



ASIIN Seal & Euro-Inf[®]-Label

Accreditation Report

Bachelor's Degree Programme

Business Computing – Business Intelligence

Master's Degree Programme

National Engineer Degree in Applied Science and Technology

Provided by

University of Sousse

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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
Diplôme National d'Ingénieur en Sciences Appliquées et Technologies	National Engineer Degree in Applied Science and Technology	ASIIN, Euro-Inf® Label		04, 07
Business Computing – Business Intelligence	Business Computing – Business Intelligence	ASIIN, Euro-Inf® Label		07
Date of the contract: 01.08.2024 Submission of the final version of the self-assessment report: 02.09.2025 Date of the onsite visit: 04.-05.11.2025 at: Sousse				
Expert panel: Prof. Dr. Christian Janiesch, TU Dortmund University Prof. Dr. Sascha Alda, Hochschule Bonn Rhein Sieg University of Applied Sciences Prof. Dr. Dennis Riehle, University of Koblenz Ahmed Khalil Boulahia, Mantu Mohamed Anis Oueslati, Student at Université de la Manouba				
Representative of the ASIIN headquarter: David Witt				

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; TC 07 - Business Informatics/Information Systems;

Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of March 28, 2023 Subject-Specific Criteria of Technical Committee 04 – Informatics/Computer Science as of March 29, 2018 Subject-Specific Criteria of Technical Committee 07 – Business Informatics/Information Systems as of December 8, 2017	

B Accreditation Status

Result Overview

The most recent decision for the ASIIN Seal was made by the ASIIN Accreditation Commission on 26.06.2026

Degree Programmes	ASIIN Seal	Validity	European Label	Validity
Ba Business Computing – Business Intelligence	With requirements for one year	17.07.2027	Euro-Inf®	17.07.2027
Ma/NED Applied Science and Technology	With requirements for one year	17.07.2027	Euro-Inf®	17.07.2027

Fulfilment of the Accreditation Criteria

ASIIN General Criteria / Subject-Specific Criteria	Ba Business Computing – Business Intelligence	Ma/NED Applied Science and Technology
1 Degree programme: Concept, Content & Implementation		
<i>1.1 Objectives and learning outcomes (intended qualification profile)</i>	Fulfilled	Fulfilled
<i>1.2 Title of the degree programme</i>	Fulfilled	Fulfilled
<i>1.3 Curriculum</i>	Fulfilled	Fulfilled
<i>1.4 Admission requirements</i>	Fulfilled	Fulfilled
<i>1.5 Workload and credits</i>	Not fulfilled Requirement A 1	Not fulfilled Requirement A 1
<i>1.6 Didactics and teaching methodology</i>	Fulfilled	Fulfilled

ASIIN General Criteria / Subject-Specific Criteria	Ba Business Computing – Business Intelligence	Ma/NED Applied Science and Technology
2 Exams: System, Concept and Organisation		
<i>2 Exams: System, Concept and Organisation</i>	Not fulfilled Requirement A 2	Not fulfilled Requirement A 2
3 Resources		
<i>3.1 Staff and staff development</i>	Fulfilled	Fulfilled
<i>3.2 Student support and student services</i>	Fulfilled	Fulfilled
<i>3.2 Funds and equipment</i>	Fulfilled	Fulfilled
4 Transparency and Documentation		
<i>4.1 Module descriptions</i>	Not fulfilled Requirement A 3	Not fulfilled Requirement A 3
<i>4.2 Diploma and Diploma Supplement</i>	Not fulfilled Requirement A 4	Not fulfilled Requirement A 4
<i>4.3 Relevant rules</i>	Fulfilled	Fulfilled
5 Quality Management: Quality Assessment and Development		
<i>5 Quality Management: Quality Assessment and Development</i>	Not fulfilled Requirement A 5	Not fulfilled Requirement A 5

Requirements

For all programmes

- A 1. (ASIIN 1.5) Implement a systematic process to regularly monitor and evaluate student workload. Involve students in the review and adjust credits where necessary.
- A 2. (ASIIN 2) Introduce a transparent assessment system with a systematic opportunity for students to review the grading of their examinations.
- A 3. (ASIIN 4.1) Provide complete and updated module descriptions for all modules and make them accessible to all stakeholders.

- A 4. (ASIIN 4.2) Ensure that the Diploma Supplement provides information on the learning outcomes and statistical data on the distribution of final grades, as set out in the ECTS Users' Guide.
- A 5. (ASIIN 5) Ensure that students are informed about the evaluation results.

Accreditation History

The programmes have not been previously accredited by ASIIN.

C Characteristics of the Degree Programmes

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
Diplôme National d'Ingénieurs en Sciences Appliquées et Technologies Mention: Informatique et Parcours : Génie Logiciel	National Engineer Degree in Applied Science and Technology		7	Full time		6 semesters	180 ECTS	Annually / 2004/05
Business Computing – Business Intelligence	B.Sc.		6	Full time		6 semesters	180 ECTS	Annually / 2019/20

The two programmes under review are offered from two different faculties (here institutes), both belonging to the University of Sousse. The Bachelor's degree programme Business Computing – Business Intelligence is offered by the Higher Institute of Management (Institut Supérieur de Gestion de Sousse, ISGSo), and the National Engineering Diploma in Applied Science and Technology is offered by the Higher Institute of Applied Sciences and Technology – Computer Science Department (Institut Supérieur des Sciences Appliquées et de Technologie de Sousse, ISSATSo).

The ISGS was founded in 1995 and offers various bachelor's and master's degree programs in the fields of economics, business administration, and business informatics, as well as doctoral programs. The ISSATSo was founded in 2001 and has been offering engineering degrees in various engineering disciplines and computer science since 2004. In its SAR, the university states that „the mission of the ISSATSo is to provide scientific, practical, and high-quality education environment for the provision of national engineering degree in scientific disciplines related to the needs of the industrial sector to: prepare students to become the future responsible citizens who contribute to the development of their country in the fields of software engineering. Enhance scientific research by encouraging research and planning to satisfy present-day and future needs. Prepare specialized engineers and scientists in different fields of knowledge related to software engineering and skills enhancements.”

³ EQF = The European Qualifications Framework for lifelong learning

Summary of the experts' assessment:

Overall, both programmes under review at the University of Sousse leave a positive impression, characterised by a high level of commitment, strong stakeholder engagement, and a supportive learning environment. Students expressed a high degree of satisfaction and benefit from a close and constructive relationship with the teaching staff, who demonstrate considerable dedication and enthusiasm in their work. This positive atmosphere is further complemented by strong ties to industry partners and alumni, who confirmed both the relevance of the programmes and their satisfaction with graduates. The well-established network with external stakeholders represents a clear strength of both programmes.

At the same time, the institutions show a commendable commitment to quality assurance and continuous improvement. However, further efforts are required to fully close existing feedback loops, particularly with regard to systematically communicating the results of course evaluations and ensuring that resulting measures are transparent to all stakeholders. In addition, key documentation such as module handbooks and diploma supplements still require completion and publication.

From a curricular perspective, the programmes would benefit from strengthening their practical components and expanding opportunities for language learning. Measures to facilitate both student and staff mobility should also be reinforced. In terms of resources, the experts would recommend increasing the number of permanent academic staff.

For the Bachelor's degree programme, the introduction of elective courses would allow for greater flexibility and individualisation of study paths. Furthermore, strengthening the IT infrastructure support of ISGSo through dedicated technical expertise would be beneficial. For the Master's degree programme, the inclusion of additional content in areas such as requirements engineering and prompt engineering is recommended.

D Expert Report for the ASIIN Seal⁴

1. The Degree Programme: Concept, Content & Implementation

Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)

Evidence:

- Diploma Supplements
- Module Descriptions
- Objective-Module-Matrices
- Self-Assessment Report
- Discussions during the audit

Discussion during the audit Preliminary assessment and analysis of the experts:

The experts base their assessment of the learning outcomes on the information provided in the module descriptions and in the Self-Assessment Report of the degree programmes under review. For both programmes, the university has defined intended learning outcomes and qualification profiles. The experts refer to the Subject-Specific Criteria (SSC) of the Technical Committees 04 - Informatics/Computer Science, and 07 - and Business Informatics/Information Systems, and use the objective-module-matrices and module descriptions for each programme as a basis for judging whether the intended learning outcomes correspond with the competences as outlined by the respective SSC.

The experts note that the development of the objectives involves both internal and external stakeholders so that the curricula can be adapted and modified according to the needs of the industry and the graduates on a regular basis. For example, there are regular surveys, through which the different stakeholders get the chance to assess the programmes and their main objectives and adapt them if necessary. Internal stakeholders include all of University of Sousse members (students, teaching staff, and non-academic employees), while

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 external stakeholders include the industry, alumni, the government, and society. A major revision including consultations of stakeholders takes place every four to five years.

Regarding the Bachelor's degree programme under review, the university describes the overall objectives and potential career paths in its Self-Assessment report as follows: "The bachelor's degree program in Business Intelligence aims to train students capable of designing and implementing the resources, tools, and methods to collect, consolidate, model, and present a company's data. The goal is to provide decision-making support and enable decision-makers to gain an overview of the activity in question. The targeted skills include knowing how to design, configure, and deploy decision-making systems and knowledge management systems, as well as how to leverage data within the company to propose a decision-making strategy. The targeted career paths include many areas such as Designer, Developer, Tester, Business Analyst, Database Administrator, Data Analyst, Consultant, and more. This Bachelor's program also allows students to pursue master's and doctoral degrees."

