. Students shall possess the theoretical-practical foundations for the appropriate information assets management regarding information security. They should be enabled to apply these skills in the special context of IT auditing. Further, the HEI emphasizes

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[4] This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

the necessity to strengthen values and ethics of the students, which are vital in such an intercultural and international field of employment. Based on the job profile as IT security auditors, students are supposed to be qualified team workers and experienced in document management, organizational strategy and ethical leadership. Besides their professional competencies, the graduates are supposed to acquire research skills and to be prepared to continue their academic careers in the context of a PhD programme.

The peers agree that the described learning outcomes of the programme are adequate for a degree programme at EQF Level 7 with a clear focus on the specialization of IT auditing. From the discussion with the programme coordinator and other stakeholders they understand that the original programme, founded in 2014, had been primarily focussed on the aspects of IT Security while a reform of the programme in 2016/17 reduced aspects of core computer science and programming in favour of management and administrative skills. This shift, which was based on feedback from students, graduates and especially local industry, is considered reasonable in the provided learning outcomes matrices. Consequently, the programme has been shifting from a predominantly Informatics-based structure to an IT- and Systems Administration programme. In conclusion, the peers consent that the programme adequately reflects the ASIIN Subject-Specific Criteria as well as the EQF-level 7 for Master programmes. They further conclude that the criteria of the Euro-Inf® Label (European Informatics) regarding the intended learning outcomes are met.

Criterion 1.2 Name of the degree programme

Evidence:
- Self-Assessment Report

Preliminary assessment and analysis of the peers:
The panel considers the name of the study programme to be adequately reflecting the respective aims, learning outcomes and curriculum.

Criterion 1.3 Curriculum

Evidence:
- Self-Assessment Report
- Appendix A: Module Descriptions and Objectives Matrices
- On-site discussions

Preliminary assessment and analysis of the peers:

The panel reviewed the curriculum of the study programme under consideration in order to identify whether the available modules can achieve the described learning objectives. Course descriptions as well as matrices matching the general learning objectives and the module contents were also presented for a detailed analysis. The peers were missing a detailed study plan, depicting the sequence of modules throughout the two-year-programme. It was agreed that such an exemplary study plan, which is provided to all students individually at the beginning of the programme, should be presented in the aftermath of the visit.

Generally, the programme can be studied either on-site in presence or as an online programme with certain presence elements. The curriculum for both variants is identical, only the form of delivery differs. Based on the discussion with the students, teaching staff and programme coordinator the peers learned that the students of Master degree programmes in Ecuador do not attend parallel courses but only one module at the time. Once the module is completed the next module follows. Since all Master programmes are supposed to be studied in parallel to the students' professional jobs, the teaching is scheduled primarily on weekends and stretched out over a duration of two years (in Ecuador Master programmes are not divided into semesters). The sequences of courses of the programme is always identical. Master study plans in Ecuador do not provide electives. Given the limited number of students and the block organization of teaching the offering of electives would be complicated as the peers agree. Thus, the Master programmes, such as the one under consideration, are generally very specific and do not necessarily require any additional specialization options.

From the module descriptions the peers gather that the presented learning outcomes are in line with the courses offered. These adequately include both focus areas of the programme, IT Security (among others Risk fundamentals, Information Security Management Systems and Ethical Hacking) and Auditing (such as General Theory of Security and Auditing, Service Management, Business Management or Operating Systems Security and Auditing) as well as non-subject-specific aspects such as Ethics or Academic Writing. At first the peers were surprised that the Final Project of the programme is valued at only 2,2 ECTS credits but through the on-site discussions it became apparent, that the Master project not only comprises the course termed *Final Project* but also the modules *Statistical Analysis*, *Academic Writing* and *Research Methods*. The peers understand that students thus start with the work on their individual research project at an early stage of the programme in the module *Academic Writing* and continue to elaborate this project throughout the other three listed modules. In the end, the final project comprises 11,8 ECTS credits. The peers review some of the theses and gain the impression that the academic level achieved in the

programme is adequately reflected in their quality. However, they do criticize that the structure of the Master theses as divided into four different modules at different stages of the programmes is not recognizable for anyone not acquainted in detail with the programme. Consequently, they emphasize that a joint and comprehensive description of the thesis module and thesis project in general should be presented or that at least in the respective module descriptions of the four modules involved their connection should be made explicit. The objective of the master programme should be that a comprehensive research project has been successfully completed by the students applying standard research methods (over the course or at the end of the programme) as it is international standard.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report

