ASIIN Seal & Euro-Inf® & EUR-ACE® Labels

Accreditation Report

National Engineering Diploma Degree Programmes
Computer Science Engineering
Industrial Engineering

Provided by
Institut Internationale de Technologie
in Sfax, Tunisia

Version: 20 March 2020

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Diplôme National d'Ingénieur en Génie Informatique	National Computer Science Engineering Diploma	ASIIN, Euro-Inf® Label	-	04
Diplôme National d'Ingénieur en Génie Industriel	National Industrial Engineering Diploma	ASIIN, EUR-ACE® Label	-	06
Date of the contract: 06.05.2019 **Submission of the final version of the self-assessment report:** 18.09.2019 **Date of the onsite visit:** 06.11.2019 **at: IIT in Sfax, Tunisia**				
Peer panel: Prof. Dr. Andreas Merchiers, University of Applied Sciences Bochum Prof. Dr. Ulrich Bühler, University of Applied Sciences Fulda Amen Allah Dhouib, Leoni Youssef Bouhlel, student at EPI Sousse				
Representative of the ASIIN headquarter: Arne Thielenhaus				
Responsible decision-making committee: Accreditation Commission for Degree Programmes				

[1] ASIIN Seal for degree programmes; EUR-ACE® Label: European Label for Engineering Programmes; Euro-Inf®: Label European Label for Informatics.

[2] TC: Technical Committee for the following subject areas: TC 04 - Informatics/Computer Science; TC 06 - Industrial Engineering.

Criteria used:

European Standards and Guidelines as of 15.05.2015

ASIIN General Criteria, as of 10.12.2015

Subject-Specific Criteria of Technical Committee 04 – Informatics as of 09.12.2011

Subject-Specific Criteria of Technical Committee 06 – Industrial Engineering as of 20.09.2019

B 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'Ingénieur en Génie Informatique	National Computer Science Engineering Diploma	-	7	Full time	-	6 Semesters	900 contact hours per year	Annual, Fall 2012
Diplôme National d'Ingénieur en Génie Industriel	National Industrial Engineering Diploma	-	7	Full time	-	6 Semesters	900 contact hours per year	Annual, Fall 2012

For the National Computer Science Engineering Diploma, the Institut Internationale de Technologie (IIT) has presented the following profile in the Self-Assessment Report:

"The Computer engineer should have broad knowledge and skills to go beyond the mere and simplistic scientific and technical knowledge. This is important to face the new expectations of the professional and socio-economic world that is constantly developing.

It is a question of having a broader vision of the engineering profession, which takes into account various factors. For example, for Computer engineers, the perpetual development of computer sciences must create innovation and take into account the incessant progress of technology. Therefore, during their education, our Computer engineers start by acquiring the fundamentals of the scientific and technical knowledge. Then, they attain a good sense of synthesis and analysis of the faced problem.

Later, they tackle more technical skills that pinpoint network and system administration as well as the design of computer systems.

Our engineers, having solid knowledge of the technical issues and the constraints of the profession, possess a capacity to anticipate the changes by a functional and organizational vision of the problems. They are able to select critical and important projects in disfavor of

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

low impact projects in order to optimize internal resources and to find the least expensive tools for the company.

Portfolios of new IT projects are becoming more complex, and solutions must be found with a clear view of customer needs. Our engineers developed skills enabling them to grab the different needs and to convert them rapidly and efficiently into projects.

Project management is one of the essential skills. It is the key to integrate into the organization, to animate it and to catalyze its evolution.

The IIT adapts projects and problems approach. These projects allow the engineering student to practice the management of IT projects and therefore improve his/her managerial skills. It is also an opportunity to further develop the spirit of responsibility, leadership and communication skills.

In addition, our engineers are ready to consider the various industrial, economic and professional challenges in terms of competitiveness and productivity.

The skills acquired in economics and accounting, give our engineers a better understanding of the economic and professional issues of the company.

When the mastery of entrepreneurship culture is combined with a solid knowledge of IT security systems, an innovative spirit is shaped to give our engineers a valuable asset to conquest the international market. In this context lies the good mastery and practice of foreign languages.

For the National Industrial Engineering Diploma programme, the institute has presented the following profile in the Self-Assessment Report:

“The Industrial engineering program, offered to the students of the IIT, covers the knowledge transferred in the majority of engineering schools of the country.

Eminently, the IIT devotes a wide range of tools to enrich the theoretical and practical knowledge in Industrial engineering. As a result, our Industrial engineers acquire advanced skills in the various production processes, the logistics chain as well as computer systems.

IIT Industrial engineer is able to analyze systemic problems, tries to solve and exploit them to make the necessary modifications aiming to increase performance.

According to the approach of the IIT, the Industrial engineer should be able to design the experimental processes related to production techniques. He should also implement minutely while respecting the quality standards and norms.

Our engineer skillfully observes, measures, analyses and interprets a production activity using the different technical data that are available. Then, he reasonably communicates the processed analysis.

In addition, our engineer genuinely governs a production system and overcomes its dysfunction. He/she is able to choose the most appropriate tools, integrate and configure them conveniently to set up the most adequate production system.

Being skillful in management, he/she can implement a smart purchasing strategy by optimally managing supplies and stocks.

Overall, the IIT graduate collectively leads and controls a project along with its organizational, communicative and coordinate aspects he/she is someone who occupies a key post in the company. Therefore, his/her expertise is needed to identify the skills and know-how of his/her colleagues to exploit them optimally through an appropriate socio-organizational strategy.

Our engineering students also develop transversal skills. These skills are their key to autonomously manage their mental and physical competences. It also empowers them with creativity and innovation to deal with the perpetually changing world. In fact, communicating proficiently in English and French languages is an advantageous asset to know and discover the international dimension of the profession."

C Peer Report for the ASIIN Seal[4]

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Module Descriptions for both study programmes
- Self-Assessment Report (SAR)

Preliminary assessment and analysis of the peers:
The desired learning outcomes for the study programmes are listed in the Self-Assessment Report (SAR). Module-specific learning outcomes are provided in the module handbooks.

According to the SAR, graduates of the Computer Science programme should have a general ability to synthesize and analyse problems, be able to administer systems and networks, to design computer systems, to anticipate changes in the IT stream and to manage complicated projects while taking into account customer needs. Graduates should have the mastery of software development and should be able to anticipate industrial, economic and professional stakes in terms of competitiveness and productivity. They should also have entrepreneurship and leadership skills and should be able to work in an international context through communication in one or more foreign languages.

Graduates of the Industrial Engineering programme should have knowledge of the fundamental sciences and of engineering sciences and techniques, a mastery of industrial engineering methods and tools, and the ability to improve and manage Industrial systems according to the international standards. They should have knowledge of digitalization and automation of information systems, in research and development, and the ability to consider every industrial, economic and professional issue. They should also have the ability to integrate into and evolve within a company and to work in an international context.

[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 peers are of the opinion, that the desired learning outcomes are viable and valid and meet the respective Subject-Specific Criteria (SSC) of the ASIIN Technical Committees (TCs) for Computer Science (TC 04) and Industrial Engineering (TC 06), and that they also meet the Euro-Inf® and EUR-ACE® criteria.

During the audit discussions, the peers learn that the programme coordinators are in continuous exchange with industry representatives to ensure alignment between the programmes' learning outcomes and industry requirements. This is furthermore confirmed in the meeting with the industry representatives and teachers, of whom many work in the regional industry. The industry representatives praise the IIT for being open-minded and willing to try new things. The peers view this close cooperation with industry positively. The peers also learn that students are able to influence the learning outcomes in discussions with teachers and programme coordinators, as well as through elected representatives who meet with programme coordinators and the leadership on a regular basis.

The peers are unable to see where these qualification objectives and learning outcomes are listed in a binding fashion, and ask the IIT to provide relevant documentation, as well as evidence that the objectives are transparent and accessible to all stakeholders.

Criterion 1.2 Name of the degree programme

Evidence:

- Ministerial orders for both study programmes.

Preliminary assessment and analysis of the peers:
The panel considers the French and English names of the study programmes to adequately reflect the respective aims, learning outcomes and curricula.

Criterion 1.3 Curriculum

Evidence:

- Module descriptions for both study programmes
- Self-Assessment Report
- Learning-Outcome- Module Matrices for both study programmes
- Curricula for both study programmes

Preliminary assessment and analysis of the peers:
With regards to the Computer Science programme, the peers note that some important theoretical elements, such as theory of computation, algorithms, data structure, program semantics and computational complexity are not mentioned in the module descriptions.

During the audit discussions, however, the teachers explain how these topics are covered in different modules.

During the audit discussions, the peers inquire about the extent to which scientific writing is included in the curriculum and learn that the students work on scientific projects for their final graduation project. Students are also encouraged to participate in extracurricular scientific projects, but this is not mandatory.