Regarding the Master's degree programme under review, the university sums up the programmes overall aims as follows: "The curriculum is designed to ensure that students not only master advanced technical concepts but also cultivate research abilities, leadership skills, and a strategic understanding of the evolving digital landscape. By integrating advanced knowledge, cognitive and analytical skills, technical expertise, research capabilities, communication proficiency, managerial competencies, and career readiness, the program prepares future engineers to excel in diverse roles within the software industry. Whether pursuing careers in development, architecture, artificial intelligence, or cloud computing, graduates will be equipped to drive innovation and meet the technological challenges of tomorrow. [...] The program focuses on five core objectives to equip students with technical, research, leadership, and career skills. Advanced knowledge includes mastering mathematics, system security, and algorithm design. Technical expertise emphasizes scalable application development, cloud computing, cybersecurity, and Agile methodologies. Research & innovation drive AI, data analysis, and software modeling projects, encouraging innovative problem-solving. Communication & leadership ensure proficiency in technical writing, teamwork, and project management. Career readiness prepares students for industry expectations through final-year projects and networking."

Furthermore, the university lists the following potential career paths for graduates of the Master's degree programme:

- "Corporate Roles: Software Engineer, DevOps/SRE Engineer, Software Architect, IT Consultant, Project Manager, Cybersecurity Engineer.
- Industries: IT services, finance, healthcare, telecom, IoT, gaming, and multimedia.

- Advanced Studies: Ph.D., specialized master's in AI, cybersecurity, or software engineering.
- Entrepreneurship: Launch startups in SaaS, mobile applications, and emerging technologies.
- Emerging Fields: AI, data science, AR/VR, autonomous systems, and robotics."

In the experts' opinion, the intended qualification profiles as well as both programmes' educational and learning outcomes are clear, plausible and allow students to take up an occupation, which corresponds to their qualification. They learn that the graduates of University of Sousse and its institutes are much sought after in the labor market. The representatives of industry emphasize the high quality of the graduates of the programmes under review. In addition, the industry representatives state that they are very satisfied with the scope of the collaboration with the university. Furthermore, students as well as graduates also state that they are satisfied with and well aware of their good job perspectives. The experts emphasize positively that the university is very reactive to market demands and the latest and upcoming developments in the field. In general, they confirm that there exists a good network with great cooperation with industry and good relation with their Alumni.

In summary, the experts confirm that both programmes under review adequately reflect EQF 6 level (Bachelor's programmes), respectively EQF-7 level (Master's programme). This can also be confirmed based on the module descriptions and discussions. The learning outcomes are consistent with the ASIIN Subject-Specific Criteria of the Technical Committees 04, respectively 07, and therefore also with the Euro-Inf criteria. They aim at the acquisition of specific competences and are well-anchored and binding.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Diploma Supplements
- Diplomas
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The experts confirm that the English translations and the original name of both programmes under review each correspond with the intended aims and learning outcomes as well as the respective content and teaching language.

Criterion 1.3 Curriculum

Evidence:

- Diploma Supplements
- Module Descriptions
- Curricula overviews
- Objective-Module-Matrices
- Academic Calenders
- Self-Assessment Report
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Structure and Content

The curriculum of the study programmes under consideration is reviewed by the experts in order to identify whether the described objectives can be achieved by the available modules. Course descriptions as well as overviews and the objective-module-matrices matching the different objectives and the various module contents and potential career paths were provided for a thorough analysis.

The curriculum of the Bachelor's degree programme is designed for six semesters and offered as a full-time study programme. To complete the programme students must complete 180 credits (equivalent to 180 ECTS credits). The university describes the structure and content in its Self-Assessment report as follows: "For semesters 1 to 5, each semester includes compulsory modules directly related to the specialty. In addition, transversal modules are added on soft skills that are still required in the world of work, such as business communication, entrepreneurship, etc. Finally, optional modules are offered at the level of each semester. [...] The last semester is dedicated to conducting an End of Studies Project which is a concrete project that students conduct for a company where they design and develop any type of software application and apply BI techniques. The most common form for the end of studies project is that of an internship in the company accompanied by the writing of a report detailing the context of the internship, the conceptual study carried out and describing the development carried out. Depending on the nature of the topic, the methods generally adopted by students are the unified process, the agile Scrum method, and the GIMSI method for creating dashboards. They benefit during that period from a supervision with an academic supervisor from ISGS and a professional supervisor from the company. At the end of the semester, defences are organized through which the evaluation is done, where the quality of the developed software application, the quality of the elabo-

rated report and the quality of the oral presentation are considered”, (see appendix for detailed curricular overview).

Overall, the experts are very satisfied with the curriculum of the Bachelor’s degree programme under review. They see that the programme is well structured and that the modules build on each other in a reasonable way, enabling the students to effectively reach the learning outcomes as laid down for the programme as a whole. During the audit, however, they discuss the available elective options within the degree programme. Whilst the SAR mentions optional modules for each semester, this is not reflected in the official documents and module overviews provided. Students also state that, in practice, they have no real choices. In response, the programme coordinators explain in the audit that, whilst the current curriculum – as confirmed by the Ministry – in principle allows for electives, in practice only a limited number of modules can currently be offered, which does not allow for any real choices. They explain that this is due to limited resources, which do not currently permit the offering of multiple modules as options. The experts can understand that the relevant personnel resources are limited, which is why they also recommend a corresponding increase in these resources (see chapter 3.1). Nevertheless, they advocate offering a variety of electives in future (as soon as the necessary resources are available), so that students can at least engage in more specialised subject areas following their interests in a later semester. Therefore, the experts recommend to introduce electives.

The curriculum of the Master’s degree programme, respectively National Engineering Diploma is also designed for six semesters and offered as a full-time study programme. To complete the programme students must complete 180 credits (equivalent to 180 ECTS credits). The Master’s degree programme is built up on an integrated preparatory cycle, after which the engineering cycle of three years begins. In this accreditation, the experts only assess the three years of the engineering cycle, as those are meant to lead to a graduation equivalent to EQF-level 7. ISSATSo describes the structure and approach of the curriculum of the Master’s degree programme as follows: “The Software Engineering Program builds upon the foundational knowledge acquired during the Integrated Preparatory cycle, equipping students with both theoretical expertise and practical skills essential for modern software development. [...] The end of this cycle can enable students either to pursue the engineering cycle or to be oriented towards a bachelor degree. The engineering cycle is composed of three semesters of common core courses that ensure all students acquire essential knowledge and skills. In the fourth and fifth semesters, students can specialize in specific areas of software engineering, allowing them to tailor their studies to their interests and career goals. The Transverse modules are delivered for all students starting at the first semester and continuing through the fourth specializations.” Furthermore, two intern-

ships are part of the programme. There is a short so called summer internship after the fourth semester, and then the final/capstone project internship in the last semester. This final semester therefore combines a compulsory internship with a final graduation project. Regarding the potential study pathways in the fourth and fifth semester, ISSATSo provides the following overview (see Appendix for further curricular overview):

Option : Embedded Systems and IoT - AI and Cloud - Technological environment of an IoT System - Software development and architectures - IoT networks and security - Security and data analysis - Robotics && Industry 4.0 - OS and IoT engineering	Option : AI and Data Science - Data Science - Software Development and Architectures - Networks & Services - Security - Data Analysis & Mining - Machine Learning 2 - Unstructured Data Processing & Applications
Option : Enterprise Systems Engineering (Erasmus+PENS) - IDM & Digital Transformation - Enterprise Data - Advanced Architectures - Enterprise architecture engineering - AI and Business decision - Systems and security	Option : Video Games and Simulations - Introduction to Game principles - Game content - Advanced architectures - Interactions in games - Artificial intelligence - Game engines and simulation

Regarding the Master's degree programme, the experts are as well satisfied with the curriculum. They see that the programme is also well structured and that the modules build on each other in a reasonable way, enabling the students to effectively reach the learning outcomes as laid down for the programme as a whole and its optional student paths.

Since the experts are so satisfied with the general approach, during the audit they mainly discuss detailed questions regarding the curriculum and end up with two recommendations on a content level that the university could take into account when the curriculum is next revised. In particular, the experts consider that requirements engineering should be strengthened in the curriculum, as it represents a central competence area in software engineering and forms the basis for the systematic development of software systems that meet stakeholder needs and quality expectations. Students should be enabled to analyse, specify, validate, prioritise, and manage requirements in a structured manner, including

both functional and non-functional requirements. This is particularly important because the ability to translate real-world problems and stakeholder expectations into clear, consistent, verifiable, and traceable requirements is essential for subsequent software design, implementation, testing, and quality assurance. The experts therefore recommend adding more explicit and in-depth content on requirements engineering to the curriculum.

What is more, the experts recommend giving prompt engineering and the competent use of generative AI tools a more prominent place in the curriculum. This would help ensure that students are familiar with current developments in AI-assisted software development and are able to use such tools in a purposeful, critical, and responsible manner. The experts consider this relevant in view of recent developments in the field as well as emerging expectations and practices in industry.