- Appendix B: Admission process

- Appendix I(2): Reglamento de la Facultad de Postgrado

- On-site discussions

Preliminary assessment and analysis of the peers:
The admission process of the Master programme under review is presented in a detailed process scheme and outlined in general in the University's admission regulations. Applicants must hold a nationally recognized Bachelor degree and must present two certificates demonstrating their employment; their documents are being reviewed by the programme coordinator and those generally qualified may continue in the process. In a second step, the applicant has to take a test officiated by an external company concerning his or her psychological qualifications. Only after this is completed applicants are invited to a personal interview where their specific skills in relation to the programme contents are examined. In the self-assessment report some required skills are outlined such as IT knowledge, analysis, evaluation and inferential skills as well as rhetorical competence. Although the peers learn from students that the process is considered to be generally fair and understandable they think that the transparency of the admission process should be enhanced. The described tested skills are only mentioned in the SAR and are not communicated transparently in any official document or on the website. The peers underline, that theoretically graduates of any Bachelor degree could apply for the programme without knowing if they are eligible or not. This may lead to confusion or even legal disputes. Consequently, the

admission criteria to the programme should be clearly defined and transparently communicated, indicating which skills and competencies in particular in the area of IT and auditing any applicant should possess. Further, it should be explained what applicants lacking any of the outlined competencies can do in order to make them up before or even after beginning to study the programme. Moreover, it should be clearly mentioned what options applicants might have if they failed one of the sequential approval steps.

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

The HEI agrees with the assessment of the peers. Thus, they consider the criterion to be partly fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Report
- Appendix A: Module Descriptions and Objectives Matrices
- On-site discussions

Preliminary assessment and analysis of the peers:
The study programme under review is divided into modules which comprise a sum of teaching and learning. The panel found the structure of the modules in general to be adequate and manageable.

As has already been described, the programme does not include any electives or specializations which seems to be acceptable given the special focus of the entire programme. All modules comprise practical elements and project works that are closely attached to the professional career students pursue parallel to the programme. The peers liked the strong interaction between professional background and academic teaching, something that was confirmed by the students as well as the industry representatives. With the reviewed curriculum the programme has been adapted even more to the specific requirements of the national job market and thus helps preparing the students for taking over positions of responsibility within the companies.

Due to the specific focus of the content of the modules their size is usually quite small with ECTS credits ranging from 1,6 to 4.

As has been outlined before, the students always take one course at a time and only after finishing it continue with the next one. For the "on-site students", courses are usually taught as full-day classes (Saturdays and Sundays) on two to three weekends, for the "online students" on four to five weekends with time synchronized online participation, while the final weekend is usually combined with a presence meeting at UEES campus. During this on-site meeting of the online students they also present the results of their project work.

Internationalization and mobility are aspects of growing importance at UEES but not in this particular programme. While the number of international programmes taught in English is constantly expanding, the Master under consideration is only offered in Spanish. Since the programme is studied parallel to full-time employment, a mobility window is very difficult to include. However, the online programme would allow for a certain degree of mobility if students chose to spend some time abroad or were even working in another country for their respective companies. In order to improve the international experience of the students the programme coordinators are currently starting to offer summer schools, which is considered to be a positive development toward internationalization by the peers. A first group of students is already scheduled to attend a week-long course in Coimbra, Portugal. In addition, the peers appreciate that regulations for the recognition of credits gained at other universities or in another country are in place.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Appendix A: Module Descriptions and Objectives Matrices
- On-site discussions