After reviewing the graduation projects on-site, the peers note that a number of them are superficial in nature. For instance, the Computer Science projects include very limited text and instead provide screenshots of computer code. The peers are of the opinion that theoretical aspects are insufficiently treated and that the scientific level is therefore insufficient. They furthermore note that scientific research and writing are not included in the desired learning outcomes. The peers note that scientific research and writing are crucial elements of higher-level study programmes and see an urgent need to integrate more of these elements in the curricula. While the peers see that the students receive mentoring during the graduation internship project, they suggest that, in addition, 30-60 contact hours should be dedicated to familiarizing students with academic research and writing.

Otherwise, the peers are of the opinion that the overall objectives and intended learning outcomes for the degree programme are systematically substantiated in the individual modules.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:
The admission requirements are described in the SAR. There are 32 open spots for the Industrial Engineering programme and 36 for Computer Science per year. For admission to the programmes, students must hold a degree from a preparatory institute (Bac +2) for engineering studies. This is required by Tunisian law. These students must also pass the National Entrance Exam for engineering schools. The programmes also admit holders of applied and basic diplomas (Bac + 3) and holders of a Master's degree 1 (Bac + 4). Students with the latter can skip the first year of the study programmes. The admission criteria for foreign applicants are also described in the SAR. Admission is determined through a competitive assessment of the file and a personal interview, which may also be conducted via a video conference. The purpose of this interview is to assess the scope and level of the candidates' previous studies, particularly in the basic sciences.

According to the SAR, after the interview, the committee decides to accept or refuse the candidate, or to place them on a waiting list. In the latter case, the student is ranked in order of merit. However, during the audit discussions, the peers are informed that programme spots are filled on a first-come, first-served basis, independent of merit. The peers ask the IIT to clarify which is the case.

The peers note that, depending on whether they hold a Bac + 2 or Bac + 3 degree, the first-year students will begin the programme with very different qualifications. The IIT explains that this is indeed the case. Students with applied diplomas have a stronger technical background and have an easier time mastering the technical content of the programme, while other students may have a stronger theoretical background and find other modules in the programme easier. By the end of the programme, however, the students generally arrive at a good balance of both technical and theoretical knowledge. The peers accept this explanation.

Overall, the peers are satisfied that the admission requirements and procedures are structured in a way that supports the students in achieving the learning outcomes. However, the peers are unable to see the official regulations published on the website, as the website is down for maintenance. The IIT must provide evidence that the rules are transparent in the course of the procedure.

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

With regards to the publication of the desired learning outcomes, the peers find that the IIT website is now accessible and that it provides a detailed overview of the competences and skills that the students should acquire during the degree programmes. The website also details industrial sectors and professions in which the students may apply the learned skills following graduation. The peers therefore find that the objectives are sufficiently transparent and accessible to stakeholders.

The IIT website now also provides details regarding the admissions procedure and criteria in both English and French. The IIT clarifies that students must meet the minimum criteria. If all spots are filled, students are waitlisted according to the order in which they applied. The peers consider the admissions regulations to be sufficiently transparent for all stakeholders.

With regards to the comments of the peers regarding scientific research and writing, the IIT responds that the reports viewed by the peers on-site were in a format required by the Tunisian Ministry of Higher Education, and may therefore not have met the peers' expectations. The IIT provides sample written "guides" which are generally used to support the

students in structuring and formatting their reports. The IIT furthermore agrees to implement the peers' suggestion to dedicate more contact hours to familiarize students with scientific reading and writing. These hours will be planned for the beginning of the fourth semester.

The peers believe that the provided guides can be helpful but believe additional instruction in academic research and writing to be particularly important. They therefore favourably view the IIT's initiative to dedicate more contact hours to these subjects. In this regard, the peers ask the IIT to provide evidence in the course of the procedure that the mentioned changes have been implemented.

Criterion partially fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Report
- Audit discussions
- Curricula for both study programmes

Preliminary assessment and analysis of the peers:
The degree programmes are divided into modules, where each module is a sum of teaching and learning whose contents are concerted. The peers note that almost all modules are composed of multiple submodules, ranging from 12-42 contact hours per submodule. Modules are split into four types, including basic modules, specialty modules, modules aiming at the engineering sciences and techniques, and preparation for the professional career (PPC) modules. PPC modules include, for instance, project management courses and French and English language courses. Both study programmes also contain a (sub)module for a second year project and a final graduation project module. The latter covers the entire final (sixth) semester.

With the exception of the final semester, there are 12-16 (sub)modules per semester. During the audit discussions, the peers ask whether the small module sizes render the taught

contents excessively superficial. The IIT responds that the structure follows ministry guidelines and that the IIT has limited flexibility to implement structural changes. While the modules are small, they are linked to each other, and subsequent modules go into more and more detail. Furthermore, the internships in between allow the students to practically apply the learned lessons. The peers remain sceptical that this structure ensures the learning outcomes can be reached – in their opinion, many of the modules should be combined to permit an in-depth treatment of the material. “Web programming” and “Advanced Web Programming”, for example, could be combined.

For the Industrial Engineering programme, the peers note that some of the modules consist of submodules covering very heterogeneous subjects. For instance, the submodules of the “Industrial Systems” Module include “Production and Inventory Management”, “Quality and Environmental Management” and “Law and Business Management”. The “Process Management” module includes the submodules “Web Programming”, “Simulation of Industrial Systems”, “ERP” and “Development of a Management Application”. The peers are uncertain about the utility of combining diverse subjects in one module and believe that this impedes an in-depth treatment of the subject-matter. For instance, it would presumably be better to combine the submodule “Web programming” with some of the other computer workshops. The peers furthermore see the potential to combine modules such as “Supply Chain Management”, “ERP” and “Logistics”. In the peers’ opinion, the current structure likely results in unnecessary repetition of content and does not permit sufficient in-depth treatment. The peers therefore require that the IIT reduces the fragmentation of the curricula, or organizes modules in a coherent manner that avoids repetition and permits an in-depth treatment of the subject matter.

During the audit discussions, the peers inquire whether the study programmes permit specializations or an individual focus or course of study. The IIT explains that the programmes do not include any specializations. Previously, the programmes included electives. However, the curricula were reviewed with the input of students, industry partners and other stakeholders, and it was decided that all of the proposed course contents were important, resulting in the elimination of the electives. The students still have the ability to participate in additional specialized certification courses, as well as in study abroad programmes – a list of study abroad programmes and the participating students is provided in the SAR.

The peers suggest that there are presumably additional opportunities for the IIT to create elective content and therefore permit an individual focus. For instance, some of the Industrial Engineering Modules focusing on heat transfer and polymers could be converted to electives. To ensure a sufficient number of participants, elective modules could be designed to be open to students from other study programmes as well. The IIT agrees to consider

this. Overall, the peers consider the curricula too rigid and that the students have insufficient options to pursue an individual course of study.

The peers also note that there are a number of certification preparation courses in the curricula. The Computer Science programme, for instance, includes the three modules "Databases: Oracle Certification Preparation", "Preparation for CCNA1 certification" and "Preparation for LPI 101 certification". In addition to combining these modules, the IIT could consider offering these types of preparation courses as additional, extra-curricular training courses and could use this new space in the curriculum to permit a more in-depth treatment of theoretical aspects.

The peers learn from the documentation that there are three working practice intervals or internships in which the students participate. The peers note that the first internship is a 1-month "observation" internship and inquire what the students do. The IIT explains that the students do not simply "observe" but are also given tasks. This is confirmed by the students. The peers also learn that, for nearly all students present during the discussions, the observation internship lasted 2-3 months. While the students are expected to find internships on their own, the teachers also provide the students with company connections if they have difficulties. Thus far, all the students were able to find internships. The first two internships are conducted between semesters, while the final "graduation" internship takes place in the 6th semester. The peers see that they are therefore well-integrated into the curriculum. The peers recommend that the minimum length of the first two internships is extended to two months to ensure a sufficient immersion.

The peers note that, while there are language courses in English in the curricula, practically all courses are taught in French. During the audit discussions, the students comment that they would like to have more courses taught in English. The peers feel that this is a valid request which would support the programmes' desired learning outcome to create internationally mobile graduates. They therefore recommend that the IIT integrates more English-language courses in the programme curricula.

From the information provided in the SAR, the peers see that a number of students in the programmes participated in international exchange programmes, for instance at Universities in France and in Canada. The peers learn that there are rules for recognising achievements and competences acquired outside the higher education institution, which render the transition between higher education institutions easier. When considering the recognition of modules from other Higher Education Institutions, the programme coordinators review the learning outcomes and check the extent to which these overlap with those modules provided by the IIT. The peers consider this method acceptable.

During the audit discussions, the students note that they would appreciate additional international exchange opportunities, and also express a desire for more certification programmes, more workshops and more practical courses, including ones provided by outside experts. The peers particularly agree with the students' requests for more practical courses and recommend that the IIT takes action to enable this.