In addition to the programme-specific assessments, the experts have also identified two areas for improvement that apply to both programmes under review and their curricula. Firstly, this concerns the practical components in both degree programmes, as the experts have identified a strong theoretical focus. Whilst they view the inclusion of several internships as positive, they also note a significantly greater emphasis on theoretical teaching approaches. For example, the university itself admits in its self-evaluation report that: “Moreover, while conducting their internships, or doing their practical work, students’ lack of practical competencies was sometimes observed. Indeed, theoretical aspects being initially more developed in our curriculum, this requested reinforcing that practical aspect.” Industry representatives also agree in the discussions that, whilst they are generally satisfied with the students’ skills, even more practical elements could be integrated. The experts therefore recommend to increase the practical parts of the curricula.

Furthermore, the experts pick up on a comment made by the students, who would like to see a wider range of language modules on offer. At present, language modules in French and English are offered, but the majority of students already speak these languages (fluently). With regard to future career prospects, however, they would also like to see courses in German, Spanish or Chinese, for example. They add that a corresponding offer in a student club would suffice, rather than integration into the official curriculum. The experts appreciate the students’ commitment and motivation to learn further languages. They understand this interest, but also recognise that the university has limited resources and cannot necessarily offer a wide range of foreign language courses. Nevertheless, the experts wish to acknowledge these comments and therefore recommend increasing the variety of language education.

In summary, the experts state that both programmes under review are well-established and appropriately structured programmes that ultimately achieve the respective planned objectives well. This is further confirmed by the high level of satisfaction among students, alumni and industry representatives. However, they recommend increasing the practical part of both curricula and increasing the variety of language education. Moreover, electives could be introduced in the Bachelor's degree programme and in the Master's degree programme, a higher focus could be on requirements engineering, as well as on prompt engineering.

Internship

In the last semester of the Bachelor's degree programme, students carry out their end of studies project (ESP) which is usually combined with an industry internship. As said before, the end of studies project "is a concrete project that students conduct for a company where they design and develop any type of software application and apply BI techniques." During the internship, students are supervised by a responsible person at the company as well as by a specific supervisor from the university. As the university states in its Self-Assessment report, "[at] the end of the internship period, the professional supervisor is required to complete an evaluation form assessing the intern's performance. This document will be included as an attachment for reference." Furthermore, the university presents the following additional organisational information regarding the internships: "The process begins with identifying a suitable topic. A list of the companies which already hosted some of our students for their ESPs is available and can be helpful for students who can contact those companies and apply for an internship/ESP. Another initiative of our internship department, which is very useful to our students, was taken: in December, our institute organized an ISGS job fair [...], which served as an excellent opportunity for students to interact with companies and explore potential internship offers. This event also facilitated closer collaboration between enterprises and students. During this event, practical workshops were conducted to learn essential skills to excel in internships and projects. Additionally, internship offers from our institutional partners are regularly published on the official website (www.isgs.rnu.tn) and the official Facebook page. Students are also encouraged to consult ESP books shared on professional social networks primarily LinkedIn, to gain inspiration and understand market trends."

As described in the Self-Assessment report, in the Master's degree programme, "[a] minimum of two internships are compulsory for the engineering degree obtaining: a summer internship after achieving the 4th semester and a final project internship during the 6th Semester. [...] The summer internships are validated through an oral presentation of the

learned skills and the work done, which should be yielded through an internship report and an activity report (day-by-day work report). [...] The end-of-studies project (PFE) in the 6th semester demonstrates the student's understanding of the teachings given during the training and evaluates the student's public communication skills, his or her ability to synthesize, his or her mastery of the subject and his or her professional skills. The summer internship [...] allows the acquisition of new skills or the application of skills acquired during the training and constitutes an intelligent bridge to be integrated into the student's job search strategy." The university also offers the opportunity of international internship programmes. The ISSATSo also maintains strong ties with industry, and students receive support in finding internships, as confirmed during the audit. In addition, both students and programme coordinators report that companies often approach students during their internships to discuss potential job opportunities after graduation, which, in their opinion, further demonstrates industry satisfaction with the graduates.

Overall, the experts are convinced by the approach of integrating internships into both curricula. The experts note that the university has a large network of companies through which students are provided with the relevant contacts, positions and topics, and that there is clearly regulated support from both the university and the companies. The students also confirm this and report generally positive experiences during their internships. The experts are therefore convinced that the internships are beneficially integrated into the programmes. However, they note that the university should review the credit allocation to check if it reflects the actual workload (see criterion 1.5).

Mobility

With regard to the Bachelor's degree programme, the university explains in its Self-Assessment report, that mobility exists "[mainly] through ERASMUS + projects [...]. This requires the establishment of a prior pedagogical contract. The following student mobilities were benefited from during the last years:

- Mobility at Nice Sophia Antipolis University, France: 1 student
- Mobility at Almeria University, Spain: 1 student
- Participation in a summer school at Alcala University, through PENS ERASMUS + project: 5 students
- Participation in a summer school at Siegen University in Germany, through Transfer e-Academy ERASMUS + project: 2 students."

Furthermore, during the audit, the programme coordinators explain that individual stays abroad for students that go beyond these systematic collaborations are always possible and supported.

For the Master's degree programme, the university describes that "[during] their training, students can benefit from student mobility for a period of one semester or one year. This mobility allows students to enrich their experience and acquire expertise (Jefferson Thomas, Erasmus, etc.). For the year 2024/2025, 21% of students have benefited from an international end of study internships."

The experts acknowledge that, in principle, mobility opportunities exist and that corresponding partnerships have been established for this purpose. However, they also note that the overall numbers are relatively low, particularly at the bachelor's level. At the master's level, it appears that only a portion of students go abroad during their studies; nevertheless, the experts acknowledge that a relatively large proportion of them complete their final internship in an international setting. This is a positive development. Overall, there is a clear desire to offer students as many opportunities as possible, and students also report that they are regularly informed about Erasmus+ programs and potential international internship opportunities. Nevertheless, relatively few students seem to go abroad, particularly at the bachelor's level. The experts acknowledge that this may also be due to limited financial resources and that, while the university already provides some scholarships, it cannot offer appropriate financial support to all interested students. In addition, a relatively large number of students also work part-time, which can also make mobility more difficult. Overall, the experts therefore acknowledge the university's commitment to creating opportunities and supporting students, but still see room for improvement in the actual number of students who take advantage of these opportunities.

Furthermore, faculty members also note in discussions that they would like to see more international exchange opportunities for themselves as well. For example, they would like to expand international collaborations and, for instance, visit a foreign university to teach there and gain new experiences; conversely, they would also like to invite international faculty members to Tunisia to give lectures and engage in academic exchange. The faculty members therefore advocate that the university should take measures to increase faculty mobility (independent of research projects). The experts support this request and therefore recommend to implement measures to increase student mobility as well as teaching staff mobility.

Periodic Review of the Curricula

The curricula are subject to constant revision processes. As such, the curricula will be reviewed regularly and commented on by students and teachers as well as by external stake-

holders such as alumni or industry partners. The experts acknowledge that the university has taken adequate measures and defined processes to regularly review and further develop the curricula.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report
- Admission Criteria
- Discussions during the audit

Preliminary assessment and analysis of the experts:

University of Sousse and the relevant institutes have defined binding admission criteria and clear steps for admission. However, regarding the Bachelor's degree programme, the admission criteria and quota are set by the ministry. As the university describes in its Self-Assessment report, "[new] baccalaureate graduates are directed to the 'Business Computing' license when they choose it and if they have a score higher than the minimum score [in the national admission test] set by the ministry. The minimum required score is established according to who was able to access our institution during the previous academic year, with quotas relating to each type of baccalaureate (mathematics, economics, etc.). Furthermore, as part of agreements between our Ministry of Higher Education and Scientific Research, with ministries from other countries, we receive some students from Sub-Saharan Africa. Indeed, this year we received 13 students from Mali at the first level of Business Computing License of ISG Sousse."

Regarding the Master's degree programme, the university describes the admission process and criteria as follows: "Students applying to the engineering graduation are centrally admitted by the Admission Commission in the university. The University council decides the number of admitted students for each upcoming year according to the recommendation of the Institute dean, which in turn takes recommendations from the faculty program. Several entry points to the engineering program do exist. Either the student is a new baccalaureate holder, or the student applies to the engineering program after two or three years of Higher education studies. The new baccalaureate holder should have a score $\geq$ to the score provided by the Ministry of Higher Education during baccalaureate students orientation. The following conditions must be satisfied by every applicant to be accepted:

- (1) Earned a baccalaureate certificate, or its equivalent, from inside or outside the Tunisian country.

- (2) In addition to the baccalaureate certificate, the applicant provides a justification of the level grade decided every year by the Ministry of Education.
- (3) Successfully pass any test or interview required for a foreign applicant.
- (4) Satisfy all necessary conditions of the admission at the fixed time of application.

If all the above conditions are satisfied, admission is granted to the program according to three criteria: student preference, student grades, and the capacity of each program. For other categories of students, after 2 years of preparatory studies or a bachelor's degree, (3 years) students apply to a selection process to gain their acceptance to the engineering program (three years after the preparatory or the bachelor's studies). The selection process considers the calculation of a ranking score allowing the acceptance of 80% of students from the preparatory studies at ISSATSo and 20% of students from outside the ISSATSo. Students are ranked according to a score defined by the department and the scientific committee." The university also provides the detailed calculation of this score.