Preliminary assessment and analysis of the peers:
As described above, all modules are assigned ECTS credits ranging from 1,6 to 4 for one module. The peers considered this limited size could be justified as many of the modules deal with very specific contents and are, in addition, taught by part-time lecturers who lecture on their very concrete area of expertise. Consequently, an up-to-date and practice-oriented teaching is ensured. The workload for each course is indicated in the course descriptions that are made available to the students at the beginning of each module. The

calculation of the workload refers to contact hours, project hours and self-study hours and in general reflects the European average of 30 time hours per ECTS credit. Feedback on the course content and the related workload is given by the students as well as by the teachers at the end of each course. The size or content of the modules is adapted if required. From the documents the peers learned that such a revision just took place in the course of the curricular reform 2016/17. During the discussions the students confirmed that the work-load is generally acceptable and that the teaching staff is always willing to adapt the pace of learning during the course if this is required by the students. In conclusion, the peers consider the workload to be manageable and transparent despite of the fact that a Master programme parallel to a full-time job, as is usual in Ecuador, amounts to a significant bur-den for all students.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Report
- On-site discussions

Preliminary assessment and analysis of the peers:
The teaching in the programme varies between the on-site and the online version. In both cases, students attend classes on Saturdays and Sundays. Usually, the morning hours are spent on theoretical introductions, followed by project work and other practical applica-tions. For the on-site students the projects are performed under supervision of the profes-sor, the online students only have contact hours until one o'clock and then perform the projects in virtual groups. In either case, teaching staff is always available via email or phone in order to assist the students in their projects, if required. Online teaching uses the Blackboard system where teaching is performed in a virtual classroom; consequently, all students have to attend the virtual classroom at the same time and are taught live by the professor. In addition, teachers are required to present course material for each class at least two weeks in advance in order to allow for a thorough preparation. During classes students can always communicate with the professor either through written or voice mes-sages. Depending on the technical equipment of the students, video conferences are also possible but apparently this is not the regular case.

With roughly two-thirds of the teaching staff being part-time lecturers who work in highly specialized jobs apart from their teaching activities, a strong practice-orientation of the teaching is ensured. The peers appreciate that current topics and examples are regularly addressed in class. From the students the peers also learned that professors might assess

the existing background in the particular field to be taught at the beginning of their courses, in order to determine the prior knowledge of the students in the respective field. Based on the results they then might adapt their didactic approach or identify special needs of some students who may have less prior knowledge than others. Consequently, the teaching methodology is considered up-to-date and adequate in order to convey the contents envisaged by the programme.

Criterion 2.4 Support and assistance

Evidence:
- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:
The peers got a comprehensive impression of the offers related to support and assistance of the students at the UEES. Being a private University student groups are small and limited in size and the well-being of the students is very much looked after. In a comprehensive learning and working environment on campus the students enjoy the best opportunities to pursue their projects and teaching staff is always open to support if requested. During the discussion with the students they confirmed that they are greatly supported and supervised, a fact that is also reflected by the very low to insignificant number of dropouts from the programme. As was outlined before, the teaching staff in the courses assesses the different levels of students' prior knowledge and then offer individual support measures to those who require such. Examples were given where students received such a support and as a result succeeded in their exams. Apart from the subject-specific support, the University also offers several other ways of assistance: the international office supports a variety of international mobility wishes and industry fairs offer the opportunity to get into contact with university partners and prospective employers. The university also offers financial support concerning scholarships as well as medical assistance. In conclusion, the peers have no doubt that sufficient support and assistance is given to the students ensuring the best possible success.

