



ASIIN Seal & EUR-ACE

Accreditation Report

National Diploma in Engineering
Industrial Engineering
Civil Engineering

Provided by

EPI: Higher International and Private Institute of Engineers, Sousse, Tunisia

Version: 17.09.2020

Table of Content

A About the Accreditation Process.....	3
B Characteristics of the Degree Programmes	5
C Peer Report for the ASIIN Seal	7
1. The Degree Programme: Concept, content & implementation	7
2. The degree programme: structures, methods and implementation.....	15
3. Exams: System, concept and organisation.....	21
4. Resources	23
5. Transparency and documentation.....	27
6. Quality management: quality assessment and development	29
D Additional Documents	32
E Comment of the Higher Education Institution (28.08.2019)	33
F Summary: Peer recommendations (02.09.2019)	34
G Comment of the Technical Committees	35
Technical Committee 03 – Civil Engineering, Geodesy and Architecture (09.09.2019)	35
Technical Committee 06 – Industrial Engineering (10.09.2019).....	35
H Decision of the Accreditation Commission (20.09.2019)	37
Appendix: Programme Learning Outcomes and Curricula	40

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 Industriel	National Industrial Engineering Diploma	ASIIN, EUR-ACE® Label	--	06
Diplôme National d'Ingénieur en Génie Civil	National Civil Engineering Diploma	ASIIN, EUR-ACE® Label	--	03
Date of the contract: 27.03.2019 Submission of the final version of the self-assessment report: 07.06.2019 Date of the onsite visit: 17.-18. July 2019 at: EPI				
Peer panel: Prof. Dr.-Ing. Klaus Habermehl, University of Applied Sciences Darmstadt Prof. Dr.-Ing. Tim Ricken, University of Stuttgart Prof. Dr. Matthias Werner, University of Applied Science Konstanz Klaus Spiegel, Industrial Representative, sms Sales & Marketing Support Wassim Frikah, Student Representative, Sfax Tunisia				
Representative of the ASIIN headquarter: Christin Habermann				
Responsible decision-making committee: Accreditation Commission for Degree Programmes				

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 04 - Informatics/Computer Science; TC 06 - Industrial Engineering

Criteria used:

European Standards and Guidelines as of 15.05.2015

ASIIN General Criteria, as of 10.12.2015

Subject-Specific Criteria of Technical Committee 06 – Industrial Engineering as of 09.12.2011

Subject-Specific Criteria of Technical Committee 03 – Civil Engineering, Geodesy and Architecture as of 28.09.2012

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
Industrial Engineering	National Diploma	--	7	Full time	--	6 Semester	180 ECTS	22. October 2012
Civil Engineering	National Diploma	Mining Engineering; Bridges and Roads; Energy and Building; Urban Engineering	7	Full time	--	6 Semester	180 ECTS	22. October 2012

For the National Diploma in Industrial Engineering the institution has presented the following profile on their website:

“At the interface between engineering sciences, economics, human and social sciences, Industrial Engineering provides a global vision on the work of the engineer in the company. Training in Industrial Engineering, aims to educate innovative, responsive, and efficient engineers who are able to lead interdisciplinary projects and find solutions to problems encountered in the industrial world.

Industrial engineers design, install and manage integrated systems of production of goods and services while aiming at the optimal utilization of human resources and machinery to improve productivity, efficiency and profitability of industrial operations. Their knowledge of the process approach allows them to be partners in the management of the company as quality managers. This skill can be extended to the integration of safety and environmental aspects in the very current framework of IMS (Integrated Management Systems) or QSE Systems (Quality, Safety, Environment).

As part of the process of providing new services and ideas, they are competent partners with research departments to ensure that the customers’ needs and quality requirements are taken into account, and that the legal and regulatory requirements are met. They are also skilled in various trades involving quality of the process of offer completion: purchas-

³ EQF = The European Qualifications Framework for lifelong learning

es quality, product quality control, and the management of customer satisfaction and industrial optimization”

For the National Diploma in Civil Engineering, the institution has presented the following profile on their website:

“The aim of this field of study is to train engineers to design, analyze, calculate, achieve, appraise and manage works in the construction sectors. The Civil Engineer is specialized in the design and implementation of resources, human resources management in the act of building. He / She participates in the construction of residential buildings, shops, industrial buildings, offices or performances as well as the building of communication infrastructure and spatial planning(roads, bridges, tunnels , logistics centers, dams, power plants) or saving the environment (water management, waste storage). The civil engineer may intervene in any stage of the construction process, from the soil assessment to the delivery of a purpose-built facility: soil testing, design of foundations, the structure design (calculation, methods, price study) construction site management and technical control.

The training offered by the EPI-Polytec is permanently adapted to business needs by integrating the development of techniques and methods in the civil engineering sector.

In Civil Engineering 5th year students have the opportunity to choose between the main fields of study: Mining Engineering; Bridges and Roads; Energy and Building; Urban Engineering.”

C Peer Report for the ASIIN Seal⁴

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Qualification objectives and learning outcomes

Evidence:

- Objective Module Matrices for both degree programmes
- Presentation of the EPI Group
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

For the two degree programmes under review, the EPI presents extensive descriptions of the learning outcomes in the annex of their self-assessment report (SAR). These descriptions are accompanied by objective-module-matrices for each degree programme, matching learning objectives, modules, and the ASIIN subject-specific criteria (SSC). The descriptions of the qualification objectives are very comprehensive, which is generally considered helpful by the peers. However, they point out that a more concise version of the qualification objectives, including the achieved competencies and possible career opportunities of the graduates should be created as well and made accessible to all stakeholders. At the moment, these objectives can neither be found on EPI's website nor in any of the university's official regulations. Yet, with regard to issues of transparency, it is imperative that these qualification objectives must be published in a concise and set manner. This summary is also always anchored in the diploma supplement in order to provide graduates with an official short presentation of their respective degree programme to facilitate applying for career opportunities worldwide. The peers notice that a diploma supplement has not yet been implemented (cf. criterion 5.2) and ask to establish this as

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.

soon as possible and to include the new and shortened description of the qualification objectives.

Based on the information presented in the SAR, the peers learn that the degree programme Industrial Engineering aims at educating innovative, responsible, and efficient engineers that are able to lead interdisciplinary projects and find solutions to problems encountered in the industrial world. Students in this degree programme are capable of designing, installing and managing integrated systems of production of goods and services while aiming at the best possible utilization of human resources and machinery to improve productivity, efficiency and profitability of industrial operations. Additionally, graduates are also skilled in various trades: purchases quality, product quality control, and the management of customer satisfaction and industrial optimization.

In the Civil Engineering degree programme, students are taught to design, analyse, calculate, achieve, appraise and manage projects in the construction sectors. Students gain fundamental knowledge about various areas of civil engineering, including construction of residential buildings, industrial buildings, infrastructural and spatial planning and environmental issues. Thus, graduates are capable of intervening in any stage of the construction process, from the soil assessment to the delivery of a purpose-built facility.