In summary, the experts see evidence that the university of Sousse keeps track of its students' progress and achievements. In this way, an instrument is in place to monitor the performance records of students with various enrolment backgrounds. In their assessment, the experts find the admission rules to be binding, transparent, and based on university's and ministerial regulations. They confirm that the admission requirements support the students in achieving the intended learning outcomes. Regarding the credit transfer for students, adequate policies are in place.

Criterion 1.5 Workload and Credits

Evidence:

- Module descriptions
- Examination Regulations
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Both programmes under review consist of six semesters in which 180 credits shall be achieved. At university of Sousse and therefore in both programmes under review, one credit corresponds to 25 hours of workload, reflecting the total workload, including self-study hours. Single modules or so called teaching units usually consist of four to seven cred-

its and in both programmes, and each semester consists of 30 credits in total. Each teaching unit is often divided into several “elements” of one to four credits.

During the audit discussions, the experts want to know from the students how they assess the workload and whether they find the credits assigned per course to be appropriate. The students state that they are generally satisfied with the workload and its distribution over the semesters and that the credit allocations for the individual courses are also generally appropriate. This also corresponds with the general impression gained by the expert. However, the experts note that there is no systematic workload assessment, for example, as part of course evaluations. Although there is regular communication between teachers and students, during which the workload is also discussed, the university does not systematically survey this. The experts acknowledge that the workload distribution and credit allocation appear to be mostly appropriate, but that a systematic workload survey needs to be carried out. In the experts' opinion, course evaluations would be the most suitable tool for this; a question could be added to the survey that also asks about the workload of the individual course.

In summary, the experts can recognise from the workload information in the module descriptions and the audit discussions that the overall workload is appropriate and generally corresponds with the assigned credits. During the audit, the students emphasise that they consider the workload manageable and that it is possible to finish the degree programmes within the expected periods. However, the experts note that there are no systematic workload assessment and verification. Therefore, the experts are in favour of a corresponding requirement that the university must implement a systematic process to regularly monitor and evaluate student workload. Students must be involved in the review and credits need to be adjusted where necessary

Criterion 1.6 Didactic and Teaching Methodology
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Evidence:

- Module descriptions
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Various teaching and learning methods (including lectures, computer training and classroom and lab exercises, individual and group assignments, internships, seminars and projects, etc.) have been implemented. Structured activities include tutorials, homework, assignments (reading or problem exercises) and practical activities. Group project assignments are given in some courses to develop students' skills in teamwork, communication,

and leadership. The assignments and exercises should help students to develop their abilities with respect to critical thinking, written/oral communication, data acquisition, problem solving, and presentations. Regarding the ongoing development of the didactics and teaching methodology, a student evaluation of the adequacy of the teaching methods has been introduced.

Regarding the Master's degree programme, ISSATSo further specifies, that "[the] teaching approach blends technical and non-technical foundations with hands-on learning and research opportunities. Technical training covers programming (C, Java, Python), system architecture, DevOps, AI, and cloud computing. Non-technical development enhances leadership, adaptability, and entrepreneurship skills. Practical experience is gained through internships, hackathons, and industry projects. Research preparation involves academic projects and thesis work, supporting further specialization or doctoral studies."

In summary, the experts conclude that both programmes employ appropriate and varied teaching approaches which effectively support the achievement of the respective intended learning outcomes.

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

The experts consider criterion 1 not completely fulfilled.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation
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Evidence:

- Exemplary exams, projects, and theses
- Module descriptions
- Educational Booklet
- Exam Regulations
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:

In its Self-Assessment report, the university describes the following approach regarding examination which applies to both programmes: "For each module, a form of assessment (including suitable alternatives, if any) has been defined. There are mechanisms in place

which ensure that all students learn the details of what is required in order to pass the module (pre-examination elements, assignments etc.) no later than at the start of the module. Rules have been defined for re-sits, disability compensation measures, illness and other mitigating circumstances etc. The number and distribution of the exams ensure that both the exam load and preparation times are adequate. All exams are organized in a way which avoids delays to student progression caused by deadlines, exam correction times, re-sits etc. All exams are marked using transparent criteria. There are mechanisms in place which ensure that exams marked by different examiners are comparable. The higher education institution vouches for the quality in terms of relevance, content and structure of all student assignments completed outside the institution. Exams are module-related and offer students continuous feedback on their progress in developing competences. Exams are structured to cover all the intended learning outcomes (knowledge, skills and competences). Exams are devised to individually measure to which extent students have reached the learning outcomes defined. Usually, there are 2 examination periods: midterm examination and final examination. The examination schedule is set by the administration and communicated to students at the beginning of each academic year. Any absence during an exam result in a grade of 0. Besides the exam itself, continuous assessment grades are attributed to students, and their average grade is calculated by counting the exam grade and the continuous assessment grade respectively with the following coefficients: 70% and 30%."

Both programmes use individual forms of assessment as written and oral exams, presentations, projects, final lab exams, internship reports and a final graduation project, respectively a final thesis including a defence. The dates of the exams are published in the relevant academic calendars.

The students confirm that the examination regulations are effective and properly managed, and experts agree that provisions for disability compensation, illness, and other exceptional circumstances are clearly established.

However, during the discussions, the experts note that there is no fully transparent examination system that allows students to understand and review the assessment and corresponding marking of their own examination afterwards. In this regard, the students state that, even when asked, lecturers do not re-mark the examinations; at most, the points already awarded may be recounted. In the experts' view, this does not constitute a fully transparent examination system. Students should always be given the opportunity to view their own exam papers, including the grading, and, if necessary, to discuss the assessment and grading with the examiner. Furthermore, the option of a re-mark should also be available. Therefore, the experts are of the opinion that the university must introduce a

transparent assessment system with a systematic opportunity for students to review the grading of their examinations.

During the on-site visit, the experts had access to a selection of exams and final projects. They confirm that these represent an adequate level of knowledge as required by EQF-Level 6, respectively EQF-Level 7. The forms of exams are oriented in-line with the envisaged learning outcomes of the respective courses, and the workload is allocated in an acceptable way. Regarding the final thesis, respectively projects, the experts conclude that their technical aspects and content are in line with EQF-6 level, respectively EQF-level 7, and address up-to-date topics.

The experts only discuss the chosen form of examination in the course “French” in the Master’s degree programme. During the discussions, the students explain that this course involves a large number of smaller exams and that they have to sit a total of four written exams. Whilst these would, in themselves, be passable, the workload would nevertheless be unnecessarily increased. The experts fully understand the students’ reasoning and agree that it is not necessary to hold four written exams in a single semester for a language course. Therefore, they recommend to reduce the number of exams in the language module “French”.

The experts conclude that the criteria regarding the examinations system, concept, and organization are mostly fulfilled and that the examinations are suitable to verify whether the intended learning outcomes are achieved or not. However, they argue that the university must introduce a transparent assessment system with a systematic opportunity for students to review the grading of their examinations. Furthermore, they recommend to reduce the number of exams in the language module “French” in the Master’s degree programme.

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

The experts consider criterion 2 not to be completely fulfilled.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report
- Staff handbook
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Regarding the university states in its Self-Assessment report “[the] lecturers of ISSATSo [...] belong to different grades and categories or positions. The grade varies from an assistant to a professor, passing through the grade of an assistant professor and an associate professor. Among positions, we can mention the status of permanent, temporary, academic contractual, or expert contractual (professional). Another category exists but it is rarely recruited by ISSATSo which is the technologists and professor technologists.”

Regarding ISSATSo, the following statistics are provided:

Grade	2019	2020	2021	2022	2023	2024
Professor	03	03	02	01	01	01
Associate Professor	00	00	01	01	01	01
Assistant Professor	27	26	27	27	27	23
Assistant Teacher	05	05	02	03	02	03
Secondary School Teacher	22	19	22	14	13	12
Ph.D., Ph.D. student	21	29	29	32	24	24
Total	78	82	83	78	68	64
Position	2019	2020	2021	2022	2023	2024
Permanent	53	51	47	45	42	39
Contractual Assistant	3	12	17	22	16	16
Temporary teacher	22	19	18	11	10	09
Total	78	82	82	78	68	64

Furthermore, the following statistics display the number of involved teachers from other departments:

Department		2019	2020	2021	2022	2023	2024
Energy		0	0	0	0	0	0
Electronic Engineering		25	21	26	24	14	12
Mechanical Engineering		04	01	02	02	01	02
Administration (direction of studies)	Marketing	05	05	03	04	04	04
	English	03	03	03	03	03	03
	French	04	03	03	03	03	03
	Law	01	01	01	01	01	01
Total		42	34	38	37	26	25

Regarding ISGSo, the university explains that the institute “currently have in the Business Computing department 16 permanent teachers already engaged in teaching and supervising students. Three new colleagues were recently recruited and will start teaching at the beginning of the next academic year. Moreover, we have 6 contractual teachers and 11 temporary other colleagues from computer science background who are also involves in teaching. [...] In fact, recruitment of new teachers, and involvement of contractual teachers (and temporary teachers) are studied and reconducted at the beginning of each academic year.”