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

The peers consider the criterion to be completely fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report

- Appendix A: Module Descriptions and Objectives Matrices

- On-site discussions

Preliminary assessment and analysis of the peers:

All course content in the reviewed study programme is examined. Apart from few exceptions where written tests or quizzes are applied, the regular type of examination throughout the programme is project work. The students choose the projects themselves and can work alone or in groups depending on the size of the project. At the end of each module the students present their results to the rest of the class and hand in a written report of their results. In the online track students coordinate themselves via Blackboard and project presentations are given via video conference. They confirm during the discussion that the form of examination is made transparent in the module descriptions and are communicated at the beginning of the programme and in each course. The dates when students have to present their project results are all agreed upon during a first meeting at the start of the programme so that online as well as on-site students know exactly when attendance is required. This is necessary as all students have full-time jobs besides their studies. The peers approve the structured exam organization. The final grade of each module is composed not only of the final project but also of other aspects such as active participation and attendance. The percentage of each aspect is outlined in the module descriptions and is regulated by national law. In case students fail a course it would have to be repeated; however, apparently this has not yet happened. Professors carefully supervise project works and if they find it lacking sufficient quality, the students have the opportunity to improve their work in order to pass the examination. Thus, the major reason to fail a course would be a lack of attendance, but given the high costs for the programme, the natural motivation of students can be considered to be very high. The few written exams are taken in class for the on-site programme and via Blackboard for the online students. The peers discuss with the coordinator and teaching staff if the University makes use of any authentication technology to identify the true identity of the person undertaking the exam which is not yet the case. Since the number of such quizzes or written online exams is very limited the peers do not consider this as absolutely necessary but they suggest that the institution might con-

sider employing such a technology that ensures that the person sitting in front of the computer is actually the enrolled student. With the growing online study programme offerings of the University this might be a necessity in the future.

The peers reviewed a number of exams and project works and concluded that the achieved quality is usually corresponding to the expectations of EQF Level 7 (Master programmes). However, in the case of Master projects they remark that the individual contribution of the students is not always completely recognizable if the work has been done in a group of two or more students. They learn from the coordinator that a maximum of two students can work on the final project together. At the completion of the final project each student individually presents his part to an audience and receives a grade for his presentation but concerning the written document it is not distinguishable who contributed what part. In order to comply with the ASIIN and Euro-Inf criteria it will be necessary to outline clearly the individual contribution of each student that leads to the students' grades in the report as well as in the oral presentation. Apart from this aspect, the peers agree that the examination organization in general contributes to a successful study progress on the envisaged quality level.

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

In the aftermath of the site visit the HEI presented to the peers the detailed assessment framework for the grading of the final project. From these documents it became apparent that the projects, although they can be done in groups, are graded individually. The grades are based on individual parts of the project report and oral presentation of the results to an audience. Consequently, the peers consider the criterion to be fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Report
- Appendix E: staff handbook
- On-site discussions

Preliminary assessment and analysis of the peers:

In the self-assessment report the university presented data about the number and overall qualification of staff for the respective programmes and during the discussion on site, the peers gained a good impression of the quality of the teaching personnel. Currently, 21 professors are active in the programme, seven full professors and the remaining ones part-time. Most professors teach online as well as on-site courses, whilst one of the full professors is solely dedicated to the online teaching. From the discussion with the teaching staff the peers gain a very good impression of the staff's qualification and background. Especially the part-time lecturers are leading figures in their companies and specialized on certain professional fields which they also teach in the programme. Most of them have been involved in the programme for several years now. In order to prepare the teaching staff for the challenges of online teaching, all of them have to take an introductory course of 80 hours during which they are being made acquainted with didactical and technological aspects. Apart from the local lecturers international specialists, among others from Argentina or Colombia also offer some courses. The institution flies in these staff members to teach classes on-site or else they offer them online. The peers appreciated the fact that all the teaching staff members take care of one particular subject area related to their special professional profile; this is possible as the courses are reduced in contact hours and credits and dedicated to limited aspects of IT security and auditing. The peers conclude that the teaching staff is well qualified and quantitatively sufficient in order to sustain the programme under review.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report
- On-site discussions

Preliminary assessment and analysis of the peers:

It has already been outlined that for the online programme special training courses are mandatory for all professors. Besides this, the institution offers a variety of courses on didactical as well as technical training by international experts. During the discussions with the teaching staff, members confirm that they have participated in several such training modules. Apart from these voluntary courses professors also are required to participate from time to time in mandatory trainings in order to be kept up to date. Concerning the professional development in terms of research the peers learn that this is of growing importance for the whole University. In the contract of each professor certain hours are reserved for research and the University offers financial incentives for publications of papers.