Based on the overall positive discussions with the students, the peers are under the impression that the curriculum is structured in a way to allow students to complete the degree without exceeding the regular course duration.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Module descriptions for both study programmes

Preliminary assessment and analysis of the peers:
From the module descriptions and during the audit discussions, the peers learn that there is no credit point system in place. While contact hours are listed in the individual module descriptions, there is no indication of self-study hours. The IIT explains that the contact hours are 900 hours per academic year, as prescribed by the Tunisian Ministry of Higher Education. These hours are spread across 28 weeks (14 weeks per semester). The IIT would prefer to have a lower number of contact hours, around 700, and increase the number of self-study hours. However, it must adhere to regulations.

From the statistics provided in the SAR, the peers note that some of the modules have a high failure rate, requiring the students to repeat them. The statistics suggest that the study programme is generally feasible within the allotted time-frame, but provide a limited picture of the student drop-out rates and the average length of studies for the students in each cohort. The peers therefore ask the IIT to provide this information.

The peers see that the IIT does not utilize a credit point system oriented on the amount of work, including both attendance-based learning and self-study. The peers therefore require that the IIT implements such a credit point system in the course of the procedure. It must assign an appropriate number of credit points to each module or sub-module, including the final graduation project.

The estimation of workload must not be based on contact hours only (i.e. hours spent by students on activities guided by teaching staff). It embraces all the learning activities, including the time spent on independent work, compulsory work placements, preparation for assessment and the time necessary for the assessment. In other words, a seminar and

a lecture may require the same number of contact hours, but one may require significantly greater workload than the other because of differing amounts of independent preparation by students.

Using this approach, all the teaching staff are involved in the process of credit allocation. They can put forward their proposals in terms of learning outcomes, and estimate the workload necessary to achieve them.

Typically, the estimated workload will result from the sum of:

- the contact hours for the educational component (number of contact hours per week x number of weeks)
- the time spent in individual or group work required to complete the educational component successfully (i.e. preparation beforehand and finalising of notes after attendance at a lecture, seminar or laboratory work; collection and selection of relevant material; required revision, study of that material; writing of papers/projects/dissertation; practical work, e.g. in a laboratory)
- the time required to prepare for and undergo the assessment procedure (e.g. exams)

Since workload is an estimation of the average time spent by students to achieve the expected learning outcomes, the actual time spent by an individual student may differ from this estimate. Individual students differ: some progress more quickly, while others progress more slowly. Therefore, the workload estimation should be based on the time an "average student" spends on self-studies and preparation for classes and exams. The initial estimation of workload should be regularly refined through monitoring and student feedback.

Within the ECTS, one credit corresponds to 25 to 30 hours of students' work. The IIT should follow this framework and make transparent exactly how many hours of workload are needed for one credit point. By considering students' workload in curriculum design and delivery, the IIT would facilitate mobility from institution to institution, from country to country, and between different educational sectors and contexts of learning.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers learn during the audit discussions that a variety of teaching methodologies are applied in the programmes. Courses may be "integrated", including theoretical and practical work, strictly "practical", "project" -based, and may also include visits. For the module

General Economics, for instance, the students may visit the Sfax Business Centre at the local Chamber of Commerce to learn about support programmes for local entrepreneurs. Local companies are also visited – the Industrial Engineering students visit local manufacturers, Computer Science students visit local data centers. The peers learn that in the courses on campus, teachers also implement student-centered learning techniques such as Management Games and flipped-classroom formats. Sometimes videos are used to demonstrate industrial processes, such as extrusion. Since many of the teachers are also working in the related industries, they frequently introduce real-world examples from their work environments into their courses.

With regards to practical training, a number of the more technical courses for the Industrial Engineering programme take place at the laboratory facilities of a local cooperating partner. As the peers are able to observe during their visit, teachers and students visit these facilities so that students can, for instance, learn how to interpret and practically implement instructions provided by hydraulic diagrams. In the Computer Science programme, programming modules include practical programming exercises as well as final projects in which students must apply all the learned skills. In the Data Security module, courses begin with theory and then teach students to use relevant software.

With regards to independent academic research, the IIT explains during the audit discussions that in Tunisia, private HEIs do not have the right to implement PhD programmes. As a result, there is limited independent academic research - research at the IIT focuses on helping local companies with specific problems.

The balance between attendance-based learning and self-study is already discussed under criterion 2.2.

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:
During the audit discussions, the peers inquire regarding the support provided to students. The IIT explains that the heads of departments as well as the Quality Department help to assure that students' needs are met. For example, students who feel they are being mistreated based on race or ethnicity can submit complaints to the Quality Department. There is also IT staff which helps students with IT problems. An "Integration Day" serves to welcome international students. Students are also provided with a hard-copy "Student Guide"

which provides them with important information regarding their studies. Academic assistance is provided by teachers in the form of office hours as well as online via moodle.

The peers learn during the student discussions that the students are satisfied with the support received from the IIT. Many of the students are involved in extracurricular clubs, focusing on a range of topics related to their study programs. These clubs are encouraged and supported by the IIT. The peers applaud the IIT for its efforts in this regard.

During the audit, the peers are able to review some recent evaluations provided by international students and see that a common concern for newly arriving students is locating housing. The peers therefore recommend that the IIT provides international students with additional assistance in this regard.

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

With regards to the peers' comments regarding the fragmentation of the curricula, the IIT initially responds that there are ministerial restraints in place which limit the combining of modules and the implementation of electives. In a subsequent Email, however, the IIT explains that the Ministry will likely allow a combination of modules as suggested by the peers, and that the IIT will discuss possible combinations at the next meeting of its scientific council.

After further review of the provided documents and explanations, the peers find the treatment of theoretical elements in both curricula to be sufficiently in-depth to permit the attainment of the desired learning outcomes. However, the peers continue to believe that a reduction in the fragmentation and reorganization of the curriculum will permit an even more in-depth treatment of the subject matter and reduce the possibility that course contents are repeated. Therefore, they recommend that the IIT proceeds with the proposed combination of modules.

Regarding the inclusion of certification courses, the IIT believes that they provide important benefits to the students. On the one hand, the students know that certifications are positively viewed by employers, therefore they are highly motivated to do well in these courses. Furthermore, the students would presumably participate in these courses even if they were not part of the curriculum, meaning that they would face an additional workload on top of their studies. The current arrangement ensures that the students do not face an excessive workload.

The peers understand that the IIT is concerned about the workload and that students have a strong interest in performing well in certification courses due to employers' interest.

However, they do not believe that these certification courses are critical to the students' development as a computer engineer or industrial engineer. They therefore recommend that the IIT offer these courses as electives. The peers note that the current curriculum does not permit the students to pursue an individual course of study, and that, as a result, the IIT must modify the curriculum to include electives – whether these consist of certification courses or other courses is the choice of the IIT.

With regards to the feasibility of the study programme within the proposed time frame, the IIT submits information concerning the number of drop-outs in both programmes since their initiation. The peers note that the number of drop-outs per cohort is in many cases zero, and on average less than two. The IIT also provides information regarding the average length of study of the past five cohorts in each programme, which shows that in each cohort, at least 80% of students finished in 6 semesters. The remaining students finished in the seventh semester. The peers are therefore of the opinion that the study programmes can be completed within the prescribed time period.

Following the peers' suggestion to implement the ECTS credit point system, the IIT submits a proposal including an overview of the modules in each semester, in which a number of credit points have been allocated to each module. According to the IIT, this model will be discussed and validated in its next internal meetings. The peers consider this a step in the right direction. In the course of the procedure, the IIT must submit evidence that the credit point system has been implemented, as well as the revised module descriptions including credit points for each module.

Concerning the recommendation to extend the length of the internships, the IIT notes that "one-month" internships are required by the Tunisian Ministry of Higher Education. The peers nonetheless recommend extending the minimum length of internships to two months, but note that these must also be appropriately credited. The number of credits, objectives, etc. should be detailed in a designated module description.

Concerning the students' desire for more English-language modules as well as more practical modules, the IIT notes in its response that it agrees with the assessment of the peers that these would make for useful additions. However, the IIT does not provide any clear indication that it will pursue such changes, or what such changes would entail. The peers maintain their recommendation to add more practical modules and more English-language modules and note that related progress will be reviewed during reaccreditation.

In response to the peers' comments concerning international students, the IIT reports that three international student delegates have been elected, which will communicate international students' needs and concerns to the IIT's staff. The minutes of the first meeting have

been submitted by the IIT. The peers praise the IIT for this initiative and encourage it to continue on this path.