During the on-site discussions, the experts discuss the number of permanent staff. They recognise that, in recent years, there has been a reduction in permanent staff in particular. In the experts’ view, this is a trend that should be counteracted. Those in charge explain that the university and its institutes are not permitted to fill permanent posts on their own initiative; instead, this is handled by the Ministry. They report their own requirements to the Ministry but must wait for the relevant decision. Furthermore, the local labour market is a fierce competitor, meaning that permanent posts are the main way to attract new teaching staff; however, as described, these are determined by the Ministry. The experts understand that the university’s means are limited in this regard and that it is dependent on the Ministry. As a signal of this, however, they recommend that more permanent positions be created again in order to ensure the long-term delivery of the individual programmes.

In summary, the experts emphasise the highly committed and motivated staff and the satisfaction of the students. They conclude that the university has defined adequate measures for staff selection and that the programme under review can be carried out effectively with the existing staff. However, they recommend to increase the number of permanent staff again.

HR Development

University of Sousse encourages the training of its academic staff to improve their didactic abilities and teaching methods. In its Self-Assessment report, the university states that “many of the lecturers are engaged either in projects where they receive specific skills on specific subjects (pedagogy, quality, design thinking, foreign languages, etc), or in training sessions organized by the University.” In addition, teaching staff take part in international exchanges, for example through their involvement in Erasmus+ and other research projects.

The experts discuss the various opportunities available for personal skill development with the teaching staff members. The teachers express their satisfaction with the internal and external offers to improve their didactic skills. Additionally, they can attend conferences, workshops, and seminars abroad. However, the teaching staff also mentions that it would like to have further opportunities for international mobility. Especially, they mention that they would like to have international exchange programmes for professors. They acknowledge that the university is constantly promoting internationalisation and is also working to offer teaching staff appropriate opportunities. The experts also recognise that the university is already active and is trying to establish appropriate programmes. Nevertheless, the experts understand the wishes of the teaching staff and would like to address them accordingly. They therefore recommend increasing the mobility opportunities for teaching staff.

In summary, all interviewed staff demonstrate high motivation and attachment to the institution. In the opinion of the experts, the institution offers sufficient support mechanisms and opportunities for teaching staff members who wish to strengthen their professional and teaching skills. However, the recommended to increase the mobility opportunities for teaching staff.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report
- Evaluation/survey results
- Discussions during the audit

Preliminary assessment and analysis of the experts:

During the on-site discussions with programme coordinators, lecturers, and particularly the students, the experts gain a thorough understanding of the available support services for students. University of Sousse and both institutes provide both subject-specific academic counselling and general non-academic guidance.

For academic advising, the programme directors are the first contact points when students need help with their study organisation, e.g. regarding selection of courses and potential study paths and schedules. In addition, each faculty member is available for students during his official faculty office hours. Furthermore, student clubs also play an essential part in students' extracurricular lives. There are clubs covering a wide variety of areas, ranging from leisure and sports groups to research groups.

In summary, the experts positively note the good and trustful relationship between the students, the teaching staff and the entire university. Enough resources are available to provide individual assistance, advice and support for all students. The support system helps the students achieve the intended learning outcomes and complete their studies successfully. The students, in general, have access to sufficient information about the programmes and are well-informed about the services available. Furthermore, the students confirm during the on-site discussions that they feel very valued and well supported, and that any issues can be solved quickly in cooperation with teachers and the university. Overall, the experts recognize a high level of satisfaction among all the various stakeholders, which creates a very good (learning) atmosphere and ensures that students feel comfortable and have no problems reaching out to the university with questions or issues.

Criterion 3.3 Funds and equipment
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Evidence:

- Self-Assessment Report
- List of equipment & laboratories
- On-site visit of participating institutes and laboratories
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The university has various laboratories available that can be used for teaching and research. In the programmes under review, they primarily use the computer laboratories. In addition, both institutes have their libraries that provide students with all the textbooks, reference books, and academic publications they need for their studies. Furthermore, additional information and literature can be requested and ordered through the university-wide library. All facilities and equipment are regularly validated and calibrated. This includes evaluating, maintaining and improving the physical facilities and infrastructure of the university, such as teaching and learning facilities, laboratories, equipment, and tools, to meet the needs of education, research, and service.

The experts had a close look at the equipment used for practical training in the laboratories. The experts value the students' presentation of their practical work in the laboratories. They judge the facilities, including teaching labs, as adequate for teaching and confirm that they are very well-equipped and up-to-date, and contain everything necessary for the programme's objectives; this also includes the relevant software that is provided. The experts find no severe bottlenecks due to missing equipment or infrastructure. The basic technical equipment for teaching students is available in sufficient numbers. In the discussion with the expert group, the students confirm that they are generally satisfied with the available equipment.

However, the university states in its Self-Assessment report, that at ISGSo, "[material] resources are maintained by technicians from the University or from a private company at the start of each semester."

During the on-site discussions, the programme managers reported that, whilst this ensures sufficient support in principle, they would also like to have in-house technicians. It would therefore be desirable to have dedicated technicians who would deal specifically with the institute's IT infrastructure. This would make it easier to respond to specific requirements and, where necessary, react more quickly to problems. The experts fully understand this wish. Whilst they recognise that there are limited (staff) resources and acknowledge that basic maintenance is covered, they support the idea of providing the ISGS with its own IT-

technician/professional who can look after the IT infrastructure on a permanent basis and ensure systematic internal maintenance.

What is more, Students are satisfied with the library and the literature, most of which is available digitally. They can access international literature, scientific journals, and publications online through different host services. Students have sufficient access to current international literature and databases, and they can access them remotely.

In summary, the expert group assesses that the available funds, the technical equipment, and the infrastructure (laboratories, library, seminar rooms, etc.) are well suited to the requirements for providing both degree programmes under review. However, they recommended to employ an own IT-technician/professional to take care of ISGS' IT infrastructure.

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

The experts consider criterion 3 to be fulfilled.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions
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Evidence:

- Module descriptions for each degree programme

Preliminary assessment and analysis of the experts:

Based on the review of the module handbooks, the experts conclude that these documents in general contain all of the required information. In particular, they include the module title, the responsible staff, teaching and learning methods, credits and workload, intended learning outcomes, module content, admission and examination requirements, forms of assessment, details on the calculation of module grades, recommended literature, and the date of the most recent revision. During the discussions, students confirm that information on courses is consistently available online.

However, the single module descriptions still show several shortcomings and require further revision. In particular, they need to be harmonised and completed according to a consistent standard, especially with regard to the description of competencies as the learning objectives in the different module descriptions are not yet sufficiently competence-oriented in their formulation and should be revised to clearly express the intended learning outcomes. Furthermore, a lot of descriptions lack information on credit points and working hours, as well as on the teaching language. In addition, the descriptions of the final the-

ses/projects are missing. What is more, some descriptions need to be updated to reflect the content actually taught in the programmes. This applies, for example, to the Information Systems modules at ISGS, as well as to the Software Engineering modules at ISSAT, where the content appears to be outdated, especially compared to what has been described as the course's content during the audit.

Therefore, the experts conclude that the module descriptions of both programmes under review must be reviewed, completed and updated. Then, the updated version must be made accessible to all stakeholders.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Exemplary Diploma Supplements
- Exemplary Diplomas
- Exemplary Transcripts of Records

Preliminary assessment and analysis of the experts:

According to the SAR, upon successful completion of a study cycle, each student is awarded a defined set of graduation documents. These include a diploma or degree certificate, a transcript of records, and a Diploma Supplement in English.

The experts positively acknowledge that all graduates are able to receive a Diploma Supplement in English within a short period after graduation. The Diploma Supplement includes a Transcript of Records documenting all completed modules, the credits obtained, the grades achieved, and the cumulative GPA. These documents provide a comprehensive overview of the individual student's academic performance. Moreover, they enable a clear classification of the degree programme within the respective higher education system.

At the same time, the experts note certain shortcomings. While the Diploma Supplements contain most of the information required for transparency and international comparability, they do not include sufficient information on the programme learning outcomes and therefore does not fully describe the qualification profile of the graduate. Furthermore, the Diploma Supplement does not provide a classification of the final grade based on statistical data from the respective cohort, as recommended in the ECTS Users' Guide. The absence of such cohort-based grade distribution data limits the possibility to adequately contextualise and compare the graduate's performance with that of their peers.

Therefore, the university must ensure that the Diploma Supplement includes sufficient information on the learning outcomes and provides statistical data on the distribution of final grades, as set out in the ECTS Users' Guide.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report
- All relevant regulations as published on the university's/institutes' websites

Preliminary assessment and analysis of the experts:

The experts confirm that the rights and duties of the university, its institutes, and the students are clearly defined and binding. All rules and regulations are published on the relevant websites and hence available to all stakeholders. In addition, the students receive all relevant course material and further information at the beginning of each semester.