There is also the possibility for a research sabbatical but apparently this has not yet been made use of. Theoretically, full-time professors are entitled to a sabbatical after eight years of teaching; since the programme only started in 2014 none of the staff members have yet reached this level. To conclude, the peers acknowledge that the University strives for an improvement of research activities as well as subject-specific and didactical development of its teaching staff in order to catch up with international quality standards.

Criterion 4.3 Funds and equipment

Evidence:

- Self-assessment Report
- Appendix G: MATI Laboratory
- On-site discussions
- Site visit

Preliminary assessment and analysis of the peers:

During the on-site visit the peers could gain a comprehensive impression of the facilities and the study environment. The campus is very modern and open and creates an appealing learning and teaching environment for students as well as professors. The laboratory equipment is up-to-date and the students as well as the alumni have access to all relevant online databases. Tuition fees that vary according to the chosen programme fund the programme as well as the facilities. Thus, some more rewarding programmes are more expensive than others in order to sustain less financially attractive programmes offered by the university. This approach was considered meaningful by the peers as it ensures a broad and interdisciplinary University that not only focuses on the economic outcome. In order to meet the expenses the University offers some scholarships but many students also report that their employers and companies support them. Concerning the equipment, the peers were very interested in the facilities for online teaching. The institution provides a set of cabins that are fully equipped for one professor each giving online courses. Consequently, the peers are convinced that all the necessary equipment for the management of the programme, both online and on-site, is available and that the environment and infrastructure fully supports the study success of the students.

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

The peers consider this criterion to be fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Appendix G: MATI Laboratory
- On-site discussions

Preliminary assessment and analysis of the peers:
The peers appreciate that the module descriptions were presented beforehand with the self-assessment report in English translation. From these documents and the discussion with the students it is apparent that at the beginning of each course students receive detailed information about the respective content, learning outcomes, examinations, workload distribution and grading. However, not all of the descriptions were available, for instance, there was no description of the module *IT Auditing*. In addition, there were some inconsistencies concerning the workload distribution, the examination types and teir components and also the relation between the described content and the expected learning outcome, especially when comparing the on-site and online variants of the modules. Since the students were content with the information provided and considered it to be clear and understandable the peers concluded that the inconsistencies in the English description might either result from the incomplete transition process from the old curriculum to the new one or that they are due to the translation into English. Thus, the peers requested for the Spanish originals in the aftermath of the visit.

An additional aspect was already mentioned before, concerning the Master thesis or *final research project* of the programme. The peers understand that this final project has been distributed over four different teaching modules which all contribute to the final thesis project. However, this was not transparent from the respective module descriptions. Consequently, the peers requested for a coherent and comprehensive module description for the Master thesis project. At least an umbrella encompassing all four modules ought to be be provided and from the respective module descriptions it should become apparent how they form part of a larger project.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-assessment Report
- Appendix H: University Diploma

Preliminary assessment and analysis of the peers:

At graduation, all students are provided with a diploma certificate. However, there is no *Diploma Supplement*, as such is not common in Ecuador. The Diploma provides information about the individual grade, the grading system and the modules taken. However, the peers emphasize that according to international standards students should also be provided with a Diploma Supplement in English language. This Supplement should contain detailed information about the educational objectives, the intended learning outcomes, the structure, content and academic level of the degree programme as well as about the individual performance of the student in relation to his peer group. Further, a relational grade should qualify the holder's' grade in relation to the other graduates of his cohort and a short overview describing the Ecuadorian system of Higher Education should be provided. This combined information will enable employers all over the world to evaluate the content, structure and quality of the degree programme as well as of the individual performance of the degree holder. Such a document will particularly contribute to the envisaged internationalization process of the programme and the institution.

