ASIIN Seal & European Label

Accreditation Report

Master's Degree Programmes
Civil Engineering
Industrial Engineering

Provided by
École Internationale Supérieure Privée Polytechnique de Sousse (EPI)

Version: 25.03.2025

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 Civil	National Engineering Diploma in Civil Engineering	ASIIN, EUR-ACE® Label	2019-2024 (with extension until 2025) ASIIN	03
Diplôme National d'Ingénieur en Génie Industriel	National Engineering Diploma in Industrial Engineering	ASIIN, EUR-ACE® Label	2019-2024 (with extension until 2025) ASIIN	06
Date of the contract: 17.08.2023 **Submission of the final version of the self-assessment report:** 03.06.2024 **Date of the onsite visit:** 22.-23.10.2024 **at:** EPI Campus, Sousse				
Prof. Dr.-Ing. Mike Gralla, Technical University Dortmund Prof. Dr. rer. pol. Dr. h.c. mult. H.-Christian Brauweiler, University of Applied Sciences Zwickau Abdelaziz Kharrat, Strategia Sàrl Malek Agrebi, Université Libre de Tunis				
Representative of the ASIIN headquarter: Yanna Sumkötter				

[1] ASIIN Seal for degree programmes; EUR-ACE® Label: European Label for Engineering Programmes;
[2] TC: Technical Committee for the following subject areas: TC 03 - Civil Engineering, Geodesy and Architecture; TC 06 - Engineering and Management, Economics

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 December 7, 2021 Subject-Specific Criteria of Technical Committee 03 – Civil Engineering, Geodesy and Architecture as of September 28, 2012 Subject-Specific Criteria of Technical Committee 06 – Engineering and Management, Economics as of September 20, 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
Civil Engineering	National Engineering Diploma in Civil Engineering	1-Roads and Bridges 2-Buildings & Energy	7	Full time	/	6 Semester	180 ECTS	Annually / 2012
Industrial Engineering	National Engineering Diploma in Industrial Engineering.	1-Quality and Continuous Improvement 2-Maintenance and Diagnosis of Indus-trial Systems	7	Full time	/	6 Semester	180 ECTS	Annually / 2012

"The Ecole Internationale Supérieure Privée Polytechnique de Sousse (EPI) is a multi-disciplinary engineering Grande Ecole specialising in the fields of Information and Communication Technologies, Civil Engineering, Electronics, Mechanics, etc."

EPI includes several specialized schools focused on different areas of education:

- School of Engineering – Offers engineering programmes in various disciplines.
- School of Business – Provides education in business management and related fields.
- School of Architecture and Design – Focuses on architecture, interior design, and urban planning.
- School of IT and Digital Technologies – Specializes in information technology, digital innovation, and computer science.

"EPI is a private higher education establishment (State-approved under No. 02-2011) whose mission is to contribute to the training of engineers and technical executives, to carry out applied research and technology transfer activities, to implement partnership actions with companies and universities (national and international) and to participate in the dissemination of scientific and technological culture."

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

For the Master's degree programme Industrial Engineering the institution has presented the following profile in the self-assessment report:

Industrial engineering is a branch of engineering that focuses on enhancing complex systems involving human resources, materials, information, finances, and energy components. Students in this field study the application of mathematics, physics, computer science, production management, logistics, quality control, and process optimization. The primary objective is to boost efficiency, productivity, and quality in industrial systems through a holistic approach.

The term "National Diploma" signifies an academic qualification awarded by state-recognized institutions, ensuring a high-quality education that meets both national and international standards. The curriculum at EPI is designed to meet industry demands, offering a standardized programme that guarantees consistent recognition of graduates' skills in the job market.

The programme includes both theoretical classes and practical internships within companies to provide comprehensive insights into industrial engineering. Graduates of this field often find employment opportunities in various industries such as automotive, aerospace, logistics, and energy. Their training equips them for positions like project manager, production director, or continuous improvement consultant, thanks to their in-depth knowledge and hands-on experience. Integrated projects and directed work enable students to apply classroom theories to real-world scenarios, enhancing their analytical and problem-solving abilities. The curriculum also covers multiple engineering disciplines, such as mechanical, electronic, and industrial computing, alongside management sciences to highlight its interdisciplinary nature.

For the Master's degree programme Civil Engineering the institution has presented the following profile in the self-assessment report:

The Civil engineering programme at EPI focuses on the design, construction, and maintenance of infrastructure such as roads, bridges, and water systems. As a result, the curriculum is centered on these areas, including topics like materials science, soil mechanics, and construction project management.

The programme combines both theoretical and practical courses, enabling students to understand the scientific and technical foundations of civil engineering. They also learn to utilize computer-aided design software and other modern technologies, which are crucial tools in the industry.

Students often participate in internships or practical projects with companies, gaining hands-on experience that allows them to apply their knowledge to real-world situations

and grasp the everyday challenges that civil engineers encounter. This practical approach ensures that graduates possess nationally recognized skills, making them well-prepared for successful careers in civil engineering.

C Expert 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:

- Objective-module-matrices
- Self-Assessment Report
- Study plans
- Module descriptions
- Website
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The experts refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committees 3 (Civil Engineering, Geodesy and Architecture) an 6 (Engineering and Management, Economics)**,** the objective-module-matrices for the degree programmes, the matching learning objectives and the modules as a basis for judging whether the intended learning outcomes of the Master's degree programmes Civil Engineering and Industrial Engineering correspond with the competences as outlined by the SSC. The descriptions of the qualification objectives are comprehensive and include the achieved competencies and possible career opportunities of the graduates.

The Ecole Internationale Supérieure Privée Polytechnique de Sousse (EPI) has described and published competence profiles and programme learning outcomes for the degree programmes under review. While the competence profiles are developed based on the vision

[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.

and mission of the university as well as the departments and are rather general, the learning outcomes describe in great detail the competences the students should acquire during their studies. The learning outcomes are subdivided in knowledge, skills and competences. By means of being published on the website of the degree programmes, the competence profiles and learning outcomes are easily accessible for students as well as other stakeholders. Furthermore, there are regular revision processes in place that take into account feedback by external and internal stakeholders. Minor curriculum adjustments are done every year whereas major revisions including consultations of stakeholders take place every three to five years.

The experts note that the relationship between the competence profiles and learning outcomes have been established in a comprehensible and logical manner. The development of the learning outcomes of the study programmes 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, EPI regularly conducts 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 EPI members (students, teaching staff, and non-academic employees), while the external stakeholders include the industry, alumni, curricula from other universities, and society.

The Master's degree programme Civil Engineering provides students with the essential knowledge and skills needed for careers in civil engineering, emphasizing structural integrity, sustainable practices, and project management. Students learn to design, analyze, and evaluate structural components to ensure safety, functionality, and resilience in construction. Graduates gain skills in planning, managing, and supervising construction projects, ensuring they meet budget, timeline, and quality standards. Emphasis is placed on understanding the properties of construction materials and applying sustainable practices to minimize environmental impact. Moreover, students develop knowledge of soil mechanics, foundation design, and hydraulic principles for building stable and sustainable infrastructure. The programme fosters the ability to identify and address complex engineering problems using analytical and technical skills. Finally, students are trained in construction regulations and safety protocols to ensure compliance in all projects. These outcomes prepare students for various roles as structural engineer, transportation engineer, geotechnical engineer, environmental engineer, water resources engineer, construction manager, urban planner, project manager and researcher.

The Master's degree programme Industrial Engineering equips students with a comprehensive set of skills focused on optimizing industrial processes, ensuring quality, and applying engineering principles in real-world settings. Students learn to analyze and improve manufacturing and operational processes for efficiency and cost-effectiveness. Emphasis is

placed on understanding and implementing quality control techniques, adhering to industry standards to maintain high product quality. Graduates gain skills in managing industrial projects, from planning and resource allocation to monitoring and completing projects within set timelines. The programme develops technical expertise, including using engineering tools and methodologies to solve complex industrial challenges. Moreover, students are taught to incorporate sustainable practices and ensure safety within industrial environments, aligning with modern environmental and safety standards. These outcomes prepare graduates for various roles as operations manager, supply chain manager, quality assurance engineer, logistics engineer, process improvement specialist, project manager, manufacturing engineer and operations research analyst.

Next to the professional skills, the students of the study programmes are supposed to acquire personal and social skills such as critical and creative thinking, communication skills, adaptability, leadership skills and the capacity to work in (international) teams. In addition, they should be able to solve engineering problems through research and the application of different concepts and methods.

In the experts' opinion, the intended qualification profiles of both degree programmes are clear, plausible and allow students to take up an occupation, which corresponds to their qualification. They learn that the graduates of EPI are much sought after in the labour market. The representatives of industry emphasize the high quality of the graduates of the programme under review and students as well as graduates are satisfied with and well aware of their good job perspectives.

In summary, the experts confirm that both Master's degree programmes adequately reflects level 7 of the European Qualification Framework (EQF). The programme learning outcomes are consistent with the respective ASIIN Subject-Specific Criteria of the Technical Committees of Civil Engineering, Geodesy and Architecture and of Engineering and Management, Economics as well as the EUR-ACE framework standards of engineering programmes. They aim at the acquisition of specific competences and are well-anchored, binding and easily accessible to all stakeholders.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report
- Diploma Supplements

Preliminary assessment and analysis of the experts:
The degree programmes are taught in French, which is matched by the French name of the degree programmes “Ingénieur en Génie Civil” and “Ingénieur en Génie Industriel”. Furthermore, EPI issues English translations of Diploma documents. The experts confirm that the English and French translation of the degree programmes under review correspond with the intended aims and learning outcomes as well as the content of the degree programmes.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plans
- Internal regulations
- Academic calendar
- Module descriptions
- Overview of partnership agreements with other universities
- Overview of student’s mobility
- Objective-module-matrices
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Structure and content

EPI is a private school accredited by the Tunisian Ministry of Higher Education and Scientific Research. Since its foundation in 2003, EPI has focused on providing quality education in engineering, computer science, and other technical fields, combining academic knowledge with practical experience to prepare students for the demands of the global job market. Industry internships allow students to get professional experience while progressing in their curriculum.

At EPI, each student has to undertake a two-year long preparatory course (which is worth 120 ECTS) before beginning with their speciality, in this case civil or industrial engineering. The “preparatory cycle” is open to individuals passing their final secondary education examination with success and holding the Baccalaureate, SAT, or equivalent diploma in science or technology fields. It allows graduates to access one of the study fields offered by

the school without competitive examination, as the transition is made based on continuous assessment.

The preparatory cycle encompasses common subjects like mathematics, physics, chemistry, computer sciences, engineering principles, communication and design as well as language classes in French and English. With regard to the language courses, the four language skills listening, speaking, reading and writing are continuously assessed through various projects and activities. Students who reach at least intermediate level B (there are levels A, B and C) receive specialized preparation for the TOIEC exam while those studying French are similarly prepared for the DELF exam. Both the DELF and the TOIEC exams are offered for free. EPI signed three partnerships with international language centres (AMIDEAST, The British Council and The French Institute). The mentioned subjects are taught for all students at EPI and are supplemented with specialized subjects related to the aimed engineering degree.

After the second year of study, students decide which of the engineering study programmes they want to pursue. In the following, the discussion of the curricula will focus on those three years when students study their specification ("engineering cycle"). At EPI, those are the last three years of a five-year programme. Yet, as detailed under criterion 1.4, the study programmes may also be studied by students, who have already achieved a Bachelor's degree or a License.