The peers analyse the described learning outcomes and agree that they are overall consistent with the expectations of the European Qualification Framework Level 7 (equivalent to a Master's degree programme) as well as the respective Subject-Specific Criteria of the ASIIN Technical Committees 03-Civil Engineering, Geodesy and Architecture as well as 06-Industrial Engineering. Furthermore, they comply with the standards and criteria of the EUR-ACE Label.

Nevertheless, the peers point out that the descriptions of the qualification objectives miss referencing the scientific qualifications of the students, for example the continuation of their academic career on a more advanced level such as a PhD programme. As will be discussed in later sections of this accreditation report, the peers understand that the primary focus of the two degree programmes lies on the professional and practical qualifications of the students and less on the academic field.

Considering the substantial ever-expanding growth of the Tunisian economy, the private constitution of EPI and its detrimental role in providing local management skills, this pragmatic approach is for the time being advisable and must yet not be questioned by postulation of academic standards of EQF, ASIIN and EUR-ACE. Anyhow, a clear dedication to the scientific education and development of the students must remain in focus for the further development of EPI.

Moreover, the peers discuss with the programme coordinators if the students also learn interpersonal skills, such as teamwork, leadership, project management or communication techniques. They learn that certain modules exist that teach students these interpersonal or soft-skills, especially because many students plan on becoming entrepreneurs after graduation and owning their own businesses. During the second year of studies, for example, all students have to complete a so-called mini-project where students spend some time in the industry and learn about topics such as organization and management. Afterwards, students have to prepare a presentation about their experiences. Additional courses, for example “HR Management” or “Communication Techniques” aid the students in learning soft-skills and practicing their leadership role. The programme coordinators also emphasize the importance of extra-curricular activities in learning these interpersonal skills. Each Wednesday evening, for example, lecturers and experts hold seminars on topics such as stress management and preparing for one’s future career. Various scientific and artistic clubs at the university also enable students to act in a group or as leaders. While these programmes are not mandatory, the peers nonetheless feel that they serve as great additions to the interpersonal skills already taught in the mandatory part of the curricula.

In the discussion with partners from the industry, it was remarkable that a high demand for EPI graduates comes also from outside the lectured industries (e.g. pharmaceutical). This is due to the graduates’ high qualifications for managerial tasks, so that some companies source their entire engineering workforce with interns from EPI.

In summary, the peers regard the qualification objectives to be adequate. They ask EPI, however, to add the students’ scientific preparation to these qualification objectives and to anchor a short and precise version of them on EPI’s website and – once implemented – in the diploma supplements.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

The peers consider the names of the degree programmes generally to be adequate as far as reflecting the respective aims, learning outcomes and curricula. With regard to the degree programme Industrial Engineering, they ask why this title and not the more modern version “Engineering and Management” was chosen, especially since the programme

focuses not only on engineering but also on the service industry. The programme coordinators state that the name was chosen to align with national and international standards as the title “Industrial Engineering” is still utilized globally. The peers agree that the current title is fitting but that its more modern version might also be utilized.

Criterion 1.3 Curriculum

Evidence:

- Objective-module-matrices for both degree programmes
- Study plans for both degree programmes
- Module descriptions for each degree programme
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

The EPI-Polytec is a polytechnic school accredited by the Tunisian Ministry of Higher Education and Scientific Research. Its mission is to train engineers and to provide applied research and technology transfer. The educational project of EPI-Polytech is based on the following two main areas: Construction Engineering, Components and Systems (CECS) and Information and Communication Technologies (ICT).

At EPI-Polytech, each student has to undertake a two-year long preparatory course before beginning studying his speciality, in this case civil engineering and industrial engineering. The integrated preparatory course (IPC) is open to all graduates of the scientific sections Mathematics, Technical Sciences, Experimental Sciences and Computer Sciences and it allows graduates to access one of the study fields offered by the school without competitive examination as the transition is made on the basis of continuous assessment. The IPC includes a common first year for all students of EPI and a second year of pre-course selection where students are given different study fields to choose from in the two major areas of the school: Information and Communication Technologies (ICT) and Construction Engineering, Components and Systems (CECS). The contents of the courses (cf. annex of this report) allow students to confidently develop skills in a professional engineering environment. Students are able to explore different fields of study at EPI before deciding which programme to study.

After the second year of study, students decide which of the six engineering study programmes they want to pursue, among them Civil Engineering and Industrial Engineering. In the following, the curriculum will focus on those three years when students study their specification. At EPI, those are the last three years of a five-year programme. Yet, as detailed under criterion 1.4, the two study programmes may also be studied by students, who have already achieved a Bachelor's degree or a Licence.

The peers review the curricula of the two degree programmes under consideration in order to identify whether the available modules are able to achieve the described qualification objectives. They take into consideration the study plans, objective-module-matrices and the individual module descriptions. The peers assess that the curricula of both degree programmes, detailed in the annex of this accreditation report, are well-founded, match international standards and thus allow the students to become well prepared for national and international occupations. While the curricula lack fundamental skills, especially in the mathematical and engineering mechanics sector, the programme coordinators remind the peers that students gain these skills in the two preparatory years or their Bachelor's degree or Licence.

In both study programmes, there are no elective modules for the students, yet for the Civil Engineering degree programme, students can further specify in one of four areas of expertise: Mining Engineering; Bridges and Roads; Energy and Building; Urban Engineering. While Mining Engineering is not an option many students choose and thus is currently not taught, the peers learn that most students are interested in the specification Bridges and Roads as there exists a current high demand on the labour market for such experts. The peers ask how students are informed about these four specifications and learn that students can find the different modules of each specification on EPI's website and that the Head of Department informs the students about specifications in a timely manner. The peers understand that while EPI is training generalist industrial engineers, it makes sense to further specify the education of civil engineers, especially with regard to the demands of the Tunisian labour market. As Tunisia demands civil engineers specified in the construction of roads and bridges, the peers ask why there is no module such as "Transportation Planning" included in the curriculum. The programme coordinators agree that students would benefit from such a module and the peers thus recommend establishing it as soon as possible.

The peers notice that the module "Environmental Engineering", part of the Civil Engineering curriculum, focuses solely on internal environments, such as heat insulation, and thus varies from the international usage of the term environmental engineering, which also focuses on external factors. As such, the peers believe that the module's title should be changed to adequately portray the taught contents.

Finally, the peers ask about the industry's influence on (further) developing the two study programmes. They learn that EPI holds a pedagogical committee that consist of both teachers and representatives from the industry. Here, the curriculum has been jointly established and is continuously updated according to the demands of the labour market. As EPI is a private educational institution, they enjoy greater freedom in developing the study plans. For example, while the ministry of higher education is involved at the beginning of creating a study programme by giving general guidelines, EPI then develops the individual curricula in its pedagogical committee. Furthermore, the peers learn that EPI holds close relationships with industries and that – due to the private nature of the institute – industry partners regularly contact EPI when the market demands new skills, which are then transferred and implemented into the study plans. As such, the curriculum is up-to-date and conveys those competencies and skills the students need for their future professional career.