Criterion partially fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module handbooks for both study programmes
- Document « Politique et procédure du déroulement des examens »
- Audit discussions

Preliminary assessment and analysis of the peers:
Assessment types for each module are provided in the individual module descriptions. Examination regulations and procedures are described in the SAR and in the provided document « Politique et procédure du déroulement des examens ». The peers see that a variety of assessment types are implemented, including written exams, projects, reports and in some cases oral exams. For the final graduation projects, students prepare a written report and defend it orally. Attendance is also monitored.

From statistics provided in the SAR, the peers see that in the past, there were high failure rates in some modules. The IIT explains that the failure rates vary from cohort to cohort and that failure can also be related to missing too many classes – students who miss more than 20% of a module's classes are barred from taking the course's semester exam. With regards to testing methods, teachers are given guidelines, but there are, for instance, no rules regarding how many students must be passed or failed. Grading criteria are determined by each teacher individually. If exams show an unusual distribution of results, the teachers and pedagogical committees will review the exam format. From the discussions with the students, the peers learn that only one of the present students had to participate in a re-sit due to failure. The students consider the level of difficulty of the exams acceptable and report that they have sufficient preparation time.

The peers learn during the audit discussions that students can appeal received marks 2 times per semester. The peers suggest that this could be problematic if a student receives unjustified marks more than twice. The IIT explains that if the assessment committee finds

that a student's protests are valid, this is not subtracted from the number of possible protests. The idea is to prevent students from protesting all marks. In general, however, protests rarely take place. The peers accept this explanation.

During the audit, the peers review a number of graded student projects. They note that some of the projects contain very limited writing, particularly for the Computer Science programme. As already mentioned in criterion 2.3, the peers see a need for the IIT to improve the students' abilities in academic research and writing. The assessment forms must be adapted accordingly. Apart from this, the peers are of the opinion that the exams are module-related and serve to measure the extent to which students have reached the defined learning outcomes.

The transparency of the role played by exams in the final module grades is discussed under criteria 5.1. The transparency of the examination regulations is discussed under criteria 5.3.

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

The IIT does not submit any comments regarding this section.

As mentioned above, the peers see a need to adapt the assessment forms to improve the students' abilities with regards to academic research and writing. In the course of the procedure, the IIT must provide evidence that appropriate methods are used to assess the students' performance with regards to academic research and writing.

Criterion partially fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- CVs of teaching staff
- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:

The IIT provides the CVs for the teaching staff in the study programmes. According to the SAR, the Industrial Engineering and Computer Sciences programmes have 2 and 3 full-time staff members, respectively, and 20-30 part-time staff members. The IIT also provides an overview of the criteria for recruiting and evaluating staff members. The peers learn during

the discussions with the industry representatives that many of the part-time teaching staff members work in the local industry. The peers can see that this circumstance helps ensure that curriculum contents are closely tied to industry needs. The peers learn that research and development activities are also generally carried out in line with local industry interests. However, the IIT explains that there is a limited focus on research at the institute, due to the fact that, according to Tunisian law, private HEIs may not implement PhD programmes.

Based on the audit discussions, the peers are of the opinion that there are sufficient administrative staff members to implement the study programmes.

With regards to the academic staff, the peers note that some of the CVs for the staff mentioned in the module handbooks are missing, for instance, of Computer Science staff members Mohamed Meena, Hatem Jarraya, and Akram Kammoun, and Industrial Engineering staff Moez Hadj Kacem and Amira Bouaziz. The peers request that the IIT submits all of the missing CVs for all of the teaching staff involved in the two programmes.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers learn during the audit discussions that the teachers receive training from external experts, which also teach student-centred learning techniques. The peers positively note that training includes recording the teachers' lectures and providing them with feedback on how they can improve. Furthermore, additional pedagogical measures may be recommended to teachers based on students' feedback in evaluations. The peers conclude that there are sufficient offers and support mechanisms available for teaching staff who wish to further develop their professional and teaching skills.

Criterion 4.3 Funds and equipment

Evidence:

- Self-Assessment Report
- Audit discussions
- On-site visit

Preliminary assessment and analysis of the peers:
The IIT was founded in 2012. Funds for launching the IIT were drawn from a number of private investors – the related documentation is provided along with the SAR. The IIT plans to finance itself exclusively from tuition fees. The IIT also can draw on grants to support its recruitment activities.

During the on-site visit, the peers visit the lecture halls, classrooms, computer labs, technical labs, machine-workshops, library, cafeteria, common areas and the facilities of a cooperating partner, where courses in heat transfer and fluid mechanics are taught.

The peers note that most of the on-site lab facilities are limited with regards to size and equipment. In the mechanical lab, the peers see machining centers and 3D printers, however, it is unclear what parts of the Industrial Engineering curriculum are carried out in these labs and whether the equipment is fully functional. The library facilities are very small and the collection of books very limited, including with regards to literature relevant to the study programmes. When asked by the peers, the students confirm that they would prefer to have a bigger library. The peers furthermore learn that access to online academic resources is limited to publicly available resources – while access to academic databases existed in the past, it was cancelled due to rising costs. The peers learn during the audit discussions that the IIT plans to open a second campus in a new commercial park outside of the city centre, which will provide students with more space and facilities. The peers note that the lab facilities of the cooperating partner, where fluid mechanics and heat transfer are taught, are much larger and better equipped.

With regards to IT resources, the peers learn that all students are provided with a Microsoft Office package and that licenses are provided for ERP software (one license per two students).

Overall, the peers see the provided resources as adequate for the implementation of the study programmes, with significant potential for improvement. The peers recommend in particular improving the equipment of the mechanical labs. Moreover, they see an urgent need for improvement with regards to the academic resources. In the course of the accreditation procedure, the IIT must ensure students have sufficient access to academic literature, to ensure that they have opportunity to engage in high-level academic research and writing. The peers also ask the IIT to supply a copy of the cooperation agreements it has with the partners with regards to use of laboratory facilities. Furthermore, the peers ask the IIT to provide information about which practical exercises of the Industrial Engineering curriculum are carried out at the viewed IIT facilities, and to detail its future plans for improving the students' access to high-quality laboratory resources. Finally, they ask the IIT

to provide a list of Software utilized for practical exercises in the Computer Science programme.

In light of the institution's rapid growth over the past years (as indicated in the provided statistics regarding the number of students) and their on-site observations, the peers are confident that the funds are sufficient for ensuring continuation of the two study programmes over the accreditation period.

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

With regards to staff, the IIT notes that the report incorrectly suggests that the IIT only has two and three fulltime staff members respectively for industrial engineering and computer science engineering. In addition, there are five PPC (Preparation for Professional Career) teachers mentioned that are part of both departments. Furthermore, fulltime staff members from other departments (Telecommunication Engineering, Civil Engineering, Mechanical Engineering, etc) support teaching efforts and assist with industrial visits, admissions committee, internship supervision, etc. The IIT also submits the missing CVs of the staff members, which the peers consider to be in order.

With regards to the peers' comments concerning the library resources, the IIT responds that it has an agreement with the "Institut Supérieur des Arts et Métiers de Sfax" (http://www.isams.rnu.tn) and the "Institut Supérieur des Etudes Technologiques de Sfax" (www.isetsf.rnu.tn), giving the IIT students access to the libraries of these institutes. The IIT submits the signed agreements with its response. IIT students or staff can also request that specific books or scientific papers are purchased. The IIT submits the request form which can be used for this purpose.

The peers favourably view that the IIT cooperates with other institutions and responds to specific requests to expand the library resources available to its students. However, the peers note that one of the agreements only concerns students from the IIT's architecture programme and is therefore not relevant to the Computer Science and Industrial Engineering programmes. Furthermore, they are unable to judge the amount and type of resources made available through the other cooperation agreement. In the course of the procedure, the IIT must expand available resources or else demonstrate that the students in the two study programmes have access to an appropriate amount of relevant academic literature.

The IIT furthermore submits the documents requested by the peers, including copies of the agreements with two partner organizations concerning the use of laboratory facilities, a list of computer software employed for practical exercises within the different modules, as well as a list of modules and exercises carried out at the in-house chemical and mechanical

labs. The lists suggest that all of the practical lab exercises are carried out at partner facilities, and that the viewed in-house facilities are not used for the implementation of the curriculum. During a subsequent phone call, the IIT explains that students from the Industrial Engineering programme may use the in-house labs for special projects and by student clubs. During the visit of the partner facilities, the peers were able to determine that these are sufficiently equipped. The peers therefore find the overall lab resources to be sufficient. However, the peers believe that the students could benefit from better equipment at the on-site IIT labs and therefore recommends that the IIT take measures to upgrade these.

Criterion partially fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module descriptions for both programmes

Preliminary assessment and analysis of the peers:
Module handbooks are provided for both study programmes in both English and French. The peers note that the French-language descriptions are, in general, more detailed, but also that they do not contain all the information required by the criteria.