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

The experts consider criterion 4 to be not completely fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Quality Management Policy
- Quality Management System Manual
- Survey & questionnaire samples
- Discussions during the audit

Preliminary assessment and analysis of the experts:

University of Sousse has established a comprehensive quality management system that defines measures for obtaining feedback from various stakeholder groups in order to continuously develop the university, its institutes and their programmes. In addition, each of the involved institutes in this accreditation have their additional quality management policies and manuals as well. In that regard, the university states also in its SAR, that ISSATSo “has committed to the implementation and monitoring of an Educational Organizations Management System (EOMS) in accordance with the international standard ISO 21001:2018.”

For both programmes, feedback is mainly collected through different kind of surveys. They carry out alumni surveys, surveys on teacher satisfaction, as well as student surveys on a programme level, and on a course level. Course evaluations are conducted after every semester. The other mentioned surveys are carried out at the end of each academic year. Furthermore, the institutes invite the students to additional meetings at the end of each academic year in order to discuss the programmes and potential room for improvements.

As previously described, external stakeholders are also involved in the ongoing development process. This is achieved through surveys, the involvement of external guest lecturers, and exchanges during students' internships. As such, there are a wide variety of communication channels with the various external stakeholders. During the audit, the experts also noted strong links with regional and national industry and recognised the systematic involvement of external stakeholders in the quality development of the individual programmes.

With regard to course evaluations, the experts discuss during the audit how the results are used and whether they are subsequently discussed with the students. In response, those responsible explain that the results of the surveys are discussed within the teaching staff and/or with individual lecturers and in programme development committees. However, it is also acknowledged that the results are not yet systematically discussed with the students. The students also state that, whilst they feel their feedback is generally valued and that it is always possible to suggest potential improvements, they do not have systematic access to the results of the course evaluations.

In summary, the experts are of the opinion that University of Sousse and the relevant institutes have established a very sophisticated and comprehensive quality management system, guided by internal and external feedback, and involving students, alumni and industry stakeholders which ensures a comprehensive and continuous approach to programme improvement. They acknowledge a high commitment to Quality Management and continuous improvement. However, they also identify that the feedback loop of the course evaluations is not systematically closed, as students are not informed about the results of these evaluations.

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

The experts consider criterion 5 to be not completely fulfilled.

E Additional Documents

No additional documents needed.

F Comment of the Higher Education Institution

The institution provided the following additional documents:

- Updated Curricular overviews for both programmes
- Student Satisfaction survey questionnaire
- Course Evaluation questionnaire

G Summary: Expert recommendations

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Business Computing – Business Intelligence	With requirements for one year	30.09.2031	Euro-Inf®	30.09.2031
Ma/NED Applied Science and Technology	With requirements for one year	30.09.2031	Euro-Inf®	30.09.2031

Requirements

For all degree programmes

- A 1. (ASIIN 1.5) Implement a systematic process to regularly monitor and evaluate student workload. Involve students in the review and adjust credits where necessary.
- A 2. (ASIIN 2) Introduce a transparent assessment system with a systematic opportunity for students to review the grading of their examinations.
- A 3. (ASIIN 4.1) Provide complete and updated module descriptions for all modules and make them accessible to all stakeholders.
- A 4. (ASIIN 4.2) Ensure that the Diploma Supplement provides information on the learning outcomes and statistical data on the distribution of final grades, as set out in the ECTS Users' Guide.
- A 5. (ASIIN 5) Ensure that students are informed about the evaluation results.

Recommendations

For all degree programmes

- E 1. (ASIIN 1.3) It is recommended to increase the practical parts of the curricula.

- E 2. (ASIIN 1.3) It is recommended to increase the variety of language education.
- E 3. (ASIIN 1.3 / 3.1) It is recommended to implement measures to increase student mobility as well as teaching staff mobility.
- E 4. (ASIIN 3.1) It is recommended to increase the number of permanent staff.

For the Bachelor's degree programme

- E 5. (ASIIN 1.3) It is recommended to introduce electives.
- E 6. (ASIIN 3.3) It is recommended to employ an own IT-technician/professional to take care of the ISGS' IT infrastructure.

For the Master's degree programme

- E 7. (ASIIN 1.3) It is recommended to include more content on requirements engineering, e.g. by introducing a dedicated course.
- E 8. (ASIIN 1.3) It is recommended to introduce content on prompt engineering.
- E 9. (ASIIN 2) It is recommended to reduce the number of exams in the language module "French".

H Comment of the Technical Committees

Technical Committee 04 – Informatics/Computer Science (18.06.2026)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and follows the experts' assessment without any changes.

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

The Technical Committee deems that the intended learning outcomes of the degree programme do comply with the Subject-Specific Criteria of the Technical Committee 04 – Informatics/Computer Science.

The Wählen Sie ein Element aus. recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ma/NED Applied Science and Technology	With requirements for one year	30.09.2031	Euro-Inf®	30.09.2031

Technical Committee 07 – Business Informatics/Information Systems (11.06.2026)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and follows the experts' assessment without any changes.

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

The Technical Committee deems that the intended learning outcomes of the degree programme do comply with the Subject-Specific Criteria of the Technical Committee 07 – Business Informatics/Information Systems.

The Wählen Sie ein Element aus. recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Business Computing – Business Intelligence	With requirements for one year	30.09.2031	Euro-Inf®	30.09.2031

I Decision of the Accreditation Commission (26.06.2026)

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

The Accreditation Commission discusses the procedure and follows the vote of the experts and the Technical Committees.

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

The Accreditation Commission deems that the intended learning outcomes of the degree programmes do comply with the Subject-Specific Criteria of the Technical Committees 04 – Informatics/Computer Science, and 07 – Business Informatics/Information Systems.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Business Computing – Business Intelligence	With requirements for one year	30.09.2031	Euro-Inf®	30.09.2031
Ma/NED Applied Science and Technology	With requirements for one year	30.09.2031	Euro-Inf®	30.09.2031

Requirements

For all degree programmes

- A 1. (ASIIN 1.5) Implement a systematic process to regularly monitor and evaluate student workload. Involve students in the review and adjust credits where necessary.
- A 2. (ASIIN 2) Introduce a transparent assessment system with a systematic opportunity for students to review the grading of their examinations.
- A 3. (ASIIN 4.1) Provide complete and updated module descriptions for all modules and make them accessible to all stakeholders.

A 4. (ASIIN 4.2) Ensure that the Diploma Supplement provides information on the learning outcomes and statistical data on the distribution of final grades, as set out in the ECTS Users' Guide.

A 5. (ASIIN 5) Ensure that students are informed about the evaluation results.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to increase the practical parts of the curricula.

E 2. (ASIIN 1.3) It is recommended to increase the variety of language education.

E 3. (ASIIN 1.3 / 3.1) It is recommended to implement measures to increase student mobility as well as teaching staff mobility.

E 4. (ASIIN 3.1) It is recommended to increase the number of permanent staff.

For the Bachelor's degree programme

E 5. (ASIIN 1.3) It is recommended to introduce electives.

E 6. (ASIIN 3.3) It is recommended to employ an own IT-technician/professional to take care of the ISGS' IT infrastructure.

For the Master's degree programme

E 7. (ASIIN 1.3) It is recommended to include more content on requirements engineering, e.g. by introducing a dedicated course.

E 8. (ASIIN 1.3) It is recommended to introduce content on prompt engineering.

E 9. (ASIIN 2) It is recommended to reduce the number of exams in the language module "French".

Appendix: Programme Learning Outcomes and Curricula

According to the programme's website the following **intended qualifications profile** shall be achieved by the Bachelor's degree programme License in Business Computing

"The bachelor's degree program in Business Intelligence aims to train students capable of designing and implementing the resources, tools, and methods to collect, consolidate, model, and present a company's data. The goal is to provide decision-making support and enable decision-makers to gain an overview of the activity in question. The targeted skills include knowing how to design, configure, and deploy decision-making systems and knowledge management systems, as well as how to leverage data within the company to propose a decision-making strategy. The targeted career paths include many areas such as Designer, Developer, Tester, Business Analyst, Database Administrator, Data Analyst, Consultant, and more. This Bachelor's program also allows students to pursue master's and doctoral degrees."

0 Appendix: Programme Learning Outcomes and Curricula

The following **curriculum** is presented:

major in business intelligence

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Hours: 378	Hours: 399	Hours: 399	Hours: 420	Hours: 399	Hours: 420
Credits: 30	Credits: 30	Credits: 30	Credits: 30	Credits: 30	Credits: 30
Algorithms & Data structures 1	Algorithms & Data Structure 2	OO programming	Data Analysis and Data mining	Prevision techniques	Internship
Operating system	Networking foundations	Web programming 1	Web programming 2	Decision theory foundations	
Logical systems & computer architecture	Introduction to Information systems	OO Design of IS	Graph theory & opeational research	Introduction to Big Data and Cloud	
Analysis	Mathematical logic	Databases	Software engineering (AGL)	Mobile Development	
Statistics & Probability	Algebra	Inferential statistics	IT Management (ERP, CRM, etc.)	IT security fundamentals	
Principles of Management	Accounting IS	AI foundations	Software Architecture	Evolved programming languages	
General accounting	Financial management	Digital Marketing	DBMS	Dashboard design and scoring	
Business communication	Business communication 2	Numerical economy	Multidimensional Modelling and Data Warehouses	Leadership	
Personal development	Computer law	IT Ethics and laws	Entrepreneurship - Project Management	Psychology and sociology for online media applications	
Collaborative work	Digital Business Transformation	Personal professional project	Non linear optimization	System Modeling and simulation	
Human machine interface	Enterprise systems	Systems and Data integration	Unified Process	System security and availability	
		Business Process Engineering	BI and Data Analytics		

	Soft Skills
	Informatics
	Management
	Mathematics
	Business computing/Information Systems

The following **intended learning outcomes** shall be achieved by the Master's degree programme National Engineer Degree in Applied Science and Technology:

"The Integrated Preparatory cycle Intended Learning outcomes (1st; 2nd, 3rd, 4th semesters):

Knowledge

- PLrO1. Master and apply fundamental concepts of analysis, including limits, derivatives, integrals, systems of equations, matrices, and vectors.
- PLrO2. Understand the principles of wave propagation, optics, and electronic components and their practical applications.
- PLrO3. Recognize core concepts in algorithms, data structures, and programming languages (C, C++, Java).