Criterion 5.3 Relevant rules

Evidence:

- Self-assessment Report

- Appendix I(2): Reglamento de la Facultad de Postgrado

- Online documents and rules (accessed, 17 April 2019):

    o https://www.uees.edu.ec/portal.php

Preliminary assessment and analysis of the peers:

From the documents provided and the discussions during the on-site visit, the peers learned that the UEES follows a policy of transparent and open rules and regulations. All required rules and regulations are made accessible to students at any time online and also are distributed at the start of the programme. The discussion with the students confirmed that they feel well-informed about regulations and comfortable about the access to any information about their degree programmes.

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

The HEI presented the peers with a complete set of module descriptions in Spanish language. However, they still emphasize that for reasons of transparency an embracing module description for the four different elements of the final project should be produced.

Moreover, a Diploma Supplement needs to be provided to the graduates. Consequently, they consider the criterion to be partly fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Self-assessment Report

- Appendix K: Quality Management

- On-site discussions

Preliminary assessment and analysis of the peers:

From the documents presented and from the discussions during the on-site visit the peers could gain a positive impression of the quality management procedures that are in place at UEES and for the programme under review.

Since UEES is a private University funded exclusively by the fees paid by the students the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance for the coordinators. Each course is being evaluated constantly through four different surveys including a self-assessment of the teacher and an evaluation by the students. Further surveys are carried out gathering feedback from graduates and alumni. The discussion with the students revealed that those in charge are always eager and open for feedback aside from the official evaluations and that they have the impression that their comments are taken into consideration for the further improvement of the programme. Since the programme is not divided into semesters with parallel courses the surveys are done usually at the end of each module. Given the blocked structure of the courses taught, a comprehensive form of providing and discussing feedback of the survey results might be challenging. However, the peers suggest that it might be helpful to introduce some form of open communication of the survey results to the respective group of students. This would close the feedback loop entirely. Nevertheless, the peers are acknowledging that the students regularly give feedback and form an active part of the quality management circle.

The effectiveness of the quality management processes becomes visible in the reform procedure of the reviewed programme. After a period of two to three years the curriculum of

the programme was redesigned based on the feedback from students, alumni and local industry. Industry representatives affirmed that the programme now better meets their expectations than it did before and that they could always approach the coordinators in order to propose additional changes and modifications. In general, the cooperation with local industry seems to be well developed. What might still be improved is an institutionalization of this close link between the partners. Industry representatives mentioned that they were consulted in the past when their input was requested but that they actually would like to be more involved in continuous feedback processes that could take, for example, the shape of a special industry survey carried out at regular intervals or an industrial advisory board. This suggestion is approved by the peers who recommend to make use of the high motivation and voluntary participation of the industry representatives in Ecuador in general and of Guayaquil in particular.

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

The peers consider the criterion to be largely fulfilled.

D Additional Documents

Before preparing their final assessment, the panel request that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

D 1. Exemplary study plans for the online and the on-site version

D 2. Module descriptions as provided to the students in Spanish

E Comment of the Higher Education Institution (30.05.2019)

The institution generally accepted the report as being correct. In the aftermath of the site visit the HEI presented the following additional documents:

- Complete module descriptions in Spanish language
- Assessment framework for the Final Project outlining the individual grading process of students
- An exemplary study plan indicating the sequence of modules

F   Summary: Peer recommendations (10.06.2019)

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 accreditaiton
Maestría en Auditoría de Tecnologías de la Información	With requirements for one year	Euro-Inf	30.09.2024

Requirements

A 1.   (ASIIN 1.3; 5.1) A module description for the final project (Master thesis) outlining the four different elements and requirements of the whole project, has to be provided.

A 2.   (ASIIN 1.4) The admission criteria need to be defined in official documents based on detailed required IT competencies.

A 3.   (ASIIN 5.2) A Diploma Supplement needs to be issued containing 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.