During the discussion on-site the peers furthermore learn that apart from the presented modules composing the curricula, students of each programme also have to undertake two internships of at least one month's duration each during the summer holidays. Each internships as well as the report that has to be written by the students, is a mandatory part of the curricula. According to the regulations of the European Area of Higher Education, all mandatory parts of the curriculum must be presented in the curriculum and awarded credit points. The peers appreciate that the students are encouraged to conduct internships during their holidays in order to improve their career opportunities after graduation, yet they emphasize that if these internships are mandatory, students must gain credit points for their efforts.

In summary, the peers are greatly impressed by the modern 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 industrial and civil engineering. However, the mandatory internships must also be included in the curricula and awarded credit points, the title of the module "Environmental Engineering" should reflect its contents and the module "Transportation Planning" should be included in the curriculum.

Criterion 1.4 Admission requirements

Evidence:

- Admission process
- Admission requirements

- Internal Rules of EPI
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

From the information provided, the peers understand that admission to EPI and the respective degree programmes is generally based upon the final grade of the previous education, notwithstanding the different types of educational options. As has been mentioned under criterion 1.3, students may apply directly to the two programmes when they have already obtained a Bachelor's degree or a Licence. Yet, students may also attain the two-year preparatory courses at EPI. Regardless of which educational path has been chosen, a ranking of the final grade of each applicant is established based on a certain calculation in which the average grade is valued four-times, the highest grade of either Mathematics, Physics, Engineering or Computer Science is also valued four-times and the highest grade of either French or English is valued two-times. Based on this ranking, interviews are carried out by the respective departments to assess the motivation of the best applicants. After the completion of the assessment process, applicants are ranked on a point-based system with students reaching 100 points or less being considered "lowly ranked" and students achieving more than 160 points amounting to "grand classified."

During the discussion with the students, the peers gained the impression that students are well informed about the admission requirements and procedures as all necessary information is gathered on EPI's website and published in the internal rules and regulations. Consequently, the peers judge the process to be transparent and adequate for selecting the best students for each degree programme.

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

Regarding criterion 1.1. – Qualification objectives and learning outcomes

The peers appreciate that with the comment of the HEI the description of the learning outcomes, achieved competencies and possible job opportunities were reviewed and published on the programmes' website. The learning outcomes of both programmes now also focus on the scientific qualifications and skills of the students, such as the possible continuation of their academic work on a post-graduate level. Moreover, a short and adequate description of the programmes' objectives has already been included in the newly designed Diploma Supplements for each programme and also published on EPI's website in both English and French. As the detailed outline of the achieved competencies as well as the possible job opportunities are solely available in French, the peers ask EPI to also

publish these information in English. Nonetheless, the peers thank EPI for the quick establishment of this vital information, which fulfil the respective criterions.

Regarding criterion 1.2 – Name of the study programme

During the audit, the peers have discussed with the programme coordinators why the name “Industrial Engineering” was chosen instead of its more modern version “Engineering and Management.” In their comments, EPI states that it generally agrees with the peers regarding the more modern title for the degree programme. However, as the title “Industrial Engineering” is currently the only one utilized in Tunisia, for reasons of transparency, EPI prefers keeping this title. The peers understand the EPI’s reasoning, especially since there is no general discrepancy between the title of the programme and its taught contents.

Criterion 1.3 – Curriculum

In their comments, EPI states that it agrees with the peers’ suggestions of adding the module “Transportation Planning” to the Civil Engineering programme. This matter will be discussed within the department and a commission will be formed to define the appropriate content of the module. Once finished, a draft of the new module will be sent to ASIIN as well as to the Tunisian ministry of education for approval before it will be integrated into the academic year 2020/2021. Until then, EPI plans on organizing conferences and seminars on the topic “Transportation Planning” to include this topic into its curriculum. The peers thank EPI for its detailed plan on creating this new module, which they believe will help the students gain an even more up-to-date set of skills and knowledge regarding the field of civil engineering. They are looking forward to receiving the draft version of the module.

Concerning the mandatory summer internships, the HEI outlines that the workload of these internships is actually covered by the End-of-Study Project. Of the 30 ECTS credits awarded three refer to each of the two previous internships which have to be completed before the final project can be started. The study plans were revised in order to transparently communicate this distribution of workload accordingly and have been uploaded to the website. The peers consider this approach to be acceptable and consequently consider this criterion to be fulfilled.

With the revision of the study plan for the degree programme Civil Engineering, those responsible for the programme have also changed the title of the module “environmental engineering” to match its thematic focus, as has been advised by the peers. The module is now titled “Thermal and acoustic Engineering”, which the peers regard a more matching fit.

In summary, the peers are very impressed with the sufficient work EPI has undertaken with regards to the objectives and the curriculum of the two degree programmes. While they ask EPI to also provide translated versions of the objectives in English, they nonetheless regard criterion 1 to be fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Study plans for both degree programmes
- Module descriptions for each degree programme
- Mobility requirement report
- Statistics about the international mobility and its process
- Credit validation procedure
- Internal rules of EPI
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

Modularization

Both degree programmes under review are divided into modules, which comprise a sum of teaching and learning. The peers found the structure of the modules to be quite adequate and manageable.

In the Civil Engineering degree programme, modules consist of a varying number of courses: while some modules entail only one course, others may hold up to three courses. The peers notice that if a module consists of more than one course, all courses are linked thematically and thus create one entity. For example, module M412, “Structures 1”, consists of the courses “Reinforced Concrete 1”, “Calculation of Structures 1” and “TP

RDM” while module M321, “Mathematics”, comprises the courses “Numerical Analysis” and “Operational Research”.

When analysing the modularization of the Industrial Engineering degree programme, the peers notice that individual courses are grouped together into so-called “Credit modules” but that these credit modules do not share the same module code and sometimes do not form a thematic entity. For example the courses “English 1” (IIND310), “French 1” (IIND311) and “Advanced Excel” (IIND312) are joined to one credit module although they share neither a thematic foundation nor a common module code. Similarly, “Renewable Energies” (IIND429), “Environmental Management” (IIND430), “Safety of Industrial Installations” (IIND431) and “Establishment of Workshops” (IIND432) are grouped together into one credit module. To meet international standards, the peers ask the programme coordinator to fix the modularization of the degree programme so that each module, not each course, has its own module code, and that in those cases, where a module consists of more than one course, those courses are thematically interlinked.

International Mobility

Internationalization is of increasing importance in Tunisian higher education in general and at EPI especially, where internationalization is already referenced in the institute’s name “International Institute of Engineers.” Compared to this international agenda, the current options for international mobility are rather limited as only ten engineering students each year are spending a semester at a university abroad.

Traditionally, Tunisian higher education institutions hold strong relations with French universities due to their common language as well as their similar educational system, including the degrees “Licence” and “Diploma”. The peers acknowledge that cooperation with French HEIs is already underway and that the university as well as the departments of EPI are working on increasing these cooperation to also include other countries, such as Germany or Scandinavian nations. For example, each year a small number of highly successful students is selected for a scholarship to study a year in France and double diplomas with renowned French universities have also been established.