The peers see that the module descriptions aim to cover contents, objectives and desired learning outcomes. However, the peers note that some of the listed objectives are sometimes very brief – in the module "Accounting for the Engineer", for instance, the course description and objective is "to familiarize the engineering student with general accounting". As learning outcomes, the description includes a table of subjects and the number of hours dedicated to each. This pattern is followed in most of the module descriptions. In the opinion of the peers, these are in many cases not learning outcomes but rather a description of the course contents (see for example the description for "Computer Architecture"). The desired learning outcomes should reflect the desired knowledge, skills and competences the students should have after completing the module. The peers also note that the module descriptions vary significantly with regards to the level of detail – some modules, like "Cloud Computing" and "Material Mechanics", provide very general information and should provide more detail.

The peers therefore require that the Institute revises the module descriptions so a sufficient level of detail is provided throughout and desired learning outcomes are distinguish-

able from the course contents. Furthermore, the peers note that the format of the descriptions varies – the peers are of the opinion that the format should be identical for all module descriptions, to ensure easy understanding.

The peers also note that most of the descriptions provide no indication how the grade for the module is calculated, and no date of last amendment. Many module descriptions (ex: "Logical Systems") do not contain recommended literature. Also, there is limited information about practical exercises (ex: "Computer Architecture").

The issue of credit points was discussed under criterion 2.2. The peers note that the descriptions contain no module codes, and ask the IIT to clarify whether, in general, it utilizes such codes. The peers also note that the IIT did not submit module descriptions for the final graduation project module, nor for the second year project modules.

The peers therefore ask the IIT to submit revised module descriptions, which meet the criteria, for all modules, in the course of the procedure. The IIT must also provide evidence that the French-language descriptions are publicly available to students (for example via the website).

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- none

Preliminary assessment and analysis of the peers:
The IIT explains during the audit that it does not have diploma supplements, but that these will be developed and provided to the peers for inspection in the course of the procedure.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Report
- "Règlement Intérieure 2018"
- Student guide
- Document "Enseignement Privé" (Laws pertaining to private higher education institutions in Tunisia)
- Website

Preliminary assessment and analysis of the peers:
Along with the SAR, the IIT provides internal rules and regulations as well as a copy of Tunisian laws regulating private higher education institutions in Tunisia. The peers are also

able to view a copy of the Student Guide on location. The peers note that these documents contain a variety of general rules and regulations regarding studies at the institution, for example exams, appropriate behaviour, etc., that are not specific to the study programmes. For instance, the peers do not see any binding documents describing the programme-specific admission criteria. The peers are unable to verify whether this information is available on the website of the IIT, as it appears to be down for maintenance. Within the course of the procedure, the IIT must provide evidence that all course-related rules and regulations are binding and made available and accessible to all stakeholders.

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

With regards to the revised module descriptions and new diploma supplements, the IIT submits templates which it plans on using for these purposes. The peers favourably view the IIT's efforts. The peers are of the opinion that the IIT should utilize the module description template it has prepared to publish module descriptions for all modules, including the graduation project, and ensure the module descriptions include self-study hours, credit points and information about the calculation of the module grade. Information about the calculation of the module grade should, as a minimum, include the types of graded activities in the module, and the respective percentage in the overall module grade (for example: "Attendance: 30%, Project: 30%; Final Exam: 40%.")

As previously mentioned, the updated website of the IIT now contains the admissions regulations in both French and English, which the peers therefore find to be sufficiently transparent. With regards to the transparency of rules and regulations, the IIT provides a copy of the "Règlement Intérieur" or "Interior Regulations" in which grading, examination and attendance rules are provided in detail. In the course of the procedure, the IIT should provide evidence that these rules and regulations are made available on the website.

Criterion partially fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Audit discussions

Preliminary assessment and analysis of the peers:
The peers see from the documentation and the audit discussions that the IIT implements a comprehensive quality management system in which the responsibilities and mechanisms for the purposes of continued development are defined and binding. The peers positively note that the IIT has also received ISO 9001 certification. Quality management is organized by the quality department, but involves all levels of the organization. Anonymous evaluations take place at regular intervals to obtain feedback from students with regards to course contents. As stated under criterion 1.1, the students also elect delegates which meet with the department heads on a regular basis. The peers also see that international students are surveyed with regards to the ease of integration. Feedback regarding the curricula is also collected from industry partners. From the audit discussions, the peers learn that the IIT has utilized feedback obtained from evaluations to implement improvements. This has resulted in, for instance, the addition of additional modules and topics, such as Data Science, programming in Python, a new certification programme for ERP programs, and new contents related to Data Mining and Business Intelligence. The evaluations also resulted in additional pedagogical training for some of the teachers.

A small number of sample evaluations and evaluation results are provided in the SAR and during the discussions. From these, the peers can see that the evaluations help the IIT determine whether the intended learning outcomes have been achieved, the academic feasibility of the degree programme, student mobility (abroad, where applicable), how the qualifications profile is accepted on the labour market, and the effect of measures in use to avoid unequal treatment at the higher education institution.

During the audit discussions, the peers ask to see additional evaluation results from specific modules. The IIT staff provides some data, however, the peers note that this data is not useful for drawing conclusions, as it does not show the contents of the questions, only the numbers. The peers therefore ask the IIT to provide student evaluations and an overview of evaluation results from the last semesters, for both programmes, including the contents of the questions and the distribution of answers.

During the discussions with the students, the peers learn that the students feel they are adequately involved in the quality management system, because they can see changes take place after voicing their concerns. However, they report that teachers do not discuss evaluation results and implemented changes with the students. The peers consider this aspect a critical part of the feedback loop and therefore require that module evaluation results be discussed with the students.

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

With regards to the evaluation results, the IIT responds that the results viewed during the audit were a synthesis of results that were not useful for drawing conclusions. The IIT submits a folder with evaluations from modules from both programmes, as well as an overview of the questions. After reviewing the questions and the evaluation results, the peers recognize that the survey questions are useful for determining improvement potential, and that, in general, the students are satisfied with the modules.

The IIT notes that it has implemented a new rule with regards to its quality management system, requiring teachers to discuss results with the students. The peers applaud the IIT's initiative. In the course of the procedure, the IIT must provide evidence that these discussions between students and teachers take place.

Criterion partially fulfilled.

D Additional Documents

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

D 1. Overview of drop-out rates and average length of study for each cohort for both programmes

D 2. Student evaluation results for the programmes

D 3. Copy of cooperation agreements with partners with regards to use of laboratory facilities

D 4. For the Computer Science programme: list of computer software employed for practical exercises within the different modules.

D 5. For the Industrial Engineering programme: list of modules and exercises carried out at the in-house chemical and mechanical labs (if this is the case)

E Comment of the Higher Education Institution (15.01.2020)

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

- Statistics regarding drop out rate
- Folder with evaluation results from modules from both study programmes
- Cooperation agreements with the Centre de formation et d'apprentissage Bach Hamba de Sfax and the Centre Sectoriel de Formation en Électronique de Sakiet-Ezzit Sfax regarding use of laboratory facilities.
- Table of software programmes used in different modules in the Computer Science programme
- List of modules and exercises for industrial engineering, including location where instruction takes place
- "Cahier de charges d'un projet" guide for student projects
- Overview of modules in both study programmes with allocated credit points
- Additional CVs of staff members
- Template for new module descriptions in both English and French
- Template for new diploma supplement
- Minutes of first meeting with international student delegates which took place December 16th, 2019
- Cooperation agreement with the Institut Supérieur des Art et Métiers de Sfax and the Institut Supérieur des Études Technologiques de Sfax regarding use of library facilities.
- Request form for new books / scientific papers
- Internal Regulations Version 2 from 22nd August 2018

F Summary: Peer recommendations (26.02.2020)

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

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
National Computer Science Engineering Diploma	With requirements	Euro-Inf®	30.09.2025
National Industrial Engineering Diploma	With requirements	EUR-ACE®	30.09.2025

Requirements

For all study programmes

A 1. (ASIIN 2.1) Integrate electives in the curricula.

A 2. (ASIIN 2.2) Implement a credit point system oriented on the amount of work required from students, where the workload comprises both attendance-based learning and self-study, and assign an appropriate number of credit points to all required curricula content.

A 3. (ASIIN 2.3, 3) Ensure sufficient integration of scientific research and writing in the curricula and adapt assessment forms appropriately.

A 4. (ASIIN 4.3) Ensure that the students in the study programmes have access to an appropriate amount of relevant academic literature.

A 5. (ASIIN 5.1) Provide and publish module descriptions for all modules in the course language, including for the graduation project and required internships, and ensure the module descriptions differentiate between objectives and contents and cover all aspects required by the criterion.

A 6. (ASIIN 5.2) Provide diploma supplements.

A 7. (ASIIN 5.3) Ensure that all rules and regulations concerning the study programmes are transparent.

A 8. (ASIIN 6) Systematically discuss evaluation results with students within the modules.