Cognitive & Analytical Skills

- PLrO4. Apply mathematical methods to solve real-world technical problems.
- PLrO5. Analyze and design algorithms, data structures, and program logic to develop functional applications.
- PLrO6. Assess and optimize electronic circuits and digital tools for data processing and analysis.

Practical Skills

- PLrO7. Develop and implement simple programs in C and C++, object-oriented applications in Java, and web pages using HTML, CSS, and JavaScript.
- PLrO8. Design and simulate basic electronic circuits and use digital tools to process experimental data in physics and electronics.
- PLrO9. Apply project management methodologies to plan and execute IT or technical projects.

Communication Skills

- PLrO10. Communicate technical concepts effectively in French and English, both orally and in writing.
- PLrO11. Present and document project outcomes clearly and concisely for technical and non-technical audiences.

Transferable Skills

- PLrO12. Collaborate with multidisciplinary teams, integrating diverse skills to solve complex problems.
- PLrO13. Develop self-learning abilities to explore new resources and stay updated on emerging technologies.
- PLrO14. Adapt to evolving technical and professional environments through continuous learning and problem-solving.

Intended Learning Outcomes of the common core (1st, 2nd, 3rd semesters):

Knowledge

- PLrO15. Demonstrate expertise in advanced algorithmic concepts, data structures, and programming paradigms for problem-solving.
- PLrO16. Apply mathematical reasoning, optimization techniques, and statistical modeling to decision-making and problem-solving.
- PLrO17. Understand programming languages (Python, Java, C++) and software paradigms, including object-oriented, functional, and concurrent programming.
- PLrO18. Analyze core principles of cloud computing, containerization, networking, and cybersecurity to design scalable and secure architectures.
- PLrO19. Evaluate fundamental concepts of artificial intelligence, including machine learning, NLP, and image processing.
- PLrO20. Utilize software engineering principles, design patterns, and system architecture methodologies such as Microservices and Agile development.
- PLrO21. Assess the ethical, societal, and security implications of technology, particularly in AI, data privacy, and cybersecurity.

Cognitive & Analytical Skills

- PLrO22. Analyze complex problems and design efficient algorithms using advanced computational techniques.
- PLrO23. Extract insights from complex datasets using data analysis tools and high-performance computing techniques.
- PLrO24. Evaluate and optimize machine learning models for real-world applications, ensuring performance and scalability.
- PLrO25. Assess and implement security measures in software development and cloud computing environments.
- PLrO26. Solve real-world challenges by applying analytical thinking and structured methodologies.

Practical Skills

- PLrO27. Develop dynamic and responsive applications using modern web frameworks and integrate software solutions with middleware and APIs.
- PLrO28. Implement machine learning techniques in real-world applications, optimizing their performance.
- PLrO29. Design and implement secure, maintainable software solutions while adhering to best practices in software development.
- PLrO30. Apply Agile methodologies, ensure quality through CI/CD practices, and develop scalable solutions.
- PLrO31. Conduct research and investigative projects to formulate innovative solutions based on empirical analysis.

Communication Skills

- PLrO32. Communicate effectively in multidisciplinary and multicultural teams while demonstrating leadership and collaboration.
- PLrO33. Present and document research findings, software designs, and project outcomes clearly for technical and non-technical audiences.

Transferable Skills

- PLrO34. Adapt to emerging technologies in cloud computing, AI, and cybersecurity to remain industry-relevant.
- PLrO35. Manage projects using Agile methodologies and contribute to team-based software development.
- PLrO36. Exercise ethical responsibility in technology use while considering societal and professional implications.
- PLrO37. Apply acquired knowledge and skills in professional environments through capstone projects, internships, and industry collaborations.
- PLrO38. Pursue professional certifications and engage in continuous learning to enhance career prospects.

In addition, ISSATSo has defined further individual and specific intended learning outcomes for all four optional student paths: Embedded System and IoT, AI & Data Science, Enterprise Systems Engineering, Video Game Development:

AI & Data Science:

Knowledge

- Master the theoretical foundations of machine learning, deep learning, and symbolic AI approaches.
- Understand advanced machine learning algorithms, including generative models (GANs), Bayesian models, and reinforcement learning.
- Describe modern architectures for natural language processing (transformers, GPT, BERT).
- Explain key principles of big data processing, distributed systems, and large-scale data management.
- Master concepts and tools related to federated learning, edge AI, and distributed AI.
- Understand AI project management methodologies, including continuous integration (CI/CD) processes for AI/ML solutions and MLOps.
- Identify ethical challenges and biases in AI applications across various industries and social contexts.

Cognitive and Analytical Skills

- Formulate real-world data science problems and propose solutions using statistical and machine learning models.
- Select optimal algorithmic approaches for complex use cases requiring multidimensional analysis.
- Evaluate the robustness, scalability, and efficiency of AI models in heterogeneous environments (cloud, edge, on-premise).
- Identify and resolve data governance issues (quality, bias, privacy) in large-scale projects.
- Integrate multi-source data (images, text, sensor data) into unified processing pipelines.
- Analyze complex datasets using exploratory data analysis (EDA) techniques and evaluate model performance.

Practical Skills

- Develop and implement machine learning models using frameworks such as scikit-learn, TensorFlow, and PyTorch.
- Implement large-scale deep learning solutions (e.g., training models with GPUs or distributed clusters).
- Design operational solutions based on automated pipelines for AI model training, evaluation, and deployment (MLOps).
- Integrate AI APIs and open-source frameworks to accelerate industrial AI development.
- Optimize models for resource-constrained environments (embedded AI, edge computing).

Communication Skills

- Communicate AI-driven insights effectively through data visualizations, reports, and presentations for diverse audiences.
- Present technical solutions to stakeholders, emphasizing their impact on productivity and business benefits.
- Explain AI model results and predictions in an accessible and pedagogical manner.
- Prepare deliverables (reports, demonstrations, prototypes) tailored to the needs of non-technical users and decision-makers.

Transferable Skills

- Collaborate in multidisciplinary teams to solve complex data science challenges.
- Apply agile project management approaches (Scrum, Kanban) in AI development.
- Navigate between technical and ethical considerations in high-impact AI projects.
- Utilize modern project management and collaborative tools to enhance teamwork efficiency.
- Engage in continuous learning and technological monitoring to stay updated on AI advancements in industrial and academic contexts.

Embedded Systems and IoT:

Knowledge

- Identify and describe hardware and software architectures of embedded systems, including microcontrollers, FPGAs, and SoCs (System-on-Chip).
- Describe common IoT communication protocols (MQTT, CoAP, LoRaWAN, ZigBee, BLE).
- Explain the fundamental principles of sensors, actuators, and their interaction with embedded systems.
- Master real-time system concepts and resource optimization in embedded environments.
- Identify security challenges in IoT and embedded systems and implement mitigation strategies (cryptography, authentication).

Cognitive/Analytical Skills

- Analyze the constraints of an embedded system in terms of power consumption, computational time, and communication.
- Design connected system architectures that meet reliability, scalability, and security requirements.
- Optimize the performance of embedded software by reducing memory footprint and energy consumption.
- Diagnose hardware and software issues in embedded systems.

Practical Skills

- Program microcontrollers and microprocessors (e.g., ARM Cortex, AVR, ESP32) using languages such as C/C++, Python, and Rust.
- Prototype IoT systems by integrating sensors, actuators, and wireless communication modules.
- Implement real-time systems and use RTOS (Real-Time Operating Systems) like FreeRTOS or Zephyr.
- Deploy IoT solutions in cloud (AWS IoT, Azure IoT Hub) or edge computing environments.
- Conduct performance, compatibility, and security tests on embedded systems.

Communication Skills

- Write detailed technical reports on developed embedded systems, including architecture diagrams.

- Present IoT or embedded system project results to both technical and non-technical stakeholders.
- Work effectively in teams to design complex integrated systems.

Transferable Skills

- Adopt a systemic approach to solving engineering problems in constrained environments.
- Apply Agile development methodologies to embedded projects.
- Stay up to date with technological advancements in sensors, IoT networks, and embedded platforms.
- Consider environmental and ethical aspects in the design and operation of IoT systems.