Currently international mobility remains an exception. Yet, the peers gain the impression that internationalization is very high on the agenda of EPI, especially since many students have expressed the wish to be spending a year abroad at an English-speaking facility or in Germany as well. Hence, EPI has declared that it is in the process of constructing a language centre, where in addition to already offered English classes, German will be taught extensively. Furthermore, a cooperation with the local Goethe-institute is also planned.

The peers strongly support these initiatives and recommend expanding the existing bilateral agreements with international universities, especially outside of France.

While the peers indubitably laude these efforts, they also believe that a primary focus should be the English-speaking capabilities of the teaching staff. During the audit, either Arabic or French was used and then translated into English. In order to sufficiently teach the students in English, the peers advice to implement language initiatives for the teaching staff.

Although opportunities of international mobility are still limited, the peers find that credit transfer and the recognition of credits gained at foreign universities is possible and regulated by EPI. These regulations, anchored on EPI's website and the credit validation procedure, are known to the students, transparently accessible and in line with the Lisbon-convention.

Criterion 2.2 Work load and credits

Evidence:

- Study plans for both degree programmes
- Module descriptions for both degree programmes
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

All modules of the programme are assigned ECTS credits. Every semester comprises 30 credit points while each credit point amounts to 30 working hours. As has been discussed in detail under criterion 2.1, modules can consists of one to four courses. While the module structure for the Civil Engineering degree programme corresponds to the standards of the EQF, ASIIN and EUR-ACE, the modularization of the Industrial Engineering programme must be revised to form consistent course units.

The peers acknowledge that all parts of the curricula are awarded credit points. Yet, students also have to undertake two mandatory internships during their summer holidays which must also be included into the curriculum and be credited.

The peers further analyse the workload of each course and module and find it to be suitable and manageable. Feedback regarding the workload, regularly compiled through the course evaluation survey undertaken at the end of each study year, shows that students are generally content with their workload and believe the awarded credits to reflect the workload adequately. The peers agree with the students' assessment.

Criterion 2.3 Teaching methodology

Evidence:

- Overview of permanent teachers' pedagogical evaluation
- Overview of pedagogical training
- Examples of pedagogical trainings
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

Both degree programmes under review make use of different educational methods for teaching the courses, such as lectures, seminars, tutorials, laboratory practical work, excursions, internships, mini-projects and the final projects. The teachers further emphasize that for the majority of courses, scripts are available and that videos, mostly for the utilization of programming software, are also produced by EPI so the students can continue learning at home.

While the peers generally appreciate the possible teaching methods, they notice that students are mostly taught in lectures or seminars. While these forms of teaching are important to convey the theoretical aspects of each topic, for engineering programmes it is also crucial that students learn how to apply these skills. The peers acknowledge that students gain some practical skills through the two mandatory internships during the summer holidays, through the final project that is often undertaken in cooperation with industrial partners as well as through work in the laboratories of EPI. Especially the work in laboratories is of great importance to the education of future engineers. Here, the two programmes vary as the civil engineering students gain more practical experience than the industrial engineering students.

For the Civil Engineering degree programme, students receive weekly workshops in the laboratories at EPI. Here, no more than 10-12 students are in one class, with 2-3 students working together on one of the machines or tools. Yet, as will be detailed under criterion 4.3, the equipment in the laboratories at EPI is mostly outdated and does not match the standard of equipment to be utilized by engineering students on the level of EQF 7. Therefore, it is of utmost important that students gain further practical training at other, better equipped facilities. The programme coordinators and students explain to the peers that most parts of the practical training are outsourced to external laboratory facilities, which students visit regularly, at least once per month for an entire day. Topics such as

soil-mechanics, construction materials and topography are all taught in workshops held in facilities of other universities or industrial partners.

With regard to the Industrial Engineering degree programme, students also receive weekly workshops in the laboratories of EPI and they also regularly visit the laboratories of industrial partners. In contrast to the Civil Engineering students, however, Industrial Engineering students receive only theoretical training at these external facilities and gain no hands-on experience. While for subjects such as production management, supply-chain management or manufacturing, understanding the theory of its working is important, students must also gain hands-on experience on how to work related machines and equipment.

During the discussions with the students and with the partners from industry, the peers learn that both also see a need for more practical, hands-on training of the students. As such, the peers urge EPI to create more opportunities for students to apply their theoretical knowledge in practice and to gain more hands-on experience.

The peers also discuss the usage of programming software with the programme coordinators. They recognise that students are taught, among others, to apply Arche, Matlab, Robot Structural Analysis, CATIA and AutoCAD. Due to financial reasons, however, EPI holds no full licence of said software for its students. For example, student licenses of ABAQUS, ANSYS, or LS DYNA would help the students meet the demand of the labour market. The peers, as well as the students, are nonetheless of the opinion that the limited versions are sufficient for the skills the students should learn and advance.

In summary, the peers acknowledge that EPI uses a variety of teaching methodologies but that the practical application of the learned competencies and skills should be expanded.

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

During the on-site discussions with the programme coordinators, the teachers and especially the students, the peers gather a comprehensive impression of the offers related to supporting and assisting the students. Being a private university, EPI manages to offer classes in small size of 12-15 students which enables close relations between staff and students and thus allows for constant and direct feedback in case any issues arise.

The students confirm that they are generally very satisfied with the support and assistance they receive from their professors 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, meaning they hold other occupations as well, the peers ask how students hold contact to these members of staff. They learn that non-permanent teachers have certain days during which they are always available in person at EPI but that students can also reach them throughout the entire week via email or phone.

Apart from subject-specific support, EPI also offers several other means to aid its students: the international office supports international mobility and annual career fairs allow students to connect with possible future employers. The university also offers financial support in form of scholarships to help students pay their annual fee.

In summary, the peers are satisfied with the support and assistance the students at EPI receive.

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

Regarding Criterion 2.1 – Structure and modules

Together with its comments, EPI has also provided an updated version of the study plan for both degree programmes, now including all mandatory parts of the degree programmes, such as the internships. For the degree programme Industrial Engineering, the study plan has also been reworked to ensure that the contents of each module are presented in a thematically coherent manner. For example, the courses “English1”, “French1” and “Advanced Excel” are no longer grouped together to create a Credit Module. Instead, “English 1” and “English2” are now grouped together, while “Advanced Excel” is to be found in a module together with other mathematical and statistical courses. In this manner, all courses have now been reorganized to form thematically coherent modules. The peers are very impressed by EPI’s quick implementation of these manners and regard this former deficiency to be remedied.

EPI also agrees with the peers' assessment that while French is an important language, the importance of English cannot be ignored, especially with regard to science and research. EPI thus plans to implement language initiatives for the teaching staff during the course of the upcoming academic year.