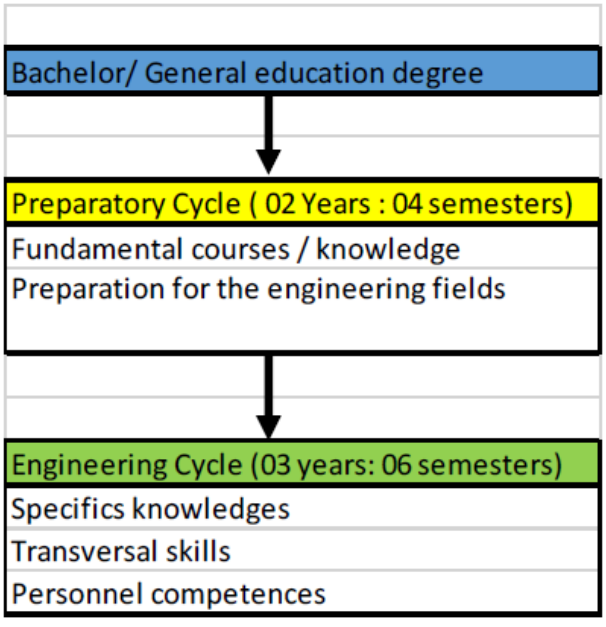
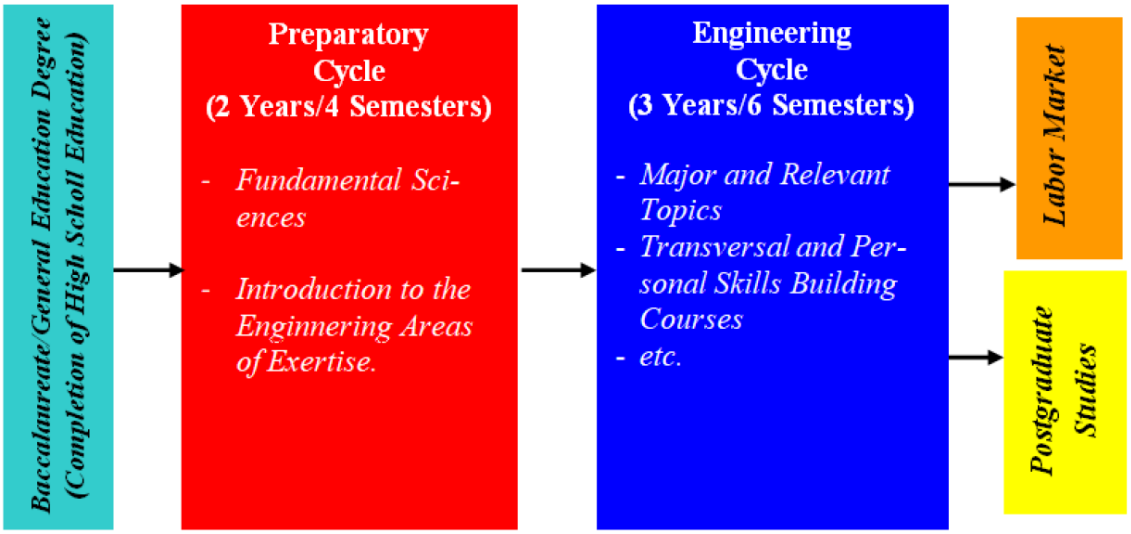


Figure 2: Curriculum Structure

In the Self-Assessment Report and the curricula, EPI describes how the learning outcomes of both degree programmes are to be achieved in the individual modules and thus explains the significance of each module for the programmes as a whole. The curricula are reviewed by the experts in order to identify whether the described learning objectives can be achieved by the available modules. Course descriptions as well as matrices matching the general learning objectives (subdivided into knowledge, skills and competences) and the module contents were provided for a detailed analysis.

Both the Civil Engineering as well as Industrial Engineering degree programmes are designed for three years and offered as full-time study programmes. To complete the engineering cycle, students must acquire at least 180 ECTS credits so that they receive the National Diploma with a total of 300 ECTS credits at the end of their 5-year training programme. Students can extend their study time if needed; the maximum time allowed for students to finish the preparatory cycle is three years, whereas it is a maximum of four years in the engineering cycle. At EPI, each semester is equivalent to 16 weeks, including 14 weeks of learning activities and two weeks of examination (midterm and final exams).

The following figure illustrates the structure of the programmes under review:



The first two years of the Civil Engineering programme cover a set of core topics like probability and statistics, MMC; material and resistance RDM, topography, fluid mechanics, calculation of structure, building materials, soil mechanics, general hydraulics, hydraulic and special structures, reinforced concrete, metal construction, civil engineering software , public procurement etc. Thus, foundational concepts are introduced in earlier semesters, with more advanced topics and practical applications covered in later stages. At the end of the second year of the engineering cycle, students can choose between two specialization

tracks. The available specializations are “Roads and Bridges” and “Buildings and Energy”. The final semester is dedicated to the graduation project.

The first two years of the Industrial Engineering programme cover core aspects like numerical analysis, probability and statistics, industrial management, SI in Automatic and Mechanics, industrial logistics, renewable energies, value analysis, industrial risk management, material sciences, thermal machines, DOA in engineering, operation research, production management, management of information systems, GPAO, GMAO, embedded computing, etc. At the end of the second year of the engineering cycle, students can choose between two specialization tracks. The available specializations are “Quality and Continuous Improvement” and “Maintenance and Diagnosis of Industrial Systems” The final semester is dedicated to the graduation project.

In the self-assessment report, EPI states that it considers practical training a fundamental basis for Engineering students to constitute the strength of the qualification granted by the diploma. As such, the study programmes under review currently entails four different kinds of practical trainings. First, practical work is carried out in the laboratories. Here, students put into practice the theoretical knowledge they have received during their courses. Second, students undertake projects. At the end of the second year, students have to complete a research project (PFA). Here, students develop and research a theme relating to a subject of their field of study and capture the findings in a report and/or a presentation. Third, students have to participate in two mandatory internships that have each one-month standard duration, in order to gain an understanding of the nature of working in an EPI’s industrial partners’ facility of their chosen area. The first internship is supposed to be done right after the end of the first year of the engineering cycle, whereas the second internship is completed right after the end of the second year of the engineering cycle. Finally, the graduation project (PFE) enables students to carry out practical work associated with this project at the industrial level. Here, they must apply all the theoretical and practical knowledge they have received during their years of study. The practical training is valued by the students as this allows them to apply the skills they learned in the programmes in a real working environment. The students point out that the university, especially the internship department, is very supportive in finding placements for the internships and always encourages them to gain as much practical experience as possible. The experts are also generally satisfied with the practical aspects of the programmes as this can additionally help the students to specialize in a particular field of interest.

The university has established useful guidelines for these internships and every student has one advisor at the company and one at the university to ensure that the work contributes to achieving the programme’s learning outcomes. The assessment methods to evaluate this phase is comprehensive and includes a written report and a presentation of their results in

front of a jury. The evaluation takes into account the aspects work plan, discipline, teamwork, programme implementation, and activity report.

Apart from the specialization areas, there are no elective modules for the students, yet students can further specialize or chose to focus their expertise through the two mandatory internships as well as PFA and the PFE. The graduation research project can be completed with an industry partner for a more practical or within a research team at EPI for a more academic focus. Students can also individualize their qualifications profile by participating in student clubs or associations, as well as their individual projects during the practical workshops of the study programmes.

In the audit discussions, the programme managers explain that the Tunisian labour market demands graduates “with an engineering mind”, i.e. problem-solving mind-set. The study programmes are therefore aimed at creating engineers that have a broad range of knowledge and the necessary tools and soft skills to become experts in civil or industrial engineering and further specialize after graduation based on the respective employer’s needs and the graduates interests. At this point, EPI does not intend to introduce elective courses, also because there are two specialization areas offered in each degree programme. Moreover, this right is reserved to public universities in Tunisia. Nevertheless, EPI aims to continually develop the study programmes to facilitate employability of the graduates. The alumni and industry partners agree that the current market demands for graduates that EPI is producing and that employers offer opportunities for further specialization if necessary. They also point out that EPI is always open to feedback from industry partners and alumni regarding the focus of the curricula, as well as open to introducing new aspects of civil and industrial engineering or updating the modules based on current developments in the fields. This is noted positively by the experts who suggest to keep on improving the curricula by integrating new technologies and developments.

This might also include better emphasizing the sustainability content of the modules in the module descriptions of both programmes. When asked to what extent aspects of sustainability are taught in both programmes, the programme coordinators explain that in “Buildings & Energy” specialization of the Civil Engineering degree programme, the module “Green buildings” aims to equip students with foundational knowledge in sustainable construction practices. Key objectives include introducing students to the core concepts of environmentally friendly construction, teaching them the basics of ecological building design that integrates natural environmental factors, defining various renewable energy sources that can be applied in construction, exploring materials that minimize environmental impact as well as raising students' awareness of sustainability's importance in building practices. Also other modules like “construction materials”, “risk management” and “building

physics" include sustainability aspects. In the "Quality & continuous improvement" specialization of the Industrial Engineering degree programme, especially the module "QHSE" focuses on instilling best practices for organizational standards in quality management, workplace safety, and environmental responsibility. The course objectives include, among others, guiding students through achieving and upholding quality management standards, teaching methods to minimize environmental impact as well as promoting efficient use of natural resources. The experts can understand the explanations and are convinced that sustainability aspects are integrated into numerous modules of the two degree programmes. However, this is only partially evident from the module descriptions. Therefore, they recommend to better emphasize the sustainability content of the modules in the module descriptions.

As for the Civil Engineering degree programme, the experts notice that in the first year, students have to face four demanding modules ("MMC", "material and resistance RDM", "fluid mechanics" and "mathematics for engineers"). From a number of students they learn that they would appreciate it if the modules were spread over two semesters so that they could follow the material better. The programme coordinators explain that the basic knowledge for this was already taught in the preparatory cycle and that certain content is repeated in the engineering cycle for better understanding. The experts understand the explanations, but in view of the students' comments and for the sake of studyability, they recommend to distribute the mentioned modules over the first two semesters of the Civil Engineering degree programme.

Furthermore, the experts realize that the module "labor law" in the Civil Engineering degree programme aims to equip students with knowledge in labor Law (social law) as it applies to the engineering profession and corporate operations. Topics include the employment contract's legal framework, hiring practices, working hours, contract execution and termination, and wage representation within the company. However, students of this programme should also acquire fundamentals in international construction law, for example on the basis of FIDIC books (published by FIDIC, the International Federation of Consulting Engineers) which define the contractual relationships between parties and allocate risks between the contractor and employer. These books also outline the duties, rights, obligations, roles, and responsibilities of all contract participants, as seen in various editions like the Silver Book and Golden Book. Consequently, the experts recommend to include international construction law in the curriculum.

Finally, the experts discuss with the programme coordinators and students of the degree programmes what offers exist in order to strengthen students' and lecturers' English skills. As already mentioned above, EPI actively promotes English language proficiency among its students, emphasizing both professional and communicative skills. English is not just taught

as a subject but integrated across various areas, including business and technical contexts. Instruction is structured to ensure a well-rounded skill set, with 60% of the focus on communication abilities and 40% on technical language, giving students the language tools needed for effective professional engagement. EPI strongly encourages students to improve, offering additional English training—beginner-level courses for those starting out, and professional English courses for more advanced learners. Students who reach at least intermediate level B (there are levels A, B and C) receive specialized preparation for the TOIEC exam. The TOIEC exam is offered for free. EPI signed partnerships with international language centres (AMIDEAST, The British Council) accrediting EPI as an official TOEIC testing center. The experts are impressed with how EPI offers students many opportunities to improve their English skills. Students confirm during the audit that they appreciate the English preparation as well.