Recommendations

For all study programmes

E 1. (ASIIN 2.1) It is recommended to reduce the fragmentation of the curricula and to integrate more practices and courses taught in English in the curricula.

E 2. (ASIIN 2.1) It is recommended to extend the minimum length of the first two internships to two months.

E 3. (ASIIN 2.4) It is recommended to provide more support to international students in finding housing.

E 4. (ASIIN 4.3) It is recommended to upgrade the equipment in the on-site mechanical laboratory facilities.

G Comment of the Technical Committees

Technical Committee 04 - Informatics (09.03.2020)

Assessment and analysis for the award of the ASIIN seal:

According to the Technical Committee, the study programmes do not meet the basic requirements to be accredited by ASIIN. The Technical Committee therefore advocates a suspension of the accreditation process.

Analysis and evaluation for the award of the Euro-Inf® label:

The Technical Committee is of the opinion that the intended learning outcomes do not correspond to the subject-specific criteria of the Technical Committee 04 - Informatics.

The Technical Committee 04 recommends the suspension of the procedure:

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
National Computer Science Engineering Diploma	Suspension of procedure	Euro-Inf® - Suspension of procedure	30.09.2025

Requirements

For all study programmes

A 1. (ASIIN 2.1) Integrate electives in the curricula.

A 2. (ASIIN 2.2) Implement a credit point system oriented on the amount of work required from students, where the workload comprises both attendance-based learning and self-study, and assign an appropriate number of credit points to all required curricula content.

A 3. (ASIIN 2.3, 3) Ensure sufficient integration of scientific research and writing in the curricula and adapt assessment forms appropriately.

A 4. (ASIIN 4.3) Ensure that the students in the study programmes have access to an appropriate amount of relevant academic literature.

A 5. (ASIIN 5.1) Provide and publish module descriptions for all modules in the course language, including for the graduation project and required internships, and ensure the

module descriptions differentiate between objectives and contents and cover all aspects required by the criterion.

A 6. (ASIIN 5.2) Provide diploma supplements.

A 7. (ASIIN 5.3) Ensure that all rules and regulations concerning the study programmes are transparent.

A 8. (ASIIN 6) Systematically discuss evaluation results with students within the modules.

Recommendations

For all study programmes

E 1. (ASIIN 2.1) It is recommended to reduce the fragmentation of the curricula and to integrate more practices and courses taught in English in the curricula.

E 2. (ASIIN 2.1) It is recommended to extend the minimum length of the first two internships to two months.

E 3. (ASIIN 2.4) It is recommended to provide more support to international students in finding housing.

E 4. (ASIIN 4.3) It is recommended to upgrade the equipment in the on-site mechanical laboratory facilities.

Technical Committee 06 – Industrial Engineering (10.03.2020)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and agrees with the assessment of the peers.

Assessment and analysis for the award of the EUR-ACE® Label:

The Technical Committee deems that the intended learning outcomes of the degree programme comply with the engineering specific part of Subject-Specific Criteria of the Technical Committee 06.

The Technical Committee 06 recommends the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
National Industrial Engineering Diploma	With requirements	EUR-ACE®	30.09.2025

Requirements

For all study programmes

A 1. (ASIIN 2.1) Integrate electives in the curricula.

A 2. (ASIIN 2.2) Implement a credit point system oriented on the amount of work required from students, where the workload comprises both attendance-based learning and self-study, and assign an appropriate number of credit points to all required curricula content.

A 3. (ASIIN 2.3, 3) Ensure sufficient integration of scientific research and writing in the curricula and adapt assessment forms appropriately.

A 4. (ASIIN 4.3) Ensure that the students in the study programmes have access to an appropriate amount of relevant academic literature.

A 5. (ASIIN 5.1) Provide and publish module descriptions for all modules in the course language, including for the graduation project and required internships, and ensure the module descriptions differentiate between objectives and contents and cover all aspects required by the criterion.

A 6. (ASIIN 5.2) Provide diploma supplements.

A 7. (ASIIN 5.3) Ensure that all rules and regulations concerning the study programmes are transparent.

A 8. (ASIIN 6) Systematically discuss evaluation results with students within the modules.

Recommendations

For all study programmes

E 1. (ASIIN 2.1) It is recommended to reduce the fragmentation of the curricula and to integrate more practices and courses taught in English in the curricula.

E 2. (ASIIN 2.1) It is recommended to extend the minimum length of the first two internships to two months.

E 3. (ASIIN 2.4) It is recommended to provide more support to international students in finding housing.

E 4. (ASIIN 4.3) It is recommended to upgrade the equipment in the on-site mechanical laboratory facilities.

H Decision of the Accreditation Commission (20.03.2020)

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

The Accreditation Commission discusses the procedure. The Commission sees that the programmes have a number of shortcomings, most notably with regards to academic research and writing and available academic literature. However, the Commission believes that the institution will be able to fix these and the other shortcomings identified by the peers within one year. The Commission therefore decides to follow the recommendations of the peers and the Technical Committee 6.

Assessment and analysis for the award of the EUR-ACE® Label:

The Accreditation Commission deems that the intended learning outcomes of the degree programme do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 06 – Industrial Engineering.

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

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

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

Degree Programme	**ASIIN seal**	**Subject-specific Label**	**Maximum duration of accreditation**
National Engineering Diploma Computer Science Engineering	With requirements	Euro-Inf®	30.09.2025
National Engineering Diploma Industrial Engineering	With requirements	EUR-ACE®	30.09.2025

Requirements

For all study programmes

A 1. (ASIIN 2.1) Integrate electives in the curricula.

A 2. (ASIIN 2.2) Implement a credit point system oriented on the amount of work required from students, where the workload comprises both attendance-based learning and self-study, and assign an appropriate number of credit points to all required curricula content.

A 3. (ASIIN 2.3, 3) Ensure sufficient integration of scientific research and writing in the curricula and adapt assessment forms appropriately.

A 4. (ASIIN 4.3) Ensure that the students in the study programmes have access to an appropriate amount of relevant academic literature.

A 5. (ASIIN 5.1) Provide and publish module descriptions for all modules in the course language, including for the graduation project and required internships, and ensure the module descriptions differentiate between objectives and contents and cover all aspects required by the criterion.

A 6. (ASIIN 5.2) Provide diploma supplements.

A 7. (ASIIN 5.3) Ensure that all rules and regulations concerning the study programmes are transparent.

A 8. (ASIIN 6) Systematically discuss evaluation results with students within the modules.

Recommendations

For all study programmes

E 1. (ASIIN 2.1) It is recommended to reduce the fragmentation of the curricula and to integrate more practices and courses taught in English in the curricula.

E 2. (ASIIN 2.1) It is recommended to extend the minimum length of the first two internships to two months.

E 3. (ASIIN 2.4) It is recommended to provide more support to international students in finding housing.

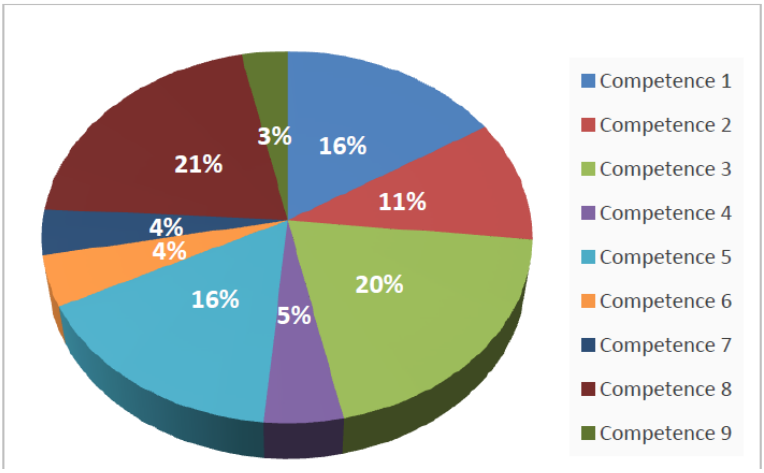
E 4. (ASIIN 4.3) It is recommended to upgrade the equipment in the on-site mechanical laboratory facilities.

Appendix: Programme Learning Outcomes and Curricula

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the National Computer Science Engineering Diploma degree programme:

“To wrap up, our engineers should:

C1: have a general ability to synthesize and analyze problems intelligently.
C2: have the ability to administer systems and networks
C3: have the ability to design computer systems
C4: have the ability to anticipate changes in the IT stream.
C5: have the ability to overcome complicated projects while taking into consideration the needs of customers.
C6: have entrepreneurship and leadership skills
C7: have the ability to anticipate industrial, economic and professional stakes in terms of competitiveness and productivity
C8: have the mastery of software development
C9: have the ability to work in international contexts by mastering one or more foreign languages.
The following pie chart shows the distribution of skills to be acquired in Computer Sciences Engineering. The rates are calculated based on hourly volumes of modules



The greatest rates are (C1, C3, C5 and C8). They allow the Computer engineer to develop not only technical skills but also soft skills. In this way, the initial vision of the IIT is confirmed because the high rates are found in the design and development of software systems on the one hand, and in synthesizing, analyzing and overcoming complicated projects on the other hand.”