Enterprise Systems Engineering:

Knowledge

- Understand the fundamental principles of enterprise information systems (IS), including design, integration, architecture, and governance
- Explain the different methodologies for enterprise systems engineering project management (Agile, V-Model, DevOps, etc.) and the tools associated with them.
- Identify key technologies and tools in enterprise systems management, including ERP, CRM, Supply Chain Management (SCM), and Human Resources Management Systems (HRM).
- Describe the challenges of information system security, data confidentiality, and legal requirements (GDPR, ISO standards, etc.).
- Analyze emerging trends in enterprise technologies, such as cloud computing, distributed systems, big data, and IoT, and their impact on enterprise information systems.

Cognitive and Analytical Skills

- Analyze business needs and design appropriate information system solutions, focusing on business process management, integration, and deployment.
- Model and simulate complex enterprise systems using business process modeling tools (BPMN, UML, etc.).
- Evaluate the efficiency of existing information systems and propose optimizations for business performance and profitability.

- Design distributed architectures tailored to enterprise environments (hybrid cloud, microservices, etc.) while ensuring security and performance.

Practical Skills

- Develop, configure, and integrate ERP/CRM solutions for medium to large enterprises.
- Implement cloud solutions, focusing on data management, security, and cost optimization for enterprise architectures.
- Deploy and manage relational and non-relational databases within an enterprise setting, ensuring performance optimization and security.
- Utilize collaborative project management and Agile development tools (Jira, Trello, GitLab) for enterprise system deployment projects.
- Establish a data governance strategy in compliance with legal standards (GDPR, ISO regulations) and best practices in enterprise architecture.

Communication Skills

- Write detailed technical reports on the design and deployment of enterprise information systems.
- Present technical solutions clearly to both technical experts and non-technical stakeholders (executives, end-users).
- Work in multidisciplinary teams, collaborating with project managers, business analysts, system administrators, and IT architects.
- Communicate professionally in English, including technical documentation writing, participation in meetings, and management of international projects.

Transferable Skills

- Apply Agile methodologies to efficiently manage complex cross-functional projects within enterprises.
- Demonstrate autonomy and critical thinking in solving complex enterprise system management and technology challenges.
- Manage risks and ethical considerations related to IT use in a corporate environment.
- Keep up with technological advancements by continuously updating skills through professional training and certifications.
- Adapt to the rapid evolution of information systems and emerging enterprise technologies.

- Conduct technical and economic feasibility studies for digital transformation projects.
- Implement complex enterprise system engineering solutions, considering business, financial, and technological aspects.
- Prepare for leadership roles in multidisciplinary project teams, especially for large-scale enterprise projects.

Video Game Development:

Knowledge

- Understand the theoretical and technical foundations of video game development, including game engines (Unity, Unreal Engine) and programming languages (C++, C#, Python).
- Explain advanced gameplay mechanics, including game physics, animations, and real-time interaction management.
- Master multiplayer game architectures, state synchronization, and server management.
- Describe advanced AI concepts applied to video games, such as procedural generation, adaptive systems, and non-player character (NPC) behavior management.
- Identify immersive technologies (VR, AR) and metaverse principles, including the creation of interactive 3D environments and avatar management.

Cognitive/Analytical Skills

- Analyze complex interactions between players and environments, particularly in massively multiplayer online games (MMOGs).
- Design and prototype interactive video games that meet technical, creative, or educational objectives.
- Develop AI systems for games, such as pathfinding algorithms, adaptive behaviors, or content generation engines.
- Evaluate game performance, including fluidity, network latency, and graphic optimization.
- Integrate ethical and social dimensions (cyber addiction, online behavior, inclusion) into game design.

Practical Skills

- Use game engines like Unity and Unreal Engine to create immersive 3D environments.

- Develop multiplayer architectures and manage real-time client-server connections.
- Implement advanced artificial intelligence for NPCs and adaptive environments.
- Design immersive experiences in virtual and augmented reality (VR/AR), integrating interactive interfaces.
- Optimize game performance across different platforms (PC, consoles, mobile, VR/AR devices).

Communication Skills

- Document and present video game development projects, highlighting technical and creative choices.
- Work in multidisciplinary teams (artists, designers, programmers) to create complex games.
- Participate in meetings with clients or stakeholders to understand needs and define suitable solutions.

Transferable Skills

- Apply agile methodologies (Scrum, Kanban) for project management.
- Use collaborative version control tools (Git, GitHub) for team development.
- Learn new technologies or frameworks related to game development and VR/AR independently.
- Integrate legal (licensing, data protection) and societal (inclusion, accessibility) considerations into projects.

The following **curriculum** is presented:

Common trunk			Option : Embedded Systems and IoT		Option : AI and Data Science		Option : Enterprise Systems Engineering		Option : Video Games and Simulations		DNI-Internship
Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 4	Semester 5	Semester 4	Semester 5	Semester 4	Semester 5	Semester 6
Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 393.75 Credits: 30	Hours: 450 Credits: 30
Logic and foundations of computer science	Numerical analysis (Nonlinear)	Metaheuristics	Virtualization of services and cloud computing	IoT security	Business Intelligence	Data Science	Machine-Learning	Enterprise Systems Architecture	Machine-Learning	Computer Animation	Internship-Capstone Project
Statistical methods (data, R, SPSS, etc.)	Optimization Methods and Applications	Introduction to artificial intelligence	Machine-learning	Data Streaming and Real-Time Processing	Feature Engineering	Big Data Hadoop ecosystems (Spark, NoSQL, etc.)	Deep learning & Applications	Business process engineering	Deep Learning	Gamification and applications	
Foundation of Operating Systems	Distributed and Concurrent Programming	Stochastic modeling	Deep Learning	Robotics	Machine learning	Data Streaming and Real-Time Processing	Digital Business Transformation	Business Intelligence and data analytics	Serious Gaming Fundamentals	3D Modeling, AR, VR and MR	
Transmission Technics	CCNA2 Certification (Switching, Routing, Wireless)	High Performance Computing	Big Data	Industry 4.0	Deep Learning	MLOPS	Enterprise Systems	Systems modeling and Simulation	Mobile Game Programming	Systems modeling and Simulation	
Programming Paradigms	Software Engineering & DevOps Practices (life cycle, agile, SE Frameworks, DevOps, CI/CD, MS project)	CCNA3 Certification (Network, Security)	Programming reconfigurable circuits	Formal specification for embedded systems	Big Data architectures	Generative AI & Coding Agents	Big Data	Blockchain principles and applications	Computer and Game Graphics	LLM	
Advanced Algo, DS and Complexity	Database Management Systems	Data and System Integration	Architecture, platforms and interfaces in IoT systems	Design of connected objects (Co-design)	Software Architecture	Agentic AI & Automation	Software Architecture	Systems Security and Availability	Content Creation and Level Design	In Game AI	
Dynamic Web Development (php, JS, ...)	Foundations of Relational advanced Databases (NoSQL, New SQL, etc)	Design patterns (HMI + Development)	IoT and WoT Development	Generative AI & Coding Agents	DevNet Associate	Reinforcement Learning	Virtualization of services and cloud computing	Data Streaming and Real-Time Processing	Services Virtualisation & cloud computing	Digital twins & cyber physical systems	
Foundations of Relational Databases	QA (TDD, BDD, Tests from Unit Tests to end to end tests)	Mobile programming (hybrid and native)	Software Architecture	Agentic AI & Automation	Virtualisation of services and cloud computing	LLMs	IoT architecture and platforms	MLOPS	Software Architectures	Game Engine Programming	
Self-knowledge through NLP	Cloud computing fundamentals	Advanced component and service oriented development	IoT communication Networks	Digital twins & cyber physical systems	Cyber security	3D Data Processing (VR, AR, MR)	Preparation for IELTS, TOEIC, TOEFL level 3& 4	Generative AI & Coding Agents	Architectures & IoT Platforms	Agentic AI & Automation	
Preparation for DELF and DALF level 1 & 2	Architecture of Processing Units (CPU, GPU, Cloud and Grid, MPP) and <i>Introduction to Quantum Computing</i>	Signal and image processing	Cyber security	Introduction to Quantum Computing	Cryptography	Introduction to Quantum Computing	Preparing for the PMP level 3	Agentic AI & Automation	Preparation for IELTS, TOEIC, TOEFL level 3& 4	Generative AI & Coding agents for games	
Preparing for the PMP level 1 & 2	Language Theory and Compilation	Design patterns (HMI + Development)	Preparation for IELTS, TOEIC, TOEFL level 3& 4	Ethical & Explainable AI	Preparation for IELTS, TOEIC, TOEFL level 3& 4	Ethical & Explainable AI	End Year Project	Introduction to Quantum Computing	End Year Project	Introduction to Quantum Computing	
	Real-time embedded operating systems	Mobile programming (hybrid and native)	Preparing for the PMP level 3	Digital entrepreneurship	Preparing for the PMP level 3	Digital entrepreneurship		Ethical & Explainable AI		Ethical & Explainable AI	
	Verbal & Emotional Intelligence (NLP)	Preparation for DELF and DALF level 3 & 4	End Year Project		End Year Project			Digital entrepreneurship		Digital entrepreneurship	
	Preparation for IELTS, TOEIC, TOEFL level 3&2										
	Design-thinking										

	Soft Skills
	Informatics
	Management
	Mathematical foundations of AI
	Embedded Systems and IoT / AI and Data Science/ Enterprise Systems Engineering /Video Games and Simulations