In summary, the experts are convinced by the curricula of both study programmes that have been developed with the support of partners from the industry and thus allow students a promising education in the field of both Civil and Industrial Engineering. They conclude that the curricula enable students – besides the mentioned small restrictions – to achieve the intended learning outcomes of the programmes and that they are in line with the SSC of the Technical Committees Civil Engineering, Geodesy and Architecture and Engineering and Management, Economics as well as the EUR-ACE framework standards of engineering programmes.

Periodic Curriculum Review

The curricula of the degree programmes under review are designed to comply with the programme objectives and learning outcomes and they are subject to constant revision processes (see also chapter 1.1 and chapter 5). As such, the curricula are reviewed regularly and commented on by students and teachers as well as by external stakeholders such as alumni or partners from the private sector. Regular changes are made to ensure that the curricula are up to modern standards. Besides the objectives and learning outcomes defined by EPI itself, the curricula also take into account recommendations from industry and international standards of higher education and curricula from other universities worldwide.

International mobility

The Self-Assessment report as well as the discussions make it very clear that international recognition is one of EPI's primary goals for the next years. The experts point out that international mobility, with regard to lecturers as well as students, is a key factor in these efforts.

The experts learn that the university already provides various mobility opportunities for students. These include semesters abroad, short programmes, internships, and international conferences. To foster these, there are cooperation agreements with several partner institutions worldwide, for instance in Marocco, France, Bulgaria and Cameroun. Moreover, EPI recently signed a partnership agreement with Shijiazhuang Institute of Railway Technology (SIRT) in China to establish "Tianyou International College". The initial programme offered focuses on Engineering Survey Technology (hence Civil Engineering students), with possible expansion based on mutual agreement. The programme admits 15-20 students, primarily from EPI Sousse, who will study at EPI for the first two years, engaging in online courses taught by SIRT. In the third year, students will complete their studies and internships in China. Credits earned will be recognized by both institutions, and students completing the programme will receive certificates from both. Both institutions will collaborate on research projects and apply for national grants to support joint initiatives. A joint management committee will oversee the project. SIRT will cover scholarships and other specific expenses, while EPI will handle administrative approvals and logistics for its students. During the audit discussions, the experts learn that 14 students are enrolled in the programme this year. The students in question confirm that they are taking Chinese language courses in preparation for their stay in China. While the experts appreciate this opportunity and see it as positive that the programme is so well received, they are not yet entirely clear about the extent to which students can obtain a double degree. EPI also did not submit an appropriately adapted study plan for this programme. The experts therefore ask EPI to submit this information/documentation together with the response statement.

Students are encouraged to go on exchange specifically during the final stage of their studies, either during the internship period or while writing the final theses. Partly due to the COVID-19 pandemic, the number of students participating in mobility programmes between 2020 and 2021 was relatively low, but is increasing again after the pandemic. A Student Affairs Office has been established in order to coordinate EPI’s efforts and to support the students in the planning and administration of international mobility. Moreover, the university provides scholarships for international mobility programmes and manages various external scholarships sponsored by the Tunisian government or the European Union.

Qualifications obtained at other universities in Tunisia or abroad are recognized in line with the courses at EPI. Before a stay abroad, the university concludes a learning agreement with the respective student to ensure that the courses taken are relevant to the study programme and can thus be recognized.

In their discussion with the experts, the students confirm the existence of opportunities for international academic mobility. The experts appreciate the efforts to promote international mobility and encourage EPI to continue in this direction. However, they also

see the need for more international exchange opportunities. As a university who is seeking to become internationally recognized, EPI should continue to increase the number of incoming and outgoing engineering students. During the audit discussions, students express a clear interest in more places and better endowed scholarships for long and short-term stays abroad. The number of available places in the exchange programmes is still limited. EPI can only provide limited amount of places and travel grants, while the demand from students is rising. The lack of available places and financial support hinders students from joining the outgoing programmes. Also inviting more international guest lecturers to give classes or seminars in the programmes would for instance be beneficial to foster exchange opportunities. Therefore, the experts recommend to increase the efforts to further internationalize EPI by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students. Moreover, they ask EPI to clarify the exact framework of the partnership agreement with SIRT.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report
- Admission regulations
- Website
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The admission requirements and conditions are defined for the Civil Engineering and Industrial Engineering degree programmes in the admission regulations. In accordance with the provision of Law No. 73/2000, regulating private higher education in Tunisia, two types of admissions are possible: admission through the preparatory cycle and direct admission to the study programmes (engineering cycles).

The preparatory cycle is open for all students holding a technical baccalaureate. Students that have completed this two-year preparatory cycle have a right to choose any of the offered engineering programmes at EPI.

It is also possible to apply directly to the engineering programmes. Any student, whether Tunisian or international, is eligible for the study programmes if he or she holds a technology license (EQF 6) matching the chosen engineering course, a Master's degree or has completed a preparatory cycle at a different university. Master's degree students may directly

advance to the second year of the chosen programme if they have already achieved the necessary skills and knowledge in their previous degree.

If students apply from outside (for example with a License) and have not already taken the preparatory cycle at EPI, they need to bring certain prerequisites with them. However, it is not yet clear to the experts to what extent these students have to complete additional modules so that the engineering cycle modules can be followed without any problems. Therefore, they ask EPI to provide additional information on this. It should be made clear to what extent graduates of a license can catch up on the content of the preparatory cycle. Corresponding regulations should also be submitted.

EPI selects students based on the application form, which can be downloaded from the website, an interview and a multiple choice test (for French and English level assessment). From the discussion with the students, the experts understand that half of the students in the engineering cycle also studied the preparatory cycle at EPI or other universities, the other half of the students usually have a License/ Bachelor's degree. They also stress that the interview and their motivation are the main criteria for selecting the students, alongside their capabilities in Mathematics, Physics and English.

2021-2024 data for the programmes shows that the number of applicants has slightly exceeded the available places. In the last three academic years, numbers have ranged from 8 to 28 applications for Civil Engineering for a maximum of 100 study places. In the Industrial Engineering degree programme, there have been between 30 and 40 applications for 100 study places. The experts notice that the number of applications have been decreasing in the last three academic years. The programme coordinators explain that this is due to the current construction crisis in Tunisia, which has negatively impacted job opportunities in these sectors. Additionally, there has been a decline in student interest in these fields, likely driven by the perception of limited career prospects. Instead, study programmes in the field of data science are experiencing significant growth. As the experts see that EPI promotes its programmes by all means (online and offline) and both the programme managers and the industry representatives confirm this trend, they conclude that the decreasing student numbers are not due to the design of the study programmes.

During the discussion with the students, the experts gain the impression that students are well informed about the admission requirements and procedures as all necessary information is gathered on EPI's website. Since the rules are based on decrees by the ministry, the experts deem them binding, transparent and adequate for selecting the best students for the degree programmes. However, it should be made clear to what extent graduates of a license can catch up on the content of the preparatory cycle.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report
- Internal regulations
- Website
- Discussions during the audit

Preliminary assessment and analysis of the experts:
All modules in both programmes are assigned ECTS credits. The workload is spread evenly over the semesters. Every semester in both programmes comprises 30 ECTS credits while each credit is valued 25 working hours (including lecture hours and self-study hours). Feedback concerning the workload is collected through the course evaluation survey at the end of each semester and adaptions are made if necessary.

The experts confirm that the class hours are indicated in the module descriptions. However, the distinction between classroom work and self-studies is so far not made transparent in the module descriptions. EPI makes the workload distribution of classroom hours and self-study time transparent in detailed tables in the Self-Assessment Report. However, this distribution must also be publicly comprehensible for students. The extent to which self-study time has to be shown in the module descriptions as part of the workload distribution is explained in more detail in chapter 4.1.

The experts notice that many modules are quite small in terms of credit points and they worry that this might lead to a high number of exams per semester and consequently to a heavy workload for the students. They learn that this is to some extent countered by the fact that only half the exams are written exams while the remaining exams are covered by presentations and project work. Moreover, the length of the exams is proportionate to the amount of credit points for the module. The students also emphasise that they consider the workload high but manageable. As the statistical data provided by EPI shows, the average length of study was six semesters in the past few years in the engineering cycle of both programmes under review. Additionally, the experts see that almost all students complete the degree programmes as there are only 4 % of the students who dropped out of the engineering cycle of both degree programmes during the same period. The data verifies that the degree programmes under review can be completed in the expected period.

During the on-site visit, the students confirm that the workload is generally well reflected by the number of credits awarded and equally divided through the study years and programmes. They also emphasize that they have enough time for repetition and self-study. The experts consider the workload to be overall manageable and transparent.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

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

Preliminary assessment and analysis of the experts:
From the presented material as well as the discussions on-site, it becomes apparent that the pedagogical skills and adequate teaching methodology are highly valued at EPI and in the programmes under review. The pedagogical skills and teaching methods are also part of the evaluations that EPI carries out for each course.

As was already pointed out, the teaching methodology in the programmes is strongly attached to practical approaches and the students' ability to find adequate jobs after the completion of both programmes. Teaching is usually done in the form of (interactive) lectures, seminars, role plays and simulations, tutorials and practical work. Lecturers generally prepare presentations to aid the teaching process. With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic and soft skills. To support the practical orientation and familiarise students with academic research methods, both programmes contain a large number of projects and an end-of-year project at the end of the fourth semester (PFA), next to the final project which is also aimed at the practical application of the competencies acquired during the studies.

The used teaching methods at EPI are generally as follows:

- Lecture: The teacher presents the lesson and responds to students' questions.
- Interactive Lecture: The teacher delivers the lesson, interspersed with activities involving both students and the teacher.
- Direct Instruction: The teacher presents the lesson and provides guidance for independent student work during practical sessions.

- Project-Based Learning: Students apply course concepts to complete a specific project.
- Field Work: Students apply course material in real-world settings.

EPI also submits an overview for each degree programme showing the learning methods used for each module.

To support teaching and learning activities at EPI, all classrooms and laboratories are equipped with computers, projectors, and internet access. In addition, students have full access to the (physical and virtual) library of EPI. During the audit, students state that they are very satisfied overall with the learning methods used, confirming that they are implemented in a diverse and goal-orientated way.

Moreover, at EPI, the Human Resources Management and the programme managers are responsible for staff training. They annually revise their measures for professional development and maintaining professional expertise. Accordingly, EPI regularly schedules training sessions related to teaching techniques and pedagogy aiming to enhance the teaching staff's competences and skills (see chapter 3.1 for more details).

The experts acknowledge that all members of the teaching staff are dedicated and committed to good teaching and are also open to use new/alternative forms of teaching where appropriate. The experts further appreciate that the programmes are taught by professionals from the industry who have the necessary qualification to teach in university programmes and thus specialized in a specific field of the programmes under review. Overall, the teaching methodology is considered up-to-date and adequate in order to convey the contents envisaged by both programmes.

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

Criterion 1.3:

With regard to the recommendation to better emphasize the sustainability content of the modules in the module descriptions of both programmes, EPI states in its response statement that sustainability aspects are integrated into numerous modules of the two degree programmes. However, in the light of the discussions with the experts, EPI is convinced of the need to strengthen the content relating to sustainability. Therefore, EPI adjusted both curricula as follows:

- Design and validation of a new module entitled "Sustainability and Engineering", including courses on the principles of sustainable development applied to construction and industry. This new module has been incorporated into semester 2 of the

first preparatory year. It carries 2 ECTS credits. In return, the personal project module has been eliminated from this semester. The corresponding Appendix 1 Update Preparatory cycle study plan, Appendix 2 Sustainability and Engineering module description and Appendix 3 Minutes of the Scientific Council have been submitted as well.