The following **curriculum** is presented:

First Year			
Semester 1		**Semester 2**	
GM 1: Fundamental Mathematics	Mathematics for the engineer	GM 6: Applied Mathematics	Numerical analysis
	Probability and statistics		Operational research and decision support
GM 2: Basic concepts of systems	Operating systems		Algorithmic II and complexity of algorithms
	Data transmission	GM 7: Networks and Multimedia	Systems and Networks Administration
GM 3: Basic Computing 1	Algorithms and procedural programming in C language		Multimedia techniques
	Python programming	GM 8: Basic Computing 2	Object-oriented programming
	Web programming		Artificial intelligence
	Databases: Oracle Certification Preparation 1		Software Analysis and Design Methodology
GM 4: Systems Architecture	Computer architectures		Theory of languages and compilation
	Logical systems	GM 9: Certification	Preparation for CCNA1 certification
GM 5: Human Sciences and Engineering Culture 1	Preparation for DELF I certification		Preparation for LPI 101 certification
	Management for the engineer	GM 10: Human Sciences and Engineering Culture 2	Preparation for DELF II certification
			Economics for the engineer
			Accounting for the engineer

Second Year			
Semester 3		**Semester 4**	
GM 11: Software Engineering	Software Engineering (SDLC)	GM 16: Advanced Software Engineering	Advanced Modeling of Information Systems
	Pattern Integration		Quality and software tests
GM 12: Distributed Systems and Parallelism	Concurrent and parallel programming		Teamwork and Engineering Leadership
	Development of communicating systems	GM 17: Advanced Software Development	Distributed Component Development: WEB (JSP, Servlet, JSTL)
	Preparation for .NET certification: MTA		Web Framework
GM 13 : Interactivity	Advanced Web Programming		Mobile programming
	Human Machine Interface	GM 18: Administration of databases and web servers	Database Administration: Preparing for Oracle 2 Certification
	Application Protocols Service to the Internet		Cloud Computing I
GM 14: Data warehouses and ERP	Data Warehouse		Process within companies: concept and implementation
	DATA Mining	GM 19: Business Intelligence 1	ERP
GM 15: Humanities and Engineering Culture 3	Preparation for the BEC I certification		Automatic learning
	Entrepreneurial culture		Business intelligence
		GM 20: Humanities and Engineering Culture 4	Preparation for BEC II certification
			Personalized Professional Project (PPP)
			Project management
		GM 21: Second Year Project	

<table>
<tr><th colspan="3">Third Year</th></tr>
<tr><th colspan="2">Semester 5</th><th>Semester 6</th></tr>
<tr><td rowspan="3">GM 22: Project Management and Security</td><td>Audit and security</td><td rowspan="12">GM 26: Graduation Project</td></tr>
<tr><td>Personalized Professional Project (PPP)</td></tr>
<tr><td>Project management</td></tr>
<tr><td rowspan="3">GM 23: New technologies</td><td>Internet of things (IOT)</td></tr>
<tr><td>Business Process: Agile Enterprise Solution Design</td></tr>
<tr><td>Preparation for Big Data certification</td></tr>
<tr><td rowspan="3">GM 24: Advanced software engineering</td><td>Service Oriented Architecture</td></tr>
<tr><td>Business Architecture: Framework spring</td></tr>
<tr><td>Advanced Software Architecture: EJB-J2EE</td></tr>
<tr><td rowspan="2">GM 25: Business Intelligence 2</td><td>Cross platform</td></tr>
<tr><td>Data Science</td></tr>
</table>

Appendix 13: Detailed studies plans and skills evaluation – Computer Sciences Engineering

Matière	évaluation				Volume Horaire		
	DS	Oral	Projet	Ex. Final	C	TP	Projet
Mathématiques pour l'ingénieur	x			x	30		
Probabilité et Statistiques	x			x	21		
Système d'Exploitation	x			x	20	10	
Transmission de données	x			x	30		
Algorithmique et programmation procédurale en langage C	x			x	12	30	
Programmation Web	x			x	15	15	
Bases de données: Préparation à la certification Oracle 1	x			x	15	15	
Architectures des Ordinateurs	x		x	x	20		10
Systèmes Logiques	x			x	30		
Préparation à la certification DELF I	x			x	42		
Gestion pour l'ingénieur	x			x	21		
Analyse numérique	x			x	21		
Recherche Opérationnelle et Aide à la décision	x			x	20		10
Python et Complexité des algorithmes	x		x	x	12		30
Administration des systèmes et réseaux	x		x	x	10		20
Techniques multimédia	x			x	30		
Programmation Orientée Objets	x		x	x	15	15	
Intelligence Artificielle					30		
Méthodologie d'analyse et de conception des logiciels			x	x	15		15
Théorie des Langages et Compilation	x			x	15		15
Préparation à la certification CCNA1	x			x	30		
Préparation à la certification LPI 1 1	x			x	30		
Préparation à la certification DELF II	x			x	42		
Économie pour l'ingénieur	x			x	21		
Comptabilité pour l'ingénieur	x			x	30		

Semestre 3&4

Matière	évaluation				Volume Horaire		
	DS	Oral	Projet	Ex. Final	C	TP	Projet
Génie logiciel (SDLC)			x	x	15		15
Integration Pattern	x			x	15		15
Programmation Concurrente et Parallèle	x			x	15		15
Développement des systèmes Communicants	x			x	15		15
Préparation à la certification .NET: MTA	x			x	15		15
Programmation Web avancée	x		x	x	15		15
Interface Homme/Machine			x	x	15		15
Service Protocoles Applicatifs à l'internet			x	x			30
Data Warehouse	x			x	15	15	
DATA Mining	x			x	15		15
Préparation à la certification BEC I	x			x	42		
Culture Entrepreneuriat			x	x	10		11
Modélisation avancée des Systèmes d'Information	x			x	15		15
Qualité et Test Logiciels			x	x	10		20
Travail en équipe et leadership en ingénierie			x	x	11		10
Développement des composants distribués: WEB (JSP,Servlet,JSTL)	x		x	x	15		15
Framework web			x	x	10		20
Programmation Mobile			x	x	10		20
Administration des bds: Préparation à la cerification Oracle 2	x		x	x	10	20	
Cloud computing I			x	x	16		20
Processus au sein des entreprises : concept et mise en place	x			x	15	15	
ERP	x			x	15	15	
Apprentissage Approfondie	x			x	15	15	
Business Intelligence			x	x	11	10	
Préparation à la certification BEC II	x			x	42		
Projet Professionnel Personalisé (PPP)				x			21
Gestion de projets			x	x	21		
Projet de fin d'année			x		-		

Semestre 5&6

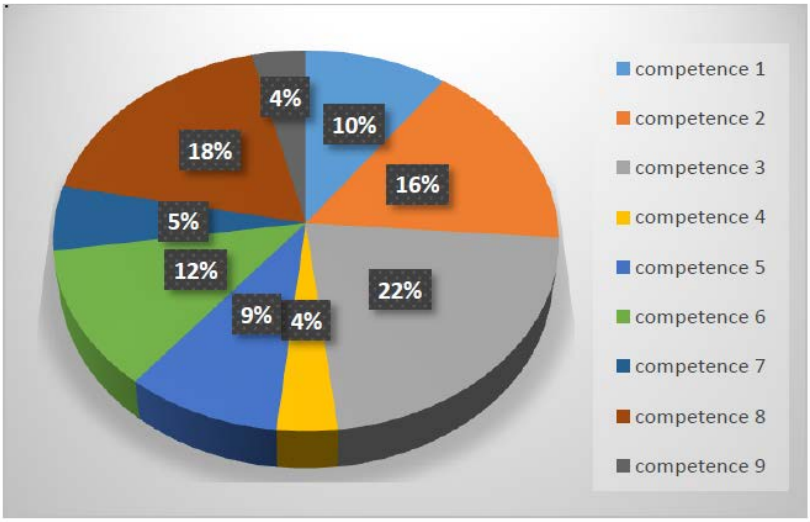
Matière	évaluation				Volume Horaire		
	DS	Oral	Projet	Ex. Final	C	TP	Projet
Audit et Sécurité			x	x	15	15	
Projet Professionnel Personalisé (PPP)				x			21
Conduite de projets			x	x	15		15
Internet of Things (IoT)			x	x	15	15	
Processus au sein de l'entreprise : conception agile de solution d'entreprise			x	x	15	15	
Préparation à la certification Big Data	x			x	30		
Architecture orientée services	x		x	x	15		15
Architecture métier : Framework Spring			x	x	10		20
Architecture logicielle évoluée: EJB-J2EE	x		x	x	15		15
Cross Plateforme			x	x	15		15
DataScience			x	x	30	12	
Projet de fin d'études			x		-		

According to the SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the National Industrial Engineering Diploma degree programme

"To sum up, the Industrial engineer should obtain the following program learning outcomes:

C1: knowledge of fundamental sciences.
C2: Knowledge of the engineering sciences and techniques.
C3: Mastery of the methods and tools used by an Industrial engineer.
C4: the ability to Improve and manage Industrial systems according to the international standards.
C5: knowledge of digitalization and automation of information systems.
C6: knowledge in research and development.
C7: the ability to integrate, animate and evolve within a company.
C8: the ability to consider every Industrial, economic and professional issue.
C9: the ability to work in an international context.