Regarding Criterion 2.2 – Workload and credit Points

As has already been outlined under criterion 1.3, EPI has changed its curriculum which now includes all mandatory parts of the degree programme, including the internships, which consequently are also awarded credit points according to their workload. The inclusion of the internships without exclusion of other courses was possible as the internships have already been considered within the end of study project ESP, whose 30 ECTS included 3 ECTS for each of the two internships and 24 ECTS for the ESP. In the new curriculum, these activities are presented separately.

Regarding Criterion 2.3 – Teaching Methodology

In its comment, EPI states that the students gain practical experience not only during their internships but also during the practical work undertaken either in the laboratories at EPI or in external laboratories (cf. criterion 4). Students also regularly visit local industries to get acquainted with practical aspects of their future career. Nonetheless, EPI agrees with the peers and plans on increasing the practical work of students during the semesters.

In summary, the peers regard criterion 2 to be fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation
--

Evidence:

- Official document outlining the examination process
- Official document detailing the second exam correction process
- Exam rules
- Exams calendar
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

The peers analyse the provided documents and notice that all course content within the reviewed degree programmes is examined. Examination types are selected based on their competences orientation and may include written exams, oral exams, presentations and project work, either alone or in teams. All relevant rules and regulations regarding the exam procedure are anchored and published on EPI's website.

As the presented module descriptions in most cases do not note the form of the examination (cf. criterion 5.1), the peers ask how students are informed about the date of the exam, its form and its duration. The programme coordinators explain that all examinations are held during a one-week examination period at the end of each semester. The dates of the examination period are communicated at the beginning of each academic year and published in the academic calendar. One or two weeks prior to the examination period, the schedule of the examination period is published, stating which exam is written at what precise day and time during the aforementioned one-week period. To avoid any complication with the schedule and to make sure the workload is manageable for the students, the students receive a draft version of the examination schedule to review. If the students are not satisfied with this schedule, changes will be made; an approach the peers appreciate.

Due to the fact that each course is examined, students have between six and twelve exams during the examination schedule at the end of each semester, so more than one exam per day. The students tell the peers that this workload is manageable for them, especially if one continuously studies during the semester. There are also mid-term exams that make up 30% of the final grade and are appreciated by the students as they force them to learn during the semester, which eases the workload during the final examination period.

The peers also inspect a sample of examination papers and final project works and are overall satisfied with the general quality of the samples. They confirm that they hold an academic level comparable to the European Qualification Framework (EQF) 7.

In summary, the peers acknowledge that the system, conception and organization of examinations at EPI is efficient. Although the students are well informed about the date, form and duration of their exams, the peers nonetheless believe it to be beneficial, if this information was also published in the module descriptions.

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

EPI has provided an updated version of the module handbook for both degree programmes, which – among other factors – now also includes information about the form of the exam as well as how the average grade is calculated.

The peers regard criterion 3 as fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Lists of teachers
- Résumés of Teachers
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

In the self-assessment report the university presents data about the number and overall qualification of staff for the respective programmes and during the discussion on site the peers gained a good impression of the quality of the teaching personnel. Based on legal requirements, teaching staff must at least have a qualification on Master level and it is recommended that 50% of the staff members should hold a PhD. In both study programmes, this percentage is met. Since EPI is a private University it does not follow the hierarchy of public Universities in Tunisia. Full professorships are not awarded, the only difference between the staff members is their salary based on the individual teaching load as well as the qualification and performance. In total, the staff is composed of full-time staff members solely employed by EPI and of part-time staff that is recruited either among the staff of the public HEIs or among industry partners. For the Civil Engineering degree programme, there are currently no permanent teachers; for the Industrial Engineering degree programme, four professors hold full-time positions. As non-permanent teachers are still reachable by the students (cf. criterion 2.4) the peers do not regard the high number of non-permanent teachers as problematic.

The peers learn that for the moment the available staff is sufficient to take care of the programmes and to ensure the small classes. However, EPI has been and still is rapidly

growing and new staff members are constantly sought after. In the next year alone the Engineering College wants to hire 15 new staff members which may prove increasingly difficult given the high level of required qualification and the significant brain-drain the country is suffering from. Nonetheless, the peers conclude that the teaching staff is well qualified and quantitatively sufficient in order to sustain the programmes under review.

Criterion 4.2 Staff development
--

Evidence:

- Overview of permanent teachers' pedagogical evaluation
- Overview of pedagogical training
- Examples of pedagogical trainings
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

In their self-assessment report as well as during the on-site visit, EPI declares that they value highly the pedagogical skills of their teaching staff and thus offer constant training and support for the teachers' improvement. If the student evaluation, for example, should reveal deficiencies in pedagogical or didactical skills, the Head of Department will approach the respective staff member and recommend special trainings or workshops. Apart from those measures, international experts are regularly invited to share their expertise with the local staff.

Besides the pedagogical development, EPI also emphasises the significance of research in order to make sure that the professors and the study programmes are always up-to-date. Although staff members do not have a lot of leisure time, as many of them hold two positions already, they nonetheless produce publications. As the list of publication was not provided to the peers before the audit, they ask for it to be sent afterwards. The peers gain the impression that the scale of research could be increased and that the research infrastructure in particular should be enhanced. For example, the peers learn that so far, EPI does not provide financial resources for its staff to attend international conferences. Additionally, research in the form of paid spare time, such as sabbaticals of six to twelve months duration are not yet common in Tunisia but would greatly aid in increasing the research activities at EPI.

The peers generally gain the impression that the staff members are active in research, if time and money allows, but they urge EPI to further support the research activities of its staff.

Criterion 4.3 Funds and equipment
--

Evidence:

- Partnership Agreements
- List of laboratories and equipment
- On-site visit
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

During the on-site visit, the peers were able to gain a comprehensive impression of the facilities and laboratories at the Engineering College. Being a completely private institu-

tion, EPI is funded solely by tuition fees and donations from private enterprises as no government support is provided to sustain the institution.

The laboratories on-site are considered to be adequate for the conveyance of the programmes' fundamentals. The peers learn that it is not common for private universities in Tunisia to possess laboratories on their own facilities and that in order to perform the practical work, the departments close contracts with public universities or private companies that own the necessary equipment. For the two degree programmes Civil Engineering and Industrial Engineering, the students are gathered at EPI and are transported via bus shuttles to the respective facilities where the equipment is located. Although this seems quite unusual to the peers, they are able to understand that this procedure is well established and working and that the students are content with this arrangement. Consequently, in order to fully assess the equipment of the two critical programmes, the peers ask the HEI to compile a list where for each external laboratory the respective equipment is documented and photographic evidence is provided. Additionally it would be appreciated if a documentation of the experiments performed in these labs could be presented, as was the case in the laboratories on-site. The peers approve of these papers, which detail the experiments and students' tasks.

While the peers understand that equipment for the two degree programmes under review is rather expensive, they support EPI in its endeavour of continuously developing its own laboratories. The peers learn from EPI's management that a new building, which will entail more laboratories, is already under construction. The peers expect that this will contribute significantly to the independence of the programmes from external factors and that it will further enable students as well as staff to work on their research projects.