- Integration of practical cases on renewable energies and green buildings to encourage a concrete and contextualised approach in the Risk Management module and the Construction Materials module. The corresponding Appendix 3 Minutes of the Scientific Council and Appendix 4 Civil Engineering module handbook have been submitted as well.
- Coordination with teachers to review existing syllabuses to highlight sustainability-related themes. The corresponding Appendix 4 Civil Engineering module handbook and Appendix 5 Industrial Engineering module handbook have been submitted as well.

The experts consequently consider this recommendation to be fulfilled.

Regarding the recommendation to distribute the modules ('MMC', "material and resistance RDM", "fluid mechanics" and "mathematics for engineers" over the first two semesters of the Civil Engineering degree programme, EPI states in its response statement that the Civil Engineering course teaching committee agrees to introduce a swap of subjects between the first and second semester. Consequently:

- The "fluid mechanics" module will move to the second semester from the start of the 25/26 academic year and will be replaced in the first semester by the "Building Electricity" module.
- The "Engineering Maths" module cannot be transferred to the second semester, as it provides students with the necessary tools to tackle the modules in the second semester and must therefore be taught in advance.
- The "MMC module" cannot be transferred to the second semester, as it provides students with the necessary tools to tackle the second-semester modules and must therefore be taught in advance.
- The "RDM" subject is already divided into two parts between the two semesters: the theoretical part is taught in the first semester, while the practical part, to reinforce mastery of this subject, is taught in the second semester.
- In addition, and in order to guarantee a better mastery of the concepts covered in these modules and to enable students to acquire the targeted skills, it has

been decided to consult with the Civil Engineering department teaching committee to clarify the objectives and skills to be acquired for the 'MMC' and 'RDM' (Resistance of Materials) modules.

Therefore, the experts consider this recommendation to be fulfilled.

With regard to the recommendation to include international construction law in the Civil Engineering curriculum, EPI explains that a section on international law has been added in the "Employment Law" module, including FIDIC standards, international contracts and arbitration. The corresponding Appendix 4 Civil Engineering module handbook has been submitted as well. Moreover, EPI collaborates with industry professionals to enrich the content with real-life cases and simulations. Consequently, the experts consider this recommendation to be fulfilled as well.

Additionally, with regard to the recommendation to increase the efforts to further internationalize EPI, it becomes clear from the response statement that EPI fully shares this ambition. They plan to strengthen their internationalization by:

- Developing and strengthening the international partnerships already in place with several universities and institutions through double degree agreements, academic exchanges and mobility programmes for students and teachers. EPI also hopes to set up more partnerships with new institutions in new destinations, both in Europe, preferred partner throughout the country, and in other less traditional destinations.
- Increasing the number of courses offered in English to encourage international students and prepare our students for multicultural environments.
- Encouraging participation in international research projects in collaboration with partner institutions, thereby strengthening the global reach of teaching and research staff. To this end, EPI has already signed a partnership agreement with UACEG University and with UTS university, both in Sofia, Bulgaria. An ERASMUS research project, the first of its kind for EPI, has been launched (code KA171). This project guarantees the mutual mobility of students and teachers between the two schools as part of collaborative research projects funded by the ERASMUS+ programme. This is the first project, and others are being set up with other partners (see Appendix 7 Partnership agreement EPI UACEG and Appendix 8 Partnership agreement EPI UTS).
- Facilitating student and faculty mobility by providing financial and administrative support for exchanges abroad.

- Developing intercultural initiatives such as international seminars, summer schools and academic events involving foreign experts.

The experts appreciate and fully support EPI's plans in this regard. However, as only a few plans have been implemented and most will be developed in the coming years, the expert group adheres to this recommendation.

Moreover, as requested by the experts, EPI submits a copy of the partnership agreement recognising mutual training and the recognition of credits leading to the double degree (Appendix 6). Under the terms of the agreement, during the three years of training, students affiliated to this programme are enrolled at both schools. During the first two years, these students will take all their courses at EPI, except for two courses each semester: a speciality course taught by SIRT online and a course in Chinese as a foreign language which replaces the course in French as a foreign language, taking care to respect the overall workload (2 ECTS credits for the foreign language). For the third year, students will join SIRT to do all their face-to-face courses in the first semester and do a final year project in the second semester. In accordance with article 5 of the agreement, the two schools discussed the study plan to be put in place. It was decided, by mutual agreement, to apply in full the syllabus initially defined by EPI, which is available in the Civil Engineering module description handbook (Annex 4). In accordance with article 7, students who can prove that they have validated all the semesters of study and have successfully defended the final year project, and also in accordance with article 6 recognising the transfer of credits, will obtain the two diplomas of the two schools. Consequently, the experts consider it to be confirmed that students have the possibility to join a structured double degree programme.

Criterion 1.4:

The experts asked EPI to provide additional information on how students who have not already taken the preparatory cycle at EPI have to complete additional modules so that the engineering cycle modules can be followed without any problems. They asked EPI to clarify to what extent graduates of a license can catch up on the content of the preparatory cycle. Therefore, EPI updated the admission procedure and the corresponding requirements to provide greater clarity and structure (See Appendix 9). The main objective of this revision is to guarantee fair and structured admission of applicants with a bachelor's degree, while ensuring that they have the necessary prerequisites to succeed in the engineering cycle. In addition, compensation mechanisms have been incorporated to make up for any shortfalls in prior learning identified during the assessment process. The experts appreciate the update and confirm that this procedure complies with the ASIIN criteria.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report
- Module descriptions
- Website
- Examination regulations
- Exams calendar
- Academic calendar
- Samples written exams and final theses

Preliminary assessment and analysis of the experts:

At EPI, assessment is conducted according to the regulations defined in the examination regulations. The assessment system at EPI has two purposes: a formative (mid-term exam as well as continuous assessment) and a summative purpose (final exam). The mid-term exams and continuous assessments are used by the teachers to continuously monitor the progress of achieving the course objectives and usually take place in the middle and throughout of the semester. A typical form of continuous monitoring is reporting on a specific topic, an oral presentation or a combination thereof. Laboratory work is assessed through reports and practical work exams. The final exams are used to display whether the course objectives have been met at the end of each semester. The experts as well as the students welcome the continuous learning assessment as it not only allows a close monitoring of the students' learning progress, but also encourages students' motivation throughout the semester. By way of helping students to consciously assess their actual state of knowledge, the assessment procedure at the same time contributes to an adequate exam preparation.

Successfully passed exams are evaluated by lectures with a grading system based on a 20-point scale:

Tunisia Grading Scale	GPA	US Grade	Grade Description
18.00 to 20.00	4	A+	Highly Honorable with Praise
16.00 to 17.99	3.7	A	Very Good - Highest Honors
14.00 to 15.99	3.3	A-	Good - High Honors
12.00 to 13.99	3	B	Fairly Good - Honors
10.00 to 11.99	2	C	Satisfactory
0.00 to 9.99	0	F	Fail

To pass the course, a student must obtain at least 10 out of 20 points in the course's total score. Students who fail in an exam scheduled in the two main sessions have the opportunity to retake the exam they already failed one time in a second session. Main sessions are usually scheduled right after the end of the first and the second semester of each year. The second session is scheduled at the end of the year for all classes and in January for terminal classes. The main sessions last for one week each, the second session lasts for two weeks. If a student's average is above 10 at the end of the academic year, he or she is allowed to enter the next year. Otherwise, the student needs to repeat the whole year.

The exam periods are communicated at the beginning of each academic year. A detailed schedule is published in the MyEPIApp in due time that informs about the exact time and date when each exam takes place and about the form of the exams. Consequently, the organization of the exams guarantees examinations that avoid delay to students' progressions. The relevant rules for examination and evaluation criteria are transparently put into a legal framework, as both students and teachers confirm in the audit discussions. However, the experts notice that there haven't been any rules defined for disability compensation measures, illness and other mitigating circumstances. As a result, students solely depend on the initiative of the respective lecturers. To guarantee that students with disabilities or special needs can study on an equal footing, EPI has to establish formal compensation measures that specify under which conditions and how exams are modified to accommodate students' special needs.

For the Master's thesis, the course registration, performance, and assessment procedures are similar to those of the internships. During the thesis work, students will work in a research group and implement their knowledge under the supervision of the project lead. The project score will be an average of the scores given by both the supervisor and the committee. As stated in the Self-Assessment Report, the graduation project is the final assignment for the last year of the National Diploma programmes under review. It is

considered a crucial assessment of whether the students have achieved the intended learning outcomes. The regulations for thesis examination are communicated to students through the MyEPIApp and the department's website.

The thesis consists of three stages: (1) proposal, (2) midterm progressing state, and (3) final thesis. The thesis duration is four months and can be extended to a maximum of six months. The project is conducted independently under the guidance of the supervisors, either in hosting industries or in foreign universities under a Memorandum of Understanding or international partnership programme.

Its goal is to provide students with a comprehensive understanding of theoretical knowledge and its practical application, as well as to familiarise them with methods of argumentation and the process of making valid points based on research. The thesis also aims to help students develop a more academic perspective. Both the student and supervisors might decide the topic and content of the project. In many cases, lecturers offer particular topics connected to their research. Students are requested to provide evidence of supervision arrangement to the department through a thesis registration form. In the middle of the thesis implementation period, the department conducts a progress review to verify progress and identify any obstacles or violations. Students present the results to the responsible committee formed at the respective department, the reviewer, and their supervisor.

During the on-site visit, the experts were provided with a selection of exams and theses to check. They confirm that these represent an adequate level of knowledge as required by the EQF level 7 for the National Diploma programmes Civil Engineering and Industrial Engineering. The forms of exams are oriented toward the envisaged learning outcomes of the respective courses, and the workload is distributed in an acceptable way.

The experts conclude that the criteria regarding the examinations system, concept, and organization are fulfilled and that the examinations are suitable to verify whether the intended learning outcomes are achieved or not. However, official rules and regulations on disability/special needs compensation measures have to be implemented.

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

Regarding the requirement to establish formal compensation measures that specify under which conditions and how exams are modified to accommodate students' special needs, EPI states that based on circular n°41/24 issued by the Tunisian Ministry of Higher Education (See Appendix 10), which sets out the guidelines for managing and supporting students with special needs, the EPI Group has developed its own internal procedure. The aim of this approach is to guarantee an inclusive, equitable and appropriate educational environment,

enabling its students to succeed in their academic careers under the best possible conditions. (See Appendix 11). The experts agree that the needs of students with special needs are taken into account and that the studyability of the programmes is improved. They consider the requirement to be fulfilled.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report
- Staff Handbook
- List of publications
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:
In the Self-Assessment Report as well as the staff handbook, the university presents data about the number and overall qualification of staff for the Civil Engineering and Industrial Engineering degree programmes.

Based on legal requirements, university teachers practicing in private universities are not eligible to title promotion (full professor, associate professor). This means that full professors and associate professors teaching at EPI are all non-permanent academic staff who already teach in other public universities. Consequently, the staff is composed of permanent/full-time staff members solely employed by EPI and of non-permanent/part-time staff that is recruited either among the staff of the public higher education institutions or among industry and public authority partners. In the Civil Engineering degree programme, there are 20 lecturers at the time of the audit (8 of whom are assistant professors, with the rest being senior lecturers, assistants or architecture experts). In the Industrial Engineering degree programme, there are 16 lecturers (9 of whom are assistant professors, with the rest being assistants or industrial experts). However, as the list of lecturers employed in the study programmes contains a few more people than the staff handbook that the experts received before the on-site visit, they ask EPI to provide the relevant, additional information.