The following pie chart depicts the distribution of the skills to be acquired by an Industrial engineer. The rates are calculated based on the hourly volumes accorded to each module.



The high rates are found in C2, C3, C8, which enable the Industrial engineer of the IIT to acquire rather technical skills linked to their profession‟s methods and tools. Equally, the Industrial engineer should be able to consider Industrial, economic and professional issues."

The following **curriculum** is presented:

Table 14: Modules and Modules Groups - Industrial engineering

First Year			
Semester 1		**Semester 2**	
GM 1: Quantitative and Numerical Methods 1	Mathematics for the Engineer I	GM 1: Quantitative and Numerical Methods 1	Mathematics for the Engineer II
	Probability and Statistics		Inferential Statistics
GM 2: Quantitative and Numerical Methods 2	Operational Research I	GM 2: Quantitative and Numerical Methods 2	Demand Forecast
GM 3: Computer Workshops	Procedural Programming (Language C)		Digital Analysis / Digital Analysis Project
	Scientific Computing Workshops (Excel, VBA, MATLAB)		General Economy
	Information Systems Design	GM 3: Computer Workshops	Databases (SQL, Access)
GM 4: Expression and Communication	Preparation for DELF I Certification	GM 4: Expression and Communication	DELF Preparation
GM 5: Electrical, Mechanical, Materials	Electric Machine		Bibliographic Project
	Measurement and Instrumentation	GM 6: Industrial Systems	Production and Inventory Management
	Fluid Mechanics		Quality and Environmental Management
	Polymer		Law and Business Management
GM 6: Industrial Systems	Introduction to Industrial Engineering	GM 7: Thermal and Process	Applied Thermodynamics and Thermal Machines
GM 7: Thermal and Process	Heat Transfers		Industrial Processes

Second Year			
Semester 3		Semester 4	
GM 8: Electronics and Automatic	Industrial Electronics	GM 9: Process Management	Web Programming
	Signal Processing		Simulation of Industrial Systems
	Industrial Data		ERP
	Automatic		Development of a Management Application
GM 10: Mechanics and Processes	Methods and Design Tools	GM 10: Mechanics and processes	Mechanics of Materials
	Modeling Stochastic Processes		Mechanical Production Processes
GM 11: Systems Design and Planning	Supply Chain Management	GM 11: Systems Design and Planning	Value Analysis
GM 13: Control and Quantitative Management	Maintenance Management		Industrial Systems II: Planning and Scheduling
			Internal Control and Procedures
		GM 12: Systems Optimization and Security	Operational Research 2
			Reliability and Predictive Maintenance of Systems
	Industrial Systems Engineering 1: Workshop Design	GM 13: Control and Quantitative Management	Data Analysis
			Inferential Statistics and Econometrics
			Management Control and Cost Accounting
			Initiation to Financial Management
GM 14: Expression and Communication	Preparation for BEC 1 Certification	GM 14: Expression and communication	Preparation for BEC 2 Certification
			Second Year Project
			Personalized Professional Project (PPP)

Third Year		
Semester 5		**Semester 6**
GM 15: Logistics and Production Systems	Workshops in Industrial Engineering	GM 19: Graduation Project
	Logistics and Production Systems Technologies	
	Transport and Distribution Logistics	
	Health and Safety at Work (ISO 45001)	
GM 16: Management and Strategy	Statistical Mastery of Quality and TQM	
	Project Management	
	Labor Law and Industrial Property	
	Business Plan and Business Strategy	
GM 17: Information Technology and Decision	Metaheuristics and Implementation of Optimization Methods	
	Artificial Intelligence Applied to Optimization and Robotics	
	Decision Theory and Multicriteria Methods	
	Graph Theory	
GM 18: Management and communication	Professional Project	
	Industrial Marketing	
	Data Mining and Business Intelligence	

Appendix 16: A detailed study plan and the evaluation of skills – Industrial engineering

Semestre 1&2

Matière	évaluation					Volume Horaire		
	DS	Oral	TP	Projet	Ex. Final	C	TP	Projet
Math pour Ingénieur I	x				x	36		
Math pour Ingénieur II	x				x	30		
Probabilité et statistiques	x		x		x	21	12	
Statistique inférentielle	x		x		x	21	12	
Prévision de la demande	x				x	21		
Analyse numérique / Projet Analyse numérique	x				x	21	12	
Recherche Opérationnelle I	x				x	30		
Economie Générale	x	x			x	21		
Programmation procédurale (Langage C)	x		x		x	15	15	
Ateliers du calcul scientifique(Excel, VBA, Maltab)	x		x		x		36	
Conception des Systèmes d'Information	x				x	30		
Bases de données (SQL, Access)	x		x		x	15	15	
Français I	x	x			x	42		
Français II	x	x			x	42		
Projet Bibliographique /PFA1				x		15		
Machines électriques	x	x	x		x	30	8	
Mesure et instrumentation	x		x		x	24	8	
Mécaniques des fluides	x		x		x	21	8	
Polymère	x			x	x	21		
Introduction au génie industriel					x	30		
Gestion de la Production et des Stocks	x				x	42		
Management de la Qualité et d'environnement	x				x	21		
Droit et Gestion d'entreprise	x	x			x	21		
Thermodynamique appliquée et machines Thermiques	x				x	30		
Transferts thermiques	x		x		x	21	8	
Procédés industriels	x				x	24		

Semestre 3&4

Matière	évaluation					Volume Horaire		
	DS	Oral	TP	Projet	Ex. Final	C	TP	Projet
Électronique Industrielle		x	x		x	21	9	
Traitement de Signal	x	x			x	21	12	
Informatique Industrielle	x	x			x	30	12	
Automatique	x	x			x	30	12	
programmation Web	x				x	15	15	
Simulation des systèmes industriels	x		x	x	x	28	18	
ERP			x		x	15	15	
Développement d'une application de gestion	x			x		15	15	
Mécanique des matériaux	x				x	21		
Procédés de Production Mécanique	x			x	x	21		
Méthodes et outils de conception (CAO)	x	x	x		x	21	15	
Modélisation des Processus Stochastique	x				x	21		
Analyse de la valeur	x				x	21		
Systèmes industriels II : planification et Ordonnancement	x	x			x	42		
Supply-Chain management	x				x	21		
Contrôle Interne et Procédures				x	x	21		
Recherche opérationnelle 2	x		x		x	21	15	
Gestion de la maintenance/GMAO				x	x	15	15	
Fiabilité et Maintenance Prédictive des systèmes	x				x	30		
Ingénierie des systèmes industriels 1 : Conception d'atelier	x			x	x	42		
Analyse des donnée	x				x	21	12	
statistique inférentielle & Économétrie	x		x		x	27	12	
Contrôle de gestion et comptabilité analytique	x				x	30		
Initiation à la gestion financière	x	x			x	30		
Préparation à la Certification BEC 1	x				x	30		
Préparation à la Certification BEC 2	x	x			x	30		
PFA2				x				15
Projet Professionnel Personnalisé (PPP)	x				x	21		

G. Industriel – Semestre 5&6

Matière	évaluation					Volume Horaire		
	DS	Oral	TP	Projet	Ex. Final	C	TP	Projet
Workshops en Génie Industriel					x	30		
Technologies des systèmes logistiques et de	x				x	21		
Logistique de transport et de distribution	x				x	21		
Santé et sécurité de travail (ISO 45 1)	x			x	x	30		
Maitrise statistique de la qualité et TQM	x			x	x	24	12	
Management de projets	x			x	x	21	15	
Droit de travail et propriété Industrielle	x				x	30		
Business plan et stratégie Entreprise	x				x	30		
Métaheuristiques et implémentation des méthodes	x			x		30		
Intelligence Artificielle appliquée en Optimisation et en	x		x		x	21		
Théorie de la décision et méthodes multicritères	x				x	21	15	
Théorie des graphes	x				x	30		
Projet Professionnel Personnalisé	x	x			x	21		
Marketing Industriel	x				x	21		
Data Mining et Informatique Décisionnelle	x				x	21		
Projet de fin d'études				x			-	