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

Regarding Criterion 4.2 – Staff development

Along with its comments, EPI has presented a list of publication and research activities undertaken by the teaching staff. EPI furthermore plans to increase the opportunities for members of the teaching staff to conduct research through the construction of a new research lab. A plan of this has also been provided. The peers are satisfied with the research qualification of the teaching staff and supports EPI's efforts to create more opportunities for the teaching staff to continue their research.

Regarding Criterion 4.3 – Equipment

EPI has provided a list of external laboratories and external equipment utilized regularly by students of both degree programmes. The students are utilizing laboratories for the field of soil mechanisms, thermic machines and topography. The peers assess the provided documentation, both textual and visual, of the laboratory equipment. They conclude that the presented equipment of EPI is not sufficient, since the documentation does not clarify in which manner equipment of industrial partners is included. The peers thank EPI for the very extensive documentation of their equipment but ask for a specified overview of the equipment, which is kept at EPI and that which is provided by industrial partners.

As the current documentation does not suffice in assessing what sort of equipment is available and in which way it is utilized by the students, the peers regard criterion 4 as partially fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module descriptions
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

The peers appreciate that the module descriptions were presented beforehand with the Self-Assessment Report in English translation. From the discussion with the students, it also became apparent that they receive detailed information about the respective content, learning outcomes, examinations, workload distribution and grading at the beginning of each course. However, in order to match international standards, all these information must be presented in a module handbook, which must contain all offered modules, including the two mandatory internships (cf. criteria 2.1 and 2.2).

In conclusion, the peers urge EPI to establish a module handbook whose module descriptions entail the following information: module identification code, person(s) responsible for each module, teaching method(s) and work load, credit points, intended learning outcomes, module content, planned use and applicability, admission and examination requirements, form(s) of assessment and details explaining how the module mark is calculated, recommended literature, date of last amendment made.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Diploma supplements for both degree programmes

Preliminary assessment and analysis of the peers:

From the presented documents the peers gather that at the graduation every student is awarded a Diploma and a transcript of records listing the modules and individual grades. However, the EPI does not yet award a Diploma Supplement as required by ASIIN. At the completion of the degree programme, all graduates should be provided a Diploma Supplement that contains a concise description of the programme's learning outcomes (compare also criterion 1.1), the list of modules and individual module grades of the student, the relative grade of the comparable graduates' cohort as well as information regarding the Tunisian system of higher education. Such a Diploma Supplement will increase the international comparability of the graduates and facilitate the employment process as employers receive a complete set of information together with the applicant's Diploma.

Criterion 5.3 Relevant rules

Evidence:

- Internal Rules
- Exams Rules
- Self-Assessment Report
- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

From the documents provided as well as the discussions during the on-site visit, the peers assess that EPI follows a policy of transparent and open rules and regulations. All required rules and regulations are made accessible to students and are published on EPI's website. The discussion with the students confirms that they feel well informed about regulations and comfortable about the access to any information pertaining their degree programmes.

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

Regarding Criterion 5.1 – Module handbook

The module handbooks for both degree programmes have been updated according to ASIIN criteria and now include information about the content, qualification objectives, teaching formats, admission requirements, usability, conditions for the award of credits, ECTS credits and grades, frequency of the offer, workload and duration of each module. The peers are satisfied with this new module handbook. As it is only available in French at the moment, the peers ask EPI to also create an English version for reasons of transparency.

Regarding Criterion 5.2 – Diploma supplement

EPI has established a Diploma Supplement for each of the degree programme that comply with international standards. However, the Diploma Supplements are available in French language only. While this is generally acceptable, the peers recommend to also provide an English translation of the Diploma Supplement so that students may apply with this document for any job anywhere in the world. In conclusion, the peers consider the criterion to be fulfilled.

The peers regard criterion 5 to be fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Internal Rules
- Exam Rules
- Statistics of insertion rate
- Meeting minutes of the modifications of the study plan
- Statistics about students
- Questionnaire used for the evaluation of studies
- Results of the evaluation of studies
- Teacher satisfaction questionnaire
- Overall satisfaction questionnaire
- Self-Assessment Report

- Discussions during the on-site visit

Preliminary assessment and analysis of the peers:

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

Since EPI is a private University funded exclusively by the fees paid by the students the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance to the coordinators. Each course is being evaluated constantly through different surveys by teachers and students. Further surveys are carried out gathering statistics about graduates and alumni. The discussion with the students revealed that those in charge are always eager and open for feedback aside from the official evaluations and that students have the impression that their comments are taken into consideration with regard to the further improvement of the programmes. This becomes explicit in the constant curricular revision process that is performed under participation of students and industry partners. The industry representatives confirm in the discussion that the University is eager to receive feedback about new developments and trends and the employability of their graduates.

That this process is fruitful and effective becomes visible in the high percentage of graduates that find employment immediately after graduation. Concerning the internal feedback loops the results of the course evaluations are centrally assessed and analysed before they are communicated to the Head of Department. He would then be responsible to initiate any measures if problems or needs for improvement have been detected. The results of the quality of the teaching staff are outlined in detail and categorized based on a traffic light system; those staff members that are graded 30 percent and below are marked red, better ones in yellow and green. A summary of these results is made accessible to the students. In case the satisfaction of the students with staff members is in the red light zone, the Head of Departments 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. Although the teaching staff does not usually discuss the results with the students in class, the Head of Department is obliged to communicate any measures taken because of survey results transparently to the students. Thus, the peers agree that the quality management circles at EPI are well established and work under participation of all stakeholders.

In summary, the peers 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, alumni and representatives from the industry.

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

The peers are satisfied with the quality management system at EPI.

They consider criterion 6 to be fulfilled.

D Additional Documents

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

- D 1. List of publications of staff members
- D 2. List of staff members that clearly denotes their academic qualification and whether they are employed part-time or full-time
- D 3. List of external laboratories and its equipment (including photographs) and documentation describing the performed experiments

E Comment of the Higher Education Institution (28.08.2019)

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

- List of external laboratories, including the external equipment
- List of publications of teachers from both study programmes
- Plan for creating a research lab for the teaching staff
- List of teachers for both study programmes
- Diploma Supplements for both study programmes

F Summary: Peer recommendations (02.09.2019)

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	Subject-specific Label	Maximum duration of accreditation
Diploma in Civil Engineering	With requirements for one year	EUR-ACE®	30.09.2024
Diploma in Industrial Engineering	With requirements for one year	EUR-ACE®	30.09.2024

Requirements

For all degree programmes

- A 1. (ASIIN 4.3) Specify which equipment is maintained by EPI and which is provided by industrial partners.

Recommendations

For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to improve the opportunities for students to complete a period of vocational practice or a stay at a different higher education institution.
- E 2. (ASIIN 4.2) It is recommended to increase the research opportunities for staff members.