Programme managers also perform administrative tasks/oversee departments and participate in the educational management. They act as supervisors to the students and provide

personalized follow-up to the students. Even though the permanent teachers currently cover over 50% of the total teaching load, EPI plans to further increase their number to meet the goal of having at least one permanent teacher for every 25 students (whereby there is currently a ratio of one permanent teacher for 33 students). For this reason, EPI continues to launch recruitment campaigns throughout the academic year. As non-permanent teachers are still reachable by the students (see criterion 3.2), the experts do not regard the high number of non-permanent teachers as problematic. On the contrary, they see the advantage in the fact that students can gain perspectives both from public universities and directly from industry.

During the discussions, the experts learn that EPI has defined an adequate recruiting process for teaching staff and that preparation for the next academic year might also include recruitment for further teaching staff as Tunisia faces an emigration of engineers, doctors and higher education professors. Recruitment of teaching staff is however always able to be done in time for the next academic year. The teaching staff indicate that they are satisfied with the working relationship with EPI. The experts also notice that the staff members are very motivated and convinced of the offered study programmes as it is their primary goal to fulfill the needs of the market.

With regard to staff development, EPI encourages the training of its academic staff to improve their didactic abilities and teaching methods. As stated in the Self-Assessment Report, academic staff regularly undergo training in Pedagogy, Management, Leadership, and Quality Assurance. Newly recruited staff has to participate in mandatory orientation sessions to familiarize themselves with the institution's ethos and operational procedures, while senior staff members are key in mentoring new recruits, helping them integrate into the team and supporting their professional development. Moreover, at the end of each semester, the permanent and non-permanent teaching staff of the degree programme under review hold a meeting to discuss the curriculum as well as the different departments' training needs. The department plans year-round training courses and workshops based on feedback from academic and non-academic units. Staff members are also trained occasionally to ensure they stay updated with the latest technologies and methodologies when it comes to teaching. Several teaching staff members have received such training by their employer (in case of industry partners) or at other universities.

The experts ask how EPI supports its teaching staff in terms of research activities (publications, participation in conferences, sabbaticals, etc.). They learn from the programme coordinators that according to legal requirements, private universities in Tunisia do not have the right to start research laboratories. However, a number of

permanent teaching staff at EPI is a member of a research laboratory at a public university through which they have the opportunity to publish papers in scientific journals and participate in international conferences. The teachers explain that they usually meet with their research laboratory colleagues once per week. Moreover, EPI recently launched the Industry 4.0 Laboratory. Even though EPI is not allowed to officially name it a research laboratory, the goal of this laboratory is to support teachers and students in their research activities (see chapter 3.3 for more details). Furthermore, all graduation research projects take place in cooperation with industry partners or at partner higher education institutions with active applied research in the civil or industrial engineering field. Teachers involved in a (research) exchange programme are generally assigned to a partner university abroad that has a MoU with EPI. Therefore, EPI set up a partnership with the Centre of Research on Micro- and Nanotechnology (CRMN) located in Yaoundé, Cameroon. It is part of the National Advanced School of Engineering (École Nationale Supérieure Polytechnique), which is affiliated with the University of Yaoundé I. The CRMN focuses on research in micro- and nanotechnology, supporting both academic research and industry-driven innovation in Cameroon and abroad. To further motivate their teachers to do research and encourage greater student involvement, EPI implemented a bonus programme. This programme allows teachers to earn bonuses based on the number of projects they carry out, the articles they publish, student contributions to research, the number of patents obtained, and the national and international communications they deliver.

The experts understand these circumstances and appreciate EPI's efforts in fostering research activities and support its management in pursuing them further. However, in light of the teacher's wish to be involved more into research projects and join international conferences more often, also in order to include these contents into the curricula and share them with their students, the experts recommend to think about possibly providing measures and support mechanisms for teaching staff to do research projects and be able to include their students. Linked to that, it is recommended to extend the staff with teachers who have a PhD.

The experts conclude that – besides the recommendations and the requested additional material - the teaching staff's composition, scientific orientation and qualifications, as specified in the teacher's list and staff handbook, are suitable for successfully implementing and sustaining the degree programmes under review.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report

- Website
- Discussions during the audit

Preliminary assessment and analysis of the experts:
During the on-site discussions with the programme coordinators, the teachers and especially the students, the experts gather a comprehensive impression of the offers related to supporting and assisting the students. Being a private university, EPI manages to offer classes in the small size of 20-30 students, which enables close relations between staff and students and thus allows for constant and direct feedback in case any issues arise. Each student is also assigned to a member of the teaching staff (programme manager) that acts as a first contact person for all academic and non-academic consultations that a student may need.

The students confirm that they are very satisfied with the support and assistance they receive from their teachers and that they can contact them at any time if problems occur, whether related to the taught subjects or of a personal nature. As most teachers are non-permanent teachers or professionals, meaning they hold other occupations as well, the experts ask how students hold contact to these members of staff. They learn that permanent as well as non-permanent teachers have fixed office hours on certain days during which they are always available in person at EPI. The timetable for this can be found at the relevant offices and can also be viewed via the MyEPIApp. The MyEPIApp enables students not only to request documents, access results, and view timetables but also to communicate directly with various services to share their opinions and suggestions. It allows students to schedule meetings with programme managers, teachers, or administrative staff, and facilitates the collection of student feedback on various topics.

Apart from subject-specific support, EPI also offers several other means to aid its students: the Student Affairs Department supports international mobility, timetables and issuance of documents, the Internship Department provides information on training and job seeking to help students develop career plans and workplace understanding. The office is also a bridge between students, staffs, lecturers and businesses in searching for scholarships, factory visits, internships, and employment opportunities. It is also responsible for keeping in contact with alumni, employers, and professional organizations. Career days and forums are regularly organized to facilitate networking with private companies, which are seeking potential engineers. The Pedagogical Forum is held at the beginning of the first semester, immediately after registrations are completed. The forum's purpose is to introduce students to various subjects, remind them of general academic regulations, exams, and study plans, facilitate interaction with department heads, and encourage academic engagement. At the start of the second semester, EPI organizes the Orientation Forum which aims to

present the objectives and career opportunities for each specialization area of the programmes. In summary, good job perspectives for the graduates of the programmes arise from these activities. The students and graduates confirm to be satisfied with the support offered by EPI for finding internships and employment.

The extent to which students with special needs need further support, particularly with regard to examinations, has already been explained in more detail in chapter 2.

The experts notice that there are – besides the mentioned restriction for students with special needs – enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and timely. The students are well informed about the services available to them.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report
- On-site visit of the facilities
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Being a completely private institution, EPI is funded solely by tuition fees as no government support is provided to sustain the institution. From this budget, EPI offers teaching material, the maintenance of teaching equipment, scholarships as well as allows its staff to participate in conferences. Both administrative and teaching staff submit their projected needs and expense plans at the end of an academic year for the upcoming academic year. The administrative and financial office/director's office then takes charge of managing, revising, and monitoring the budgetary process.

During the on-site visit, the experts were able to gain a comprehensive impression of the facilities and laboratories at EPI. Each of the 40 classrooms at EPI is equipped with one or two whiteboards and a video projector/data show. The average capacity of a classroom is between 25 and 35 students. The auditorium can accommodate 300 students. Three additional amphitheaters can be used for larger lectures and events. EPI also provides space for student life and club activities (2 co-working spaces and 2 reading rooms), as well as a library. Moreover, the two programmes use a total of 8 laboratories, including the Mechanical Lab, RDM Lab, Optical Lab, Civil Lab, Robotics Lab, Industry 4.0 Lab, Hydraulics Lab and

Topography Lab. The experts are particularly impressed with the Industry 4.0 Lab. EPI established this laboratory in collaboration with industry partners to prepare students for the future of engineering by integrating Industry 4.0 technologies into their education. The lab serves as a platform to familiarize students with the convergence of advanced technologies, such as IIoT, AI, and robotics, which are essential for modern industry. It encourages innovation and helps students gain practical experience with emerging tools and techniques, enabling them to stay competitive in an increasingly digital and automated world. A detailed overview of the laboratories is given in a laboratory material list that is submitted prior to the on-site visit. A variety of software tools related to the civil and industrial engineering fields such as (Primavera, Revit, Robot structural analysis, Autocad, Piste, Graitec Arche) is installed in the computer laboratories. These software tools are used by students during workshops, lab assignments and periodic projects.

During the discussions with programme coordinators and industry representatives, the experts learn that EPI works with several companies in the field of Civil and Industrial Engineering. Most of them are software, civil or industrial engineers leading and managing local and international consultancy or engineer firms or study and design offices. Within the framework of these cooperations, the students can complete their internships or final theses and have access to all the equipment and material available in the partners' facilities.

The experts appreciate the range of learning tools and resources available to the students and lecturers and consider the EPI's facilities and available equipment in the laboratories to be of appropriate standards. In summary, the expert group judges the available funds, the technical equipment, and the infrastructure (laboratories, library, classrooms etc.) to comply with the requirements for adequately sustaining the two degree programmes.

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

Criterion 3.1:

As the list of lecturers employed in the study programmes contained a few more people than the staff handbook that the experts received before the on-site visit, they asked EPI to provide the relevant, additional information. EPI submits together with its response statement the missing CVs of the teachers to ensure the transparency and completeness of the documents submitted (See appendix 12). The experts review the corresponding CVs and adhere to their previous assessment that the quantity and the qualification of the teaching staff is sufficient to sustain both programmes.

Moreover, with regard to the recommendation to think about possibly providing measures and support mechanisms for teaching staff to do research projects and be able to include

their students as well as to extend the staff with teachers who have a PhD, EPI states that this recommendation is in line with their strategy of strengthening research within the EPI.

To this end, EPI initiated several actions:

- Introduction of a bonus scheme to encourage publication in indexed scientific journals. (see Appendix 13)
- Setting up research support mechanisms, in particular a dedicated fund, including internal funding to encourage teachers to develop projects and involve their students.
- Encouraging participation in national and international research projects, in particular through collaboration with recognised universities and research laboratories.
- Development of partnerships with companies and institutions, making it possible to propose applied research topics involving students and teachers.
- Increased recruitment of doctoral-level teaching staff, with an active policy of attracting experienced researchers to join our teaching staff and supervise research projects.
- Creating research seminars and training courses to help our teaching staff develop projects and write scientific publications.

The experts appreciate EPI's plans. However, as some plans, as for example the development of partnerships with companies and institutions or the recruitment of more doctoral-level teaching staff, have not yet been implemented, the experts adhere to both their recommendations and support EPI in further pursuing these plans.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Module descriptions

Preliminary assessment and analysis of the experts:
The experts review the module descriptions for both programmes and find that they provide adequate information about the following aspects: module identification code, respective content, learning outcomes, examinations, credit points, workload, grading, person responsible for the module, teaching methods, admission requirements and the recommended literature. The students confirm during the discussions that information about the courses is always available online or via the MyEPIApp and that details concerning examinations and contents are provided at the beginning of each course by the teaching staff.

However, the experts notice that the module descriptions show the workload in class per module, but not the self-study time. Therefore, EPI has to ensure that the module descriptions provide information about the workload distribution, including class hours as well as self-study time.

Moreover, it is also noticeable that (up-to-date) literature references are not given for every module. For reasons of transparency towards the students, the experts recommend to update the literature references in the module descriptions.

The extent to which the sustainability content of the modules should be emphasized in the module descriptions has already been explained in more detail in chapter 1.3.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Diplomas
- Sample Diploma Supplements
- Sample Transcript of Records

Preliminary assessment and analysis of the experts:
The experts confirm that the students of the degree programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Transcript of Records lists all courses that the graduate has completed, the achieved credit points, grades, and cumulative GPA.