Recommendations

E 1.   (ASIIN 6) It is recommended to provide direct feedback of the course evaluations to the students.

E 2.   (ASIIN 6) It is recommended to establish a formal feedback process from industry partners for the continuous development of the programme.

G Comment of the Technical Committee 04 – Informatics (12.06.2019)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and generally agrees with the assessment of the peers. Concerning E2 the members argue that apparently the cooperation between industry and HEI is working well and that a necessary institutionalization should not be demanded. Consequently, they propose to delete E2.

Assessment and analysis for the award of the Euro-Inf® Label:

The Technical Committee deems that the intended learning outcomes of the degree programme does comply with the Subject-Specific Criteria of the Technical Committee 04 - Informatics.

The TC 04 – Informatics recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditaiton
Maestría en Auditoría de Tecnologías de la Información	With requirements for one year	Euro-Inf	30.09.2024

H Decision of the Accreditation Commission (28.06.2019)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Committee discusses the procedure and agrees with the assessment of the peers. Concerning the Recommendation E2 it is agreed with the Technical Committee that apparently the cooperation with local industry is already working very well and that thus it can be deleted.

Assessment and analysis for the award of the Euro-Inf® Label:

The Accreditation Committee deems that the intended learning outcomes of the degree programme does comply with the Subject-Specific Criteria of the Technical Committee 04 - Informatics.

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditaiton
Maestría en Auditoría de Tecnologías de la Información	With requirements for one year	Euro-Inf	30.09.2024

Requirements

A 1. (ASIIN 1.3; 5.1) A module description for the final project (Master thesis) outlining the four different elements and requirements of the whole project, has to be provided.

A 2. (ASIIN 1.4) The admission criteria need to be defined in official documents based on detailed required IT competencies.

A 3. (ASIIN 5.2) A Diploma Supplement needs to be issued containing 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.

Recommendations

E 1.   (ASIIN 6) It is recommended to provide direct feedback of the course evaluations to the students.

Appendix: Programme Learning Outcomes and Curricula

According to self-assessment report the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master degree programme Information Technology Auditing:

Programme educational objectives

- G01: To equip students with methods, techniques and skill development for the successful implementation of IT processes in secured environments according to current technologies and their future evolution.
- G02: To provide students with theoretical-practical foundations for the appropriate information assets management regarding information security fundamentals and performance improvement in organizations.
- G03: To apply the theoretical-practical knowledge regarding to processes, norms and best practices for auditing to guarantee security and confidentiality.
- G04: To develop skills for international certifications related to IT audit.
- G05: To strengthen values and ethics, vital in an IT auditor considering his interculturality, knowledge, gender and respect for the good living rights of those involved, internal and external, and of the team members in the audit process.

Student Learning Outcomes

MATI student learning outcomes may be characterized in four categories: a) theoretical, b) professional, c) research and d) axiological. They are described as follows:

Theoretical

- T01: Analyzes methods, techniques, and tools for the assessment and audit of Information Technologies.
- T02 Analyzes norms and good practices focused on the IT audit.
- T03: Applies knowledge related internal control and risk management of Information Technologies.
- T04: Applies general knowledge about security and auditing of Information Technologies.
- T05: Develops competences of document management.

Professional

- P01: Executes a project of IT auditing.

- P02: Aligns IT auditing projects with accepted norms and good practices.
- P03: Performs management and advisory functions in IT auditing.
- P04: Aligns the IT Government with the organizational strategy

Research

- R01: Researches in the following areas: (a) Information Security government, (b) risk-oriented IT auditing, (c) organizational change management, (d) business continuity management, (e) IT services management, (f) Fraud and Legislation of computer crimes.

Axiological

- A01: Applies good practices of ethical leadership in all actions carried out by the information technology audit professional.
- A02: Applies competencies of self-regulation concerning auto control, trust, integrity, and adaptability.