G Comment of the Technical Committees

Technical Committee 03 – Civil Engineering, Geodesy and Architecture (09.09.2019)

Assessment and analysis for the award of the ASIIN seal:

The technical committee discusses the accrediting procedure and follows the assessment of the peers 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 do comply with the engineering specific part of Subject-Specific Criteria of the Technical Committee 03.

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

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Diploma in Civil Engineering	With requirements for one year	EUR-ACE®	30.09.2024

Technical Committee 06 – Industrial Engineering (10.09.2019)

Assessment and analysis for the award of the ASIIN seal:

The technical committee discusses the procedure, especially the requirement regarding the laboratory equipment. They are of the opinion that its current phrasing does not depict the actual problem depicted by the peers, namely that there is not yet a clear overview of the equipment situated at EPI and equipment utilized by the student at other external facilities. As such, the technical committee decides to rephrase the respective requirement.

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

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

The TC 06–Industrial Engineering recommends the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Diploma in Industrial Engineering	With requirements for one year	EUR-ACE®	30.09.2024

Requirements

For all degree programmes

- A 1. (ASIIN 4.3) Specify which equipment is used at EPI and which is utilized at laboratories of industrial partners or other universities.

Recommendations

For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to improve the opportunities for students to complete a period of vocational practice or a stay at a different higher education institution.
- E 2. (ASIIN 4.2) It is recommended to increase the research opportunities for staff members.

H Decision of the Accreditation Commission (20.09.2019)

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

The Accreditation Commission for degree programmes discusses the procedure. It decides to change requirement A1 to ensure that it matches more the concern of the peers formulated in the report, namely whether the students actually gain the necessary practical training.

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

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

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

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Diploma in Civil Engineering	With requirements for one year	EUR-ACE®	30.09.2024
Diploma in Industrial Engineering	With requirements for one year	EUR-ACE®	30.09.2024

Requirements

For all degree programmes

- A 1. (ASIIN 4.3) Ensure that practical skills of students are trained sufficiently in laboratories. In this respect, it must be specified which equipment is used at EPI and which is utilized at laboratories of industrial partners or other universities.

Recommendations

For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to improve the opportunities for students to complete a period of vocational practice or a stay at a different higher education institution.
- E 2. (ASIIN 4.2) It is recommended to increase the research opportunities for staff members.

I Fulfilment of Requirements (17.09.2020)

Analysis of the peers and the Technical Committee/s (07.09.2020)

Requirements

For all degree programmes

- A 1. (ASIIN 4.3) Ensure that practical skills of students are trained sufficiently in laboratories. In this respect, it must be specified which equipment is used at EPI and which is utilized at laboratories of industrial partners or other universities.

Initial Treatment	
Peers	Fulfilled Justification: The amount of documents provided and the multiplicity of tables and graphic representations in the documents allow to assume that the requirement is fulfilled for all programs despite the fact that all documents have been submitted in French.
TC 03	Fulfilled Justification: The TC follows the assessment of the peers.
TC 06	Fulfilled Justification: The TC follows the assessment of the peers.

Decision of the Accreditation Commission (17.09.2020)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Diploma in Civil Engineering	All requirements fulfilled	EUR-ACE®	30.09.2024
Diploma in Industrial Engineering	All requirements fulfilled	EUR-ACE®	30.09.2024

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following objectives and learning outcomes shall be achieved by the Industrial Engineering degree programme:

“The engineering training, specialized in industrial engineering, at the International Multidisciplinary School EPI-TEC Sousse concerns the design and management of processes and systems that improve the quality and productivity of the business supply chain. The most distinctive aspect of this specialty is the flexibility it offers in terms of career. An engineering student in this discipline primarily learns the tools and methods necessary to help eliminate the waste of time, money, materials, energy and other raw materials of organizations. Industrial Engineering provides a systematic approach to rationalize and improve the productivity and efficiency of organizations; in other words, its mission is to make the processes as profitable as possible.

It is a multidisciplinary training that aims to make improvements to a manufacturing system. It equips engineers with knowledge and skills on evaluating and improving the productivity and quality of service companies. As a result, the term "industrial" also includes service companies.

The fields of involvement of the industrial engineer cover a wide range of professional activities:

- Plan product distribution activities and the organization of services
- Design integrated management systems (quality, environment and health and safety)
- Ensure the application of organizational and product-specific standards and/or service
- Organize and manage work teams for the realization of a technological project

For this purpose, the industrial engineer is a decision maker and can be qualified as a business architect. He is as interested in the production systems, the processes and the services as the people who work there. Its main motivation is to constantly reconcile the human, economic and technological aspects of private or governmental organizations. He is able to:

- Establish a "system" approach that ensures the efficient and optimal consideration of all parts of an organization's system, including the human, economic and technological aspects;

- Implement rigorous continuous productivity improvement processes that aim to do more work with less time and maximize the business profitability of organizations;
- Model and simulate production systems, processes and services; tools to visualize a problem in a structured way and determine ways to solve it;
- Develop proven methods of analysis and quantitative measurement;
- Evaluate interactions and ensure the integration of human, economic and technological aspects and the various disciplines involved in a situation;
- Be able to manage the change;
- Apply scientific methods to make business decisions.

Competence Framework: What skills are attested at the end of the training?

The Department of Industrial Engineering of EPI-TEC provides training for multidisciplinary engineers aiming at the acquisition and mastery of theoretical as well as practical knowledge. It consists of five semesters on a theoretical basis, including an introductory internship and a year-end project (YEP) within a company, and a fifth practice: Final School Project (FSP) [...]

Basic Skills:

- Good math skills
- Diversified technical scientific skills
- Skills in time management;
- Strong desire for organization and efficiency;
- Leadership skills;
- Passion for improvement and innovation;
- Excellent communication and listening skills;
- Ability and creativity in problem solving;
- Negotiation skills;
- Mastery of applying a set of applied science concepts and techniques
- Mastery of an application process based on basic science concepts relevant to engineering;
- Knowledge of prevention and maintenance techniques;
- Awareness of the impacts of technology;
- Economic training and project management;
- Mastery of languages;
- Diplomacy, patience;
- High ability to adapt to changes;

0 Appendix: Programme Learning Outcomes and Curricula

- Continuous desire to learn, curious mind;
- Sense of ethics”

The following **curriculum** is presented:

Semester 1:

Code	Subject	Course	TP	Coeff	Credit	Credit module
IIND310	English 1	1,5	0	1,5	2	8
IIND311	French 1	1,5	0	1,5	2	
IIND312	Advanced Excel	1,5	1,5	3	4	
IIND313	Mathematics	1,5	0	1,5	2	7
IIND314	Numerical analysis	1,5	0	1,5	2	
IIND315	Probability and statistics	3	0	3	3	
IIND316	Economy for the Industrial Engi.	3	0	3	3	9
IIND320	Industrial logistic infrastructure	1,5	0	1,5	2	
IIND317	Industrial Management	3	0	3	4	
IIND318	ES in automatic	1,5	1,5	3	3	6
IIND319	ES in Mechanics	1,5	1,5	3	3	
Total level :		21	4,5	25,5	30	30