However, the experts notice that the Diploma Supplement is mapping the French education system instead of the Tunisian one. EPI has to include the appropriate higher education system in the Diploma Supplement. Furthermore, it also has to be clearly stated

that the National Diploma/Master`s degree leads to the acquisition of 300 ECTS credits including the first degree (e.g. by mentioning that students acquire 120 ECTS credits in the preparatory cycle).

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report
- All relevant regulations on the studies, examination, admission and quality assurance are published on the university's website

Preliminary assessment and analysis of the experts:
The experts confirm that the rights and duties of both EPI and the students are clearly defined and binding. All rules and regulations are published on the university's website and hence available to all stakeholders. In addition, the students receive all relevant course material at the beginning of each semester.

The experts appreciate that the English and French websites of the programmes include sufficient information about the intended learning outcomes, study plans, module descriptions and academic guidelines of the degree programmes and are made available to all relevant stakeholders.

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

Criterion 4.1:

With regard to the requirement to ensure that the module descriptions include information about class hours as well as self-study time, EPI submits updated module descriptions for both programmes that specify this aspect (see Appendix 4 and Appendix 5). Additionally, the modifications are included in the description manual and have been shared on the website. This information is thus available to all stakeholders and the experts consider the requirement to be fulfilled.

Moreover, the experts recommended to update the literature references in the module descriptions. EPI states that as part of the continuous improvement of teaching quality, a campaign to revise and update the module descriptions and associated bibliographies has been officially launched in collaboration with all teaching staff. The aim of this initiative is to optimise the bibliographies in order to offer relevant and accessible resources that meet

students' pedagogical needs (see Appendix 4 and Appendix 5). The experts therefore consider this recommendation be fulfilled.

Criterion 4.2:

With regard to the requirement to include the Tunisian education system instead of the French one in the Diploma Supplement as well as to clearly state that the National Diploma/Master`s degree leads to the acquisition of 300 ECTS credits including the first degree, EPI submits an updated version of the Diploma Supplements that include the correct information (Information on the Tunisian study system as well as information on the credits to be acquired to obtain the engineering degree: 300 ECTS divided into 120 credits for the preparatory cycle and 180 credits for the engineering cycle, see Appendix 14 and Appendix 15). Therefore, the experts consider both requirements regarding the Diploma Supplement to be fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Study regulations
- Internal regulations
- Academic calendar
- Performance indicators
- Samples of questionnaires
- Survey results
- University Quality Manual
- Discussions during the audit

Preliminary assessment and analysis of the experts:
From the documents presented and from the discussions during the on-site visit the experts gain a good impression of the quality management procedures that are in place at EPI and for the programmes under review.

In 2019, EPI introduced a quality management system in line with the standards of ISO 9001:2015 for administrative and managerial activities. Moreover, EPI is currently working on developing a quality management system in line with the standards of ISO 21001. The quality management system also includes regular surveys about the level of satisfaction and expectations of students, academic staff and other staff members, alumni and employers. The results from these surveys are reported during the regular staff meetings, aggregated results are analysed and evaluated at the end of the academic year.

At the end of each semester, students evaluate each of their courses anonymously and online through MyEPIApp. The questionnaire covers the teacher's performance, the subject content, the learning outcomes, the students' workload and the exams.

Since EPI is a private university funded exclusively by the tuition fees, the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance to the coordinators. The discussion with the students revealed that those in charge are always eager and open for feedback and that students have the impression that their comments are taken into consideration with regard to the further improvement of the programmes. Feedback from alumni on study conditions such as infrastructure, course content, academic atmosphere, administration, internships and industry partners, mobility and academic partners is collected in a standardized form via surveys, e-mails, social media, direct discussion during meetings and forums (especially orientation forum and career events). During the on-site discussions, the director explains that these surveys help EPI to keep track of their alumni, especially in order to understand in what positions and which countries they are employed.

The industry representatives confirm in the discussion that EPI is eager to receive feedback about new developments, trends and the employability of their graduates and that the university is open to implement changes to the curricula to respond to developments in the Civil and Industrial Engineering field. For this purpose, an annual career event is organised by the university. In addition, employers and programme coordinators regularly exchange information via the MyEPIApp.

EPI collects feedback from different stakeholders (students, alumni, industry, teachers) which is then discussed by the scientific committee at the end of the academic year and used to adapt the study programmes.

Concerning the internal feedback loops, the results of the course evaluations are centrally assessed and analysed before they are communicated to the scientific committee who would then be responsible to initiate any measures if problems or needs for improvement have been detected. The students confirm that the results are made accessible to them. In

case the satisfaction of the students with staff members is deficient, the head of department will contact the respective teacher, discuss the issue and propose solutions. If no improvement can be achieved over a longer period, the staff member will be dismissed. Thus, the experts agree that the quality management circles at EPI are well established and work under participation of all stakeholders.

In summary, the experts are satisfied with the quality management system at EPI, especially with the continuous feedback loops and the involvement of important stakeholder groups such as students, teachers, alumni and representatives from the industry.

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

As EPI does not submit any response with regard to criterion 5, the experts adhere to their previous assessment.

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:

a) Study plan and explanations about double degree option with SIRT University in China
b) Missing CVs of teaching staff
c) Regulations about which additional modules have to be completed for admission with a License

E Comment of the Higher Education Institution (12.02.2025)

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

- Appendix 1 : Update Preparatory cycle study plan
- Appendix 2 : Sustainability and Engineering module description
- Appendix 3 : Minutes of the Scientific Council
- Appendix 4 : Civil Engineering Handbooks of the official programmes
- Appendix 5 : Industrial Engineering Handbooks of the official programmes
- Appendix 6 : Partnership agreement EPI SIRT
- Appendix 7 : Partnership agreement EPI UACEG
- Appendix 8 : Partnership agreement EPI UTS
- Appendix 9 : admission requirements
- Appendix 10 : circular 41-24-of ministry of higher education
- Appendix 11 : procedure for managing and dupporting students with special needs
- Appendix 12 : Staff CVs
- Appendix 13 : Research encouragement
- Appendix 14 : civil-diploma suplement
- Appendix 15 : industrial-diploma suplement

F Summary: Expert recommendations (21.02.2025)

Taking into account the additional information and the comments given by EPI the peers 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**
Ma Civil Engineering	Without requirements	30.09.2031	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council
Ma Industrial Engineering	Without requirements	30.09.2031	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to increase the efforts to further internationalize EPI by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 2. (ASIIN 3.1) It is recommended to think about possibly provide measures and support mechanisms for teaching staff to do research projects and be able to include their students.

E 3. (ASIIN 3.1) It is recommended to extend the staff with teachers who have a PhD.

G Comment of the Technical Committees

Technical Committee 03 – Civil Engineering, Geodesy and Architecture (06.03.2025)

Assessment and analysis for the award of the ASIIN seal:

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

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 parts of Subject-Specific Criteria of the Technical Committee 03 – Civil Engineering, Geodesy and Architecture.

The Technical Committee 03 – Civil Engineering, Geodesy and Architecture recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ma Civil Engineering	Without requirements	30.09.2031	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to increase the efforts to further internationalize EPI by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 2. (ASIIN 3.1) It is recommended to think about possibly provide measures and support mechanisms for teaching staff to do research projects and be able to include their students.

E 3. (ASIIN 3.1) It is recommended to extend the staff with teachers who have a PhD.

Technical Committee 06 – Engineering and Management, Economics (03.03.2025)

Assessment and analysis for the award of the ASIIN seal:

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

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 parts of Subject-Specific Criteria of the Technical Committee 06 – Engineering and Management, Economics.

The Technical Committee 06 – Engineering and Management, Economics recommends the award of the seals as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
Ma Industrial Engineering	Without requirements	30.09.2031	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to increase the efforts to further internationalize EPI by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 2. (ASIIN 3.1) It is recommended to think about possibly provide measures and support mechanisms for teaching staff to do research projects and be able to include their students.

E 3. (ASIIN 3.1) It is recommended to extend the staff with teachers who have a PhD.

H Decision of the Accreditation Commission (25.03.2025)

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

The AC discusses the procedure and follows the assessment of the experts and the TCs without any changes.

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

The Accreditation Commission deems that the intended learning outcomes of the degree programmes comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committees 03 and 06.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
Ma Civil Engineering	Without requirements	30.09.2031	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council
Ma Industrial Engineering	Without requirements	30.09.2031	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to increase the efforts to further internationalize EPI by establishing more international cooperations, conferences and publications as well as exchange programmes, by offering more and better-endowed scholarships and by better communicating the existing offers to the students.

E 2. (ASIIN 3.1) It is recommended to think about possibly provide measures and support mechanisms for teaching staff to do research projects and be able to include their students.

E 3. (ASIIN 3.1) It is recommended to extend the staff with teachers who have a PhD.

Appendix: Programme Learning Outcomes and Curricula

According to the programme's website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Civil Engineering:

In the Civil Engineering department of EPI-Polytechnique, the objective is to train engineers capable of designing, analyzing, calculating, realize, to appraise and of manage works in the sectors of construction.

The GC Engineer is an engineer specialized in the design and implementation of means, the management of people in the act ofbuild.
He engaged her responsibility with respect to their community and of the company in artwork tour towards humans:

- Construction of buildings has use residential, of shops, of buildings industrial, of offices or of shows
- Construction of communication and land-use infrastructure (roads, bridges, tunnels, logistics centers, dams,power stations energy) or backup of the environment (management of the waters, storage of waste)

The engineer can intervene in anything what stage of the operation of construction, since the study of ground until their reception of the work:

- study of ground, calculation of the foundations

1

- design of the work (calculation, methods, study of price)
- conduct of the works
- control technical

The training offered by EPI-Polytechnique is constantly adapted to the needs of companies by integrating the evolution of techniques andmethods In the area of civil engineering.

- ***Repository skills:***

The training offered in civil engineering at EPI-Polytechnique allows engineering students to have the necessary tools to deal with problems complex which will constitute their future missions. This training is characterized by basic scientific training, and training in speciality In THE areas of Civil Engineering And by a training transversal. There training understand also of the modules of entrepreneurship, visits and conferences, two internships of one month each in a company in the 3rd and 4th year and an end-of-study project in 5th – year of 3 month minimum.

- ***Basic skills***

- solid knowledge in science fundamental and science of the engineer.
- There awareness and understanding of field scientist of the speciality.
- There mastery of the methods and of the tools of the engineer
- Their ability has integrated in organization Or a team
- Involvement In THE challenges professionals

- ***Research scientist skills:***

  - Be able of to do a state of art of the works of research related has a thematic
  - Se endows of the mind critical and of analysis of there literature
  - Mastering deadlines and time management for an applied research project
  - Working in a group

- ***Civil Engineering skills***

Technology and processes of construction

Know analyze their structure of a building simple, identify The role of the different elements In all of a project, to propose a phasing constructive simple.

Principles of design and execution of building and civil engineering structures: role of the structure, overall stability, joints. Design And implementation work of frames, of the floors, of the foundations, of the casings and of the tanks.

Knowledge of the materials of construction

The main materials: their nature, composition, characteristics and properties, in connection with their microstructure; their design, manufacturing and use in construction.

Construction materials management and life cycle analysis;

Concrete

- Concrete armed: Knowledge of base indispensable has there determination of the sections reinforcement of the elements of supporting structures (posts, beams) subjected to simple stresses. Knowledge of verification methods of the constraints in the different materials constituents of the element.
- Concrete prestressed: Mastery of analysis And there design of beams, of slabs unidirectional And of membranesloaded axially in concrete prestressed.

Construction metallic

Analysis And sizing of the frames in steel

Calculation of the structures

Mastery of the tools of calculations of the structures, traditional Or computerized, effective, And of calculation dynamic.