The following **curriculum** is presented:

Table 6: New MATI - Onsite: Work load and credits

CODE	MODULE	TEACHING COMPONENT (TC)			OTHER COMPONENTS (OC)			TOTAL, TC + OC	ECTS
		Teaching	Collaborative Learning	Total hours of the teaching component	Practice and experimentation learning	Autonomous learning	Total hours of other components		
MAT420	Ethics	12	4	16	16	16	32	48	1,6
MAT423	Information Systems	30	10	40	40	40	80	120	4
MAT425	General Theory of Security and Auditing	12	4	16	16	16	32	48	1,6
MAT470	Lesgislation	12	4	16	16	16	32	48	1,6
MAT485	Academic Writing	20	12	32	32	32	64	96	3,2
MAT492	Statistical Analysis	24	8	32	32	32	64	96	3,2
MAT428	Risk Fundamentals	18	6	24	24	24	48	72	2,4
MAT434	Cryptography	18	6	24	24	24	48	72	2,4
MAT440	Database Security and Auditing	24	8	32	32	32	64	96	3,2
MAT442	Operating Systems Security and Auditing	24	8	32	32	32	64	96	3,2
MAT447	Telecommunication Security and Auditing	24	8	32	32	32	64	96	3,2
MAT450	IT Government	32	8	40	40	40	80	120	4
MAT465	Ethical Hacking	30	10	40	40	40	80	120	4
MAT468	Computer Forensic Fundamentals	24	8	32	32	32	64	96	3,2
MAT475	Technological Project Management	24	8	32	32	32	64	96	3,2
MAT488	Research Methods	10	22	32	32	32	64	96	3,2
MAT430	Internal Control Management	24	8	32	32	32	64	96	3,2
MAT453	Information Security Management Systems	32	8	40	40	40	80	120	4
MAT458	Service Management	32	8	40	40	40	80	120	4
MAT462	Business Continuity	30	10	40	40	40	80	120	4
MAT480	IT Auditing	30	10	40	40	40	80	120	4
MAT495	Final Project	8	14	22	22	22	44	66	2,2

Table 7: New MATI - Online: Work load and credits

CODE	MODULE	TEACHING COMPONENT (TC)			OTHER COMPONENTS (OC)			TOTAL TC + OC	ECTS
		Teaching	Collaborative Learning	Total hours of the teaching component	Practice and experimentation learning	Autonomous learning	Total hours of other components		
MAT420	Ethics	8	2	10	30	8	38	48	1,6
MAT423	Information Systems	20	4	24	80	16	96	120	4
MAT425	General Theory of Security and Auditing	8	2	10	30	8	38	48	1,6
MAT470	Lesgislation	8	2	10	30	8	38	48	1,6
MAT485	Academic Writing	16	4	20	60	16	76	96	3,2
MAT492	Statistical Analysis	16	4	20	60	16	76	96	3,2
MAT428	Risk Fundamentals	12	2	14	46	12	58	72	2,4
MAT434	Cryptography	10	4	14	46	12	58	72	2,4
MAT440	Database Security and Auditing	16	4	20	66	10	76	96	3,2
MAT442	Operating Systems Security and Auditing	16	4	20	66	10	76	96	3,2
MAT447	Telecommunication Security and Auditing	16	4	20	66	10	76	96	3,2
MAT450	IT Government	20	4	24	80	16	96	120	4
MAT465	Ethical Hacking	20	4	24	80	16	96	120	4
MAT468	Computer Forensic Fundamentals	16	4	20	66	10	76	96	3,2
MAT475	Technological Project Management	16	4	20	66	10	76	96	3,2
MAT488	Research Methods	16	4	20	60	16	76	96	3,2
MAT430	Internal Control Management	16	4	20	66	10	76	96	3,2
MAT453	Information Security Management Systems	20	4	24	80	16	96	120	4
MAT458	Service Management	20	4	24	80	16	96	120	4
MAT462	Business Continuity	20	4	24	80	16	96	120	4
MAT480	IT Auditing	20	4	24	80	16	96	120	4
MAT495	Final Project	10	4	14	40	12	52	66	2,2
									68,6