Semester 2:

Code	Subject	Course	TP	Coeff	Credit	Credit module
IIND321	English 2	1,5	0	1,5	2	7
IIND322	French 2	1,5	0	1,5	2	
IIND327	Data Bases	1,5	1,5	3	3	
IIND324	Industrial Systems Design	3	0	3	3	9
IIND325	Value analysis	1,5	0	1,5	2	
IIND326	Industrial processes	2,25	0	2,25	4	
IIND323	Econometrics	3	0	3	3	5
IIND328	Business organization	1,5	0	1,5	2	
IIND329	Metrology and Instrumentation	0,75	1,5	2,25	3	6
IIND330	Materials sciences	1,5	1,5	3	3	
IIND331	PPE	0	3	3	3	3
Total level:		18	7,5	25,5	30	30

0 Appendix: Programme Learning Outcomes and Curricula

Code	Subject	Course	TP	Coefficient	Credit	Credit module
IIND410	English3	1,5	0	1,5	2	
IIND420	Communication techniques 1	1,5	0	1,5	2	
IIND414	Management of information systems	1,5	0	1,5	2	6
IIND411	CAD in engineering	1,5	0,75	2,25	3	
IIND412	Manufacturing process by machining	1,5	0,75	2,25	2	
IIND418	Maintenance management	3	0	3	3	8
IIND415	Production management	3	0	3	3	
IIND413	Operational research	3	0	3	3	6
IIND416	Heat transfers	1,5	0	1,5	2	
IIND417	Energy Systems	1,5	0	1,5	2	
IIND419	Electric machines	1,5	0,75	2,25	3	
IIND421	Thermal machines	1,5	0,75	2,25	3	10
Total level:		22,5	3	25,5	30	30

Semester 4:

Code	Subject	Course	TP	Coefficient	Credit	Credit module
IIND422	English 4	1,5	0	1,5	2	
IIND427	Communication techniques 2	1,5	0	1,5	2	
IIND428	Ergonomics	1,5	0	1,5	2	6
IIND424	CAPM	0	3	3	3	
IIND425	CAMM	0	3	3	3	6
IIND426	Quality Engineering	3	0	3	3	
IIND423	Inventory management	3	0	3	3	6
IIND429	Renewable energies	1,5	0	1,5	2	
IIND430	Environmental Management	1,5	0	1,5	2	
IIND431	Safety of industrial installations	1,5	0	1,5	2	
IIND432	Establishment of workshops	1,5	0	1,5	2	8
IIND433	PFA	0	3	3	4	4
Total level		16,5	9	25,5	30	30

Semester 5:

0 Appendix: Programme Learning Outcomes and Curricula

Code	Subject	Course	TP	Coeff	Credit	Credit module
IIND510	HRM	1,5	0	1,5	2	8
IIND511	Labor Law	1,5	0	1,5	2	
IIND513	Entrepreneurship	3	0	3	4	
IIND514	Project Management	3	0	3	4	7
IIND515	Management of R & D and innovation	3	0	3	3	
IIND512	Lean Manufacturing	1,5	0	1,5	3	
IIND516	Supply Chain Management	3	0	3	3	9
IIND517	Theory of the decision	3	0	3	3	
IIND518	ERP Odoo	0	3	3	3	
IIND519	Simulation of production systems	3	0	3	3	6
Total level:		22,5	3	25,5	30	30

Semester 6:

Code	Subject	Course	TP	Coeff	Credit	Credit module
IIND520	End of study Project			10	30	30

According to the Self-Assessment Report, the following objectives and learning outcomes shall be achieved by the Civil Engineering degree programme:

“In the Civil Engineering Department of EPI-Polytec, the aim is to train engineers capable of designing, analyzing, calculating, carrying out, appraising and managing works in the construction sector. The Civil Engineer is an engineer specializing in the design and implementation of means, the management of men in the act of building. It engages its responsibility towards the community and the company in a work turned towards the human:

- Construction of residential buildings, businesses, industrial buildings, offices or shows
- Construction of communication and spatial planning infrastructure (roads, bridges, tunnels, logistics centers, dams, power stations) or environmental protection (water management, waste storage)

The engineer can intervene in any stage of the construction operation, from the study of soil until the reception of the work:

- soil study, calculation of foundations
- design of the structure (calculation, methods, price study)
- conduct of work
- technical control

The training offered by EPI-Polytec is constantly adapted to the needs of companies by integrating the evolution of techniques and methods in the civil engineering sector.

Repository of skills:

The proposed civil engineering training at EPI-Polytec allows engineering students to have the tools they need to deal with the complex problems that will constitute their future missions. This training is characterized by basic scientific training, and specialized training in the fields of civil engineering and cross-training. The training also includes entrepreneurship modules, visits and conferences, two internships of one month each in company in 3rd and 4th year and a final year project in 5th year of 3 months minimum.

Basic Skills:

- Solid knowledge in basic sciences and engineering sciences.
- Knowledge and understanding of the scientific field of the specialty.
- Mastery of the methods and tools of the engineer
- Ability to integrate into an organization or team

- Involvement in professional issues

The skills of the Civil Engineering Speciality

Technology and Construction Processes

To know how to analyse the structure of a simple building, to identify the role of the different elements in the whole of the project, to propose a simple constructive phasing.

Principles of design and execution of building structures and civil engineering; role of the structure, overall stability, joints. Design and implementation of carpentry, floors, foundations, casing and tanks.

Knowledge of Building Materials

The main materials: their nature, composition, characteristics and properties, in connection with their microstructure; their design, manufacture and use in the construction industry

Construction materials management and life cycle analysis

Concrete

- Reinforced Concrete: Basic knowledge necessary for the determination of reinforcement sections of supporting structures (columns, beams) subjected to simple stresses. Knowledge of constraint checking methods in the different constituent materials of the element.
- Prestressed concrete: Expertise in the analysis and design of beams, unidirectional slabs and axially loaded prestressed concrete membranes.

Metallic Construction: Analysis and sizing of steel structures

Calculation of structures: knowledge of traditional or computerized, efficient and dynamic calculation tools

Ground Mechanics

- Fundamental knowledge of soil properties and mastery of the concepts required to analyze the mechanical behavior of soils.
- Essential knowledge for the study of slope stability and the design of structures in soil mechanics and mastery of recognized methods for the calculation of retaining walls and shallow and deep foundations

Dynamics of Structure: Knowledge of methods of analysis of dynamic problems and vibration

Hydrology, Hydrogeology and Hydraulics

- To know the fundamental relations of hydraulics
- To know the main hydrogeological characteristics of the rocks of a subsoil and the fundamental bases of the flow of the groundwater and the fluctuations of the level of the tablecloths
- To know how to use the formulas useful to the needs of the geotechnician in the case of drainage or groundwater withdrawal.
- Design in sanitation and drinking water.

Climate Engineering: Developments and applications of basic heat transfer elements to the study of heat transfer from the enclosure and the heating and cooling equipment of buildings.