Mechanical soils

Knowledge fundamental on THE properties of the floors And mastery of the concepts required For analyze THE behavior mechanical of the floors.

Knowledge essential For the study of there stability of the slopes And there design of works in mechanical of the floors And mastery of the methods recognized For THE calculation of the walls of support And of the foundations superficial and deep.

Dynamic of the structures

Mastery of methods for analyzing dynamic problems and vibrations

Hydrology and Hydraulic

To know the relationships fundamental of hydraulics - To know THE main features hydrogeological of the rocks of a basement and the fundamental bases of groundwater flow and groundwater level fluctuations - Know how to use useful formulas to needs of geotechnical engineer

In the case of drainage Or of drawdown of tablecloth. Design in sanitation And water drinkable.

Thermal and Acoustic

Developments and applications of basic thermal transfer elements to the study of heat transfer from enclosures and equipment heating and air conditioning of the buildings.

Applications of architectural acoustic studies to airborne noise

Management of the risks

Understand the risks incurred by civil engineering works and the people occupying them. Acquire some assessment tools risks and risk management. Be aware of risk engineering. Learn to know the phenomena, causes and consequences; consider of the solutions For satisfy the precautionary principle

Artwork

Principles of there realization of the main works And principles of calculation (sizing And verification)

Roads

Knowledge techniques specific on there road in so much that system technical, destined has there traffic of vehicles For THEtransportation of the people And of the goods. A system road East built And maintained, maintained And exploited in traffic, designed And planned.

Diagnostic And repair of works

Knowledge of the main causes of pathology in civil engineering works: knowing how to analyze the phenomenology and causes of aging of concrete and steel. Furthermore, this analysis results from the exposure of preventive and curative remedies generally employees.

Software of civil Engineering

Mastery of the tools IT And software of drawing, design , calculations and planning for the Civil Engineering in agreement with the novelties of

sector

Project Management:

Strong project management skills are necessary for overseeing construction projects from conception to completion. This involves planning, scheduling, budgeting, and coordinating resources effectively to ensure project success.

Communication and Collaboration:

Effective communication skills are vital for interacting with clients, architects, contractors, and other stakeholders throughout the design and construction process. Collaboration skills are also essential for working within multidisciplinary teams.

- ***The skills of Buildings & Energy Speciality***

Building Structural Engineering:

Understanding the principles of structural engineering is crucial for designing safe and durable buildings. You should be adept at analyzing and designing various structural elements such as beams, columns, and foundations.

Building Design and Construction:

Proficiency in building design software like AutoCAD, Revit, or Tekla Structures is essential. You should also have knowledge of construction techniques, materials, and building codes to ensure compliance and efficiency in construction projects.

Energy Efficiency and Sustainable Design:

Given your specialization in energy, you would have expertise in optimizing building designs for energy efficiency. This includes knowledge of green building practices, renewable energy systems, energy modeling software (e.g., EnergyPlus, eQUEST), and sustainable materials.

HVAC Systems Design:

Understanding Heating, Ventilation, and Air Conditioning (HVAC) systems is crucial for maintaining indoor air quality and thermal comfort in

buildings. You should be familiar with HVAC design principles, equipment selection, and energy-efficient HVAC technologies.

Building Energy Analysis:

Proficiency in conducting energy audits and simulations to assess the energy performance of buildings is essential. This involves using software tools like EnergyPlus, DesignBuilder, or IES VE to analyze factors such as heat transfer, lighting, and occupant behavior.

Renewable Energy Integration:

Knowledge of integrating renewable energy systems such as solar photovoltaics, wind turbines, or geothermal systems into building designs. This includes understanding the technical requirements, feasibility assessments, and economic considerations of renewable energy installations.

- ***The skills of Bridges & Roadways Speciality***

Bridges Structural Analysis and Design:

Proficiency in structural analysis. This includes analyzing loads, determining structural integrity, and designing components such as beams, columns, and decks.

Bridge Design Standards:

In-depth knowledge of bridge design codes and standards such as AASHTO LRFD Bridge Design Specifications, Eurocodes, or relevant local standards. This ensures compliance with safety and performance requirements for different types of bridges.

Geotechnical Engineering:

Understanding soil mechanics and geotechnical principles is essential for designing stable foundations for bridges and evaluating slope stability along roadways. Skills in soil testing, site investigation, and foundation design are valuable in this aspect.

Transportation Engineering:

Familiarity with transportation planning principles, traffic engineering, and geometric design standards for roadways. This includes designing road

alignments, intersections, and traffic control measures to ensure safe and efficient transportation systems.

Bridge Inspection and Maintenance:

Proficiency in bridge inspection techniques and knowledge of maintenance practices is necessary for ensuring the long-term safety and functionality of bridges. This includes conducting inspections, assessing structural health, and prioritizing maintenance and rehabilitation activities.

Risk Assessment and Management:

Skills in identifying and mitigating risks associated with bridge and roadway projects, including factors such as environmental impacts, geotechnical hazards, and regulatory compliance issues

The following **curriculum** is presented:

civil engineering : Common Core : S5

Code	Subject	Coef	Credit	Course/week	Practical/week
GC 3.1.01	French	1,5	2	1,5	0
GC 3.1.02	English	1,5	2	1,5	0
GC 3.1.01	Mathematics for engineers	3	3	3	0
GC 3.1.02	Probability and statistics	1,5	2	1,5	0
GC 3.1.03	MMC	3	3	3	0
GC 3.1.04	Algorithm and data structure	1,5	3	0	1,5
GC 3.1.05	material resistance RDM	3	5	3	0
GC 3.1.06	Topography	3	3	1,5	1,5
GC 3.1.07	General construction processes	3	3	3	0
GC 3.1.08	Fluid mechanics	1,5	2	1,5	0
GC 3.1.09	Geology	1,5	2	1,5	0
	Total	24	30		

civil engineering : Common Core : S6

Code	Subject	Coef	Credit	Course/week	Practical/week
GC 3.2.01	French	1,5	2	1,5	0
GC 3.2.02	English	1,5	2	1,5	0
GC 3.2.01	Numerical analysis	1,5	2	1,5	0
GC 3.2.02	material resistance RDM : TP	1,5	2	0	1,5
GC 3.2.03	Operational research	1,5	2	1,5	0
GC 3.2.04	Reinforced concrete 1	3	4	3	0
GC 3.2.05	Calculation of structures 1	3	3	1,5	1,5
GC 3.2.06	Building materials	3	3	1,5	1,5
GC 3.2.07	Soil mechanics 1	3	4	3	0
GC 3.2.08	General hydraulics	1,5	2	1,5	0
GC 3.2.09	DAO : civil engineering	1,5	2	0	1,5
GC 3.2.10	Building electricity	1,5	2	1,5	0
	Total	24	**30**		

civil engineering : Common Core : S7

Code	Subject	Coef	Credit	Course/week	Practical/week
GC 4.1.01	French	1,5	2	1,5	0
GC 4.1.02	English	1,5	2	1,5	0
GC 4.1.01	Roads1	3	3	3	0
GC 4.1.02	Reinforced concrete 2	3	4	3	0
GC 4.1.03	Calculation of structures 2	3	4	3	0
GC 4.1.04	Metal construction	3	4	3	0
GC 4.1.05	Thermal - Acoustic	1,5	3	1,5	0
GC 4.1.06	Soil mechanics 2	3	3	1,5	1,5
GC 4.1.07	Hydrology and urban hydraulics	3	3	3	0
GC 4.1.08	Urbanism	1,5	2	1,5	0
	Total	24	**30**		

civil engineering : Common Core : S8

Code	Subject	Coef	Credit	Course/week	Practical/week
GC 4.2.01	French	1,5	2	1,5	0
GC 4.2.02	English	1,5	2	1,5	0
GC 4.2.01	Finite elements	1,5	2	1,5	0
GC 4.2.02	Planning and organization of the work	1,5	2	1,5	0
GC 4.2.03	Prestressed concrete	3	4	3	0
GC 4.2.04	Diagnosis and repair of structures	1,5	2	1,5	0
GC 4.2.05	civil engineering Softwares: Piste-Covadis	2,25	2	0	2,25
GC 4.2.06	civil engineering Software : Arche-Robot	2,25	2	0	2,25
GC 4.2.07	VRD	1,5	2	0	1,5
GC 4.2.08	Hydraulic structures	1,5	2	1,5	0
GC 4.2.09	Special structures	1,5	2	1,5	0
GC 4.2.10	Public Procurement	1,5	2	1,5	0
GC 4.2.11	MOS Certification	1,5	2	0	1,5
GC 4.2.12	PFA	1,5	2	1,5	0
	Total	24	30		

civil engineering Major:Roads and Bridges: S9

Code	Subject	Coef	Credit	Course/week	Practical/week
GC PC 5.1.01	ESB Certification	1,5	2	0	1,5
GC PC 5.1.02	human resources management GRH	1,5	2	1,5	0
GC PC 5.1.03	Law of work	1,5	2	1,5	0
GC PC 5.1.01	Engineering structures	3	3	3	0
GC PC 5.1.02	Bridge design and construction	3	3	3	0
GC PC 5.1.03	Roads 2	3	4	3	0
GC PC 5.1.04	Design & Calculation of Road Projects	1,5	2	0	1,5
GC PC 5.1.05	Risk management	1,5	2	1,5	0
GC PC 5.1.06	Quantity survey and price estimation	1,5	2	1,5	0
GC PC 5.1.07	Dynamics of structures	1,5	2	1,5	0
GC PC 5.1.08	Plates and Covers	1,5	2	1,5	0
GC PC 5.1.09	civil engineering Software : Revit + Primavera	3	4	0	3
	Total	24	**30**		

civil engineering Major:Buildings & Energys: S9

Code	Subject	Coef	Credit	Course/week	Practical/week
GC BE 5.1.01	ESB Certification	1,5	2	0	1,5
GC BE 5.1.02	human resources management GRH	1,5	2	1,5	0
GC BE 5.1.03	Law of work	1,5	2	1,5	0
GC BE 5.1.01	Design and calculation of building projects	3	3	3	0
GC BE 5.1.02	Energy study of buildings	3	3	3	0
GC BE 5.1.03	Specific CG structures	3	4	3	0
GC BE 5.1.04	Green Buildings	1,5	2	1,5	0
GC BE 5.1.05	Risk management	1,5	2	1,5	0
GC BE 5.1.06	Quantity survey and price estimation	1,5	2	1,5	0
GC BE 5.1.07	Dynamics of structures	1,5	2	1,5	0
GC BE 5.1.08	Plates and Covers	1,5	2	1,5	0
GC BE 5.1.09	civil engineering Software : Revit + Primavera	3	4	0	3
	Total	24	**30**		

S6 : Professional Semester

Codes	Teachings	Coef	Credit	Course/week	work/week
Pro- 5 2 01	Introductory course	10	3	/	/
Pro- 5 2 02	Course development		3	/	/
Pro- 5 2 03	PFE		24	/	/
		24	**30**	**18**	**6**

According to the programme's website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Industrial Engineering:

Training in engineering, specializing in industrial engineering, within the Multidisciplinary School International EPI-TEC Sousse concerns the design and management of processes and systems improving the quality and productivity of companies' supply chains. The appearance the more distinctive of this specialty East their flexibility what offer in terms of career.

An engineering student within this discipline mainly learns the tools and methods necessary the helper has eliminated the losses of time, silver, of materials, energy and others materials firsts of the organizations. The Industrial Engineering provided an approach systematic to streamline and improve the productivity and efficiency of organizations; in others terms, her assignment is of make profitable THE process at maximum.

This is a multidisciplinary training which aims to make improvements to a system manufacturer. She dowry the engineers of knowledge and skills wearing on evaluation and improvement of the productivity and quality of service companies. From this do, the name "industrial " encompasses Also businesses of service.

The fields of involvement of the engineer Industrial Engineering cover a wide paletteof activities professional:

- To plan of the activities of distribution of products and the organization of services;
- Design integrated management systems (quality, environment and health andsecurity;
- Watch has the app of the standards organizational and specific at product and or service;

- Organize And manage of the teams of work for their realization of a project technological, etc.

has this effect, the engineer industrial east a decision maker and can be qualified of architect of the businesses. he is equally interested in production systems, processes and services than to humans who y working. her motivation main east of constantly better reconcile the human, economic and technological aspects of private organizations or governmental. he is able of:

- Implement a "system" approach ensuring effective and efficient consideration optimal of all the parts of a system of an organization, including the aspects humans, economic and technological;
- Implement rigorous processes for continuous improvement of productivity aimed at **b** do more with less and maximize the profitability business organizations;
- Model and simulate production systems, processes and services; tools to visualize a problem in a structured way and determine manners of the solve;
- Develop of the methods analyzes and of measures quantitative proven;
- Assess the interactions and ensure the integration of the aspect's humans, economic andtechnological and of the various disciplines involved by a situation;
- Be in measurement of manage change;
- Apply the methods scientists for take of the decisions business.

Repository of Skills: what are the skills attested has the outcome of their training?

The Department of Industrial Engineering of EPI-TEC ensures a training of engineers multidisciplinary aimed at the acquisition and mastery of theoretical knowledge as well as practice. She accounts five semesters has base instead theoretical, comprising an internship initiation has their life professional and a project of End of year (PFA) At breast of a business, and one fifth practice: Project of End of study (PFE).

with the skills of training of base (mathematics, it, languages, management of the resources human, entrepreneurship, right of the man, …), we find the skills in the fields of Mechanics (Fluid Mechanics, Mechanics of solids, Mechanics of continuous media, Materials and structures, Resistance of materials, Vibration mechanics, Thermal, Thermal machines, Mechanical design, CAD, Structures metallic And Processes of welding, Techniques of production And MOCN, Systems hydraulic And tires, …); of Electricity (Circuits electric,

Electrical engineering, Automatic, Treatment of signal, Robotics And Micro controller , machine control, etc.) and Industrial (Quality - Certification - Standards, Organization and Production management, ERP / CAPM, Lean manufacturing , Control and reliability / CMMS, Tools of Maintenance, Safety installations industrial,...).

Basic skills

- Good skills and skills in mathematics;
- Skills scientists techniques diversified;
- Skills And SKILLS in management of time;
- Strong desire of organization and efficiency;
- Skills of direction and of leadership;
- Passion For improvement and innovation;
- Excellent skills of communication and listening;
- Skill And creativity in their resolution of problems;
- Skills of negotiation;
- Mastery of a Steps application of a together of concepts and of techniquesSciences applied;
- Mastery of an application approach based on notions of science fundamental relevant to engineering;
- Awareness of the techniques of prevention and maintenance;
- Socket of awareness of the impacts of her technology;
- Training economic and management of projects;
- Mastery languages;
- Diplomacy, patience;
- Big ability adaptation to changes;
- Desire continuous to learn, spirit curious;
- Sense of ethics.

Research scientist Skills:

- Be able to do A state of the art of works of research related has a thematic
- Se endows of the mind critical and of analysis of their literature
- lead well has term A project of research applied.
- To work in band

Specific industrial engineering skills:

- Operations Research: The ability to apply mathematical and analytical methods to optimize complex systems and decision-making processes.
- Statistical Analysis: Proficiency in statistical techniques and tools for data analysis, including regression analysis, hypothesis testing, and design of experiments.
- Quality Management: Understanding of quality control methods such as Six Sigma, Total Quality Management (TQM), Statistical Process Control (SPC), and Root Cause Analysis (RCA).
- Process Improvement: Expertise in identifying inefficiencies, analyzing workflows, and implementing solutions to streamline processes and eliminate waste (e.g., Lean Manufacturing, Kaizen).
- Supply Chain Management: Knowledge of supply chain principles, including inventory management, logistics, demand forecasting, and supplier relationship management.
- Production Planning and Scheduling: Skills in developing production schedules, capacity planning, material requirements planning (MRP), and optimizing production sequences.
- Facility Layout and Design: Ability to design efficient facility layouts, considering factors such as workflow, material handling, ergonomics, and space utilization.
- Simulation Modeling: Proficiency in using simulation software to model and analyze complex systems, such as manufacturing processes or transportation networks, to identify bottlenecks and optimize performance.
- Human Factors Engineering: Understanding of human capabilities and limitations to design workspaces, tools, and processes that enhance safety, productivity, and comfort for workers.
- Project Management: Competence in project planning, scheduling, budgeting, risk management, and coordination of resources to ensure successful implementation of

industrial engineering projects.

- Decision Analysis: Ability to evaluate alternatives and make data-driven decisions considering factors such as cost, risk, and performance objectives.
- Engineering Economics: Knowledge of economic principles and financial analysis techniques to evaluate the cost-effectiveness of projects, investments, and process improvements.
- Computer-Aided Design (CAD) and Manufacturing (CAM): Familiarity with CAD/CAM software for designing products, creating engineering drawings, and generating manufacturing instructions.
- Sustainability and Environmental Management: Understanding of sustainable practices and environmental regulations to minimize the environmental impact of industrial operations.

The following **curriculum** is presented:

Industrial Engineering : Common Core : S5

Code	Subject	Coef	Credit	Course/week	Practical/week
Ind 3 1 01	French	1,5	2	1,5	0
Ind 3 1 02	English	1,5	2	1,5	0
Ind 3 1 03	Company organization	1,5	2	1,5	0
Ind 3 1 04	Engineering Mathematics	1,5	2	1,5	0
Ind 3 1 05	Numerical analysis	1,5	2	1,5	0
Ind 3 1 06	Probability and statistics	3	4	3	0
Ind 3 1 07	Economics for Industrial Engineering	3	4	3	0
Ind 3 1 08	Industrial management	3	4	3	0
Ind 3 1 09	Engineering Sciences in Automation	3	3	1,5	1,5
Ind 3 1 10	Engineering sciences in mechanics	3	3	1,5	1,5
Ind 3 1 11	Industrial logistics infrastructure	1,5	2	1,5	0
	Total	24	**30**		

Industrial Engineering : Common Core : S6

Code	Subject	Coef	Credit	Course/week	Practical/week
Ind 3 2 01	French	1,5	2	1,5	0
Ind 3 2 02	English	1,5	2	1,5	0
Ind 3 2 03	Renewable energies	1,5	2	1,5	0
Ind 3 2 04	Design of industrial systems	3	4	3	0
Ind 3 2 05	Value analysis	1,5	3	1,5	0
Ind 3 2 06	industrial risk management	1,5	3	1,5	0
Ind 3 2 07	Databases	3	3	1,5	1,5
Ind 3 2 08	Metrology and Instrumentation	3	3	3	0
Ind 3 2 09	Material Sciences	3	3	1,5	1,5
Ind 3 2 10	Thermal machines	1,5	2	1,5	0
Ind 3 2 11	Personal project PPE	3	3	0	3
	Total	24	**30**		

Industrial Engineering : Common Core : S7

Code	Subject	Coef	Credit	Course/week	Practical/week
Ind 4 1 01	French	1,5	2	1,5	0
Ind 4 1 02	English	1,5	2	1,5	0
Ind 4 1 03	engineering DAO	1,5	2	0	1,5
Ind 4 1 04	Manufacturing processes by machining	2,25	3	1,5	0,75
Ind 4 1 05	Operational research	3	3	3	0
Ind 4 1 06	Management of information systems	1,5	2	1,5	0
Ind 4 1 07	Production management	3	4	3	0
Ind 4 1 08	Supply and inventory management	3	4	3	0
Ind 4 1 09	Maintenance management	3	4	3	0
Ind 4 1 10	Electrical machines	2,25	2	1,5	0,75
Ind 4 1 11	preparation for certification in excel	1,5	2	0	1,5
	Total	24	**30**		

Industrial Engineering : Common Core : S8

Code	Subject	Coef	Credit	Course/week	Practical/week
Ind 4 2 01	French	1,5	2	1,5	0
Ind 4 2 02	English	1,5	2	1,5	0
Ind 4 2 03	R&D management and innovation	3	3	3	0
Ind 4 2 04	GPAO	3	4	0	3
Ind 4 2 05	GMAO	3	4	0	3
Ind 4 2 06	Quality Engineering	3	4	3	0
Ind 4 2 07	Embedded computing	3	3	0	3
Ind 4 2 08	Ergonomics	1,5	2	1,5	0
Ind 4 2 09	Establishment of workshops	1,5	3	1,5	0
Ind 4 2 10	scientific project PFA	3	3	0	3
	Total	24	**30**		

Industrial Engineering Major: Quality and continuous improvement : S9

Code	Subject	Coef	Credit	Course/week	Practical/week
Ind-QAC 5 1 01	human resources management GRH	1,5	2	0	1,5
Ind-QAC 5 1 02	Law of work	1,5	2	1,5	0
Ind-QAC 5 1 03	ESB Certification	1,5	2	1,5	0
Ind-QAC 5 1 04	Supply Chain Management	1,5	3	1,5	0
Ind-QAC 5 1 05	Project management	3	3	3	0
Ind-QAC 5 1 06	industry 4.0	1,5	3	1,5	0
Ind-QAC 5 1 07	ERP Odoo	3	3	0	3
Ind-QAC 5 1 08	Simulation of production systems	3	3	1,5	1,5
Ind-QAC 5 1 09	Lean Manufacturing	1,5	3	1,5	0
Ind-QAC 5 1 10	quality audit	3	3	3	0
Ind-QAC 5 1 11	QHSE	3	3	3	0
	Total	24	**30**		

Industrial Engineering Major: Maintenance and diagnosis of industrial systems : S9

Code	Subject	Coef	Credit	Course/week	Practical/week
Ind-MDSI 5 1 01	human resources management GRH	1,5	2	0	1,5
Ind-MDSI 5 1 02	Law of work	1,5	2	1,5	0
Ind-MDSI 5 1 03	ESB Certification	1,5	2	1,5	0
Ind-MDSI 5 1 04	Supply Chain Management	1,5	3	1,5	0
Ind-MDSI 5 1 05	Project management	3	3	3	0
Ind-MDSI 5 1 06	industry 4.0	1,5	3	1,5	0
Ind-MDSI 5 1 07	ERP Odoo	3	3		3
Ind-MDSI 5 1 08	Simulation of production systems	3	3	1,5	1,5
Ind-MDSI 5 1 09	Lean Manufacturing	1,5	3	1,5	0
Ind-MDSI 5 1 10	reliability and dependability	3	3	3	0
Ind-MDSI 5 1 11	diagnosis of production systems	3	3	3	0
	Total	24	**30**		

Industrial Engineering Major: Quality and continuous improvement : S10

Code	Subject	Coef	Credit	Course/week	Practical/week
Inf-GL 5 2 01	initiation internship	10	3	/	/
Inf-GL 5 2 02	Refinement internship		3	/	/
Inf-GL 5 2 03	End of Study Project (ESP)		24	/	/

Industrial Engineering Major: Maintenance and diagnosis of industrial systems : S10

Code	Subject	Coef	Credit	Course/week	Practical/week
Inf-GL 5 2 01	initiation internship	10	3	/	/
Inf-GL 5 2 02	Refinement internship		3	/	/
Inf-GL 5 2 03	End of Study Project (ESP)		24	/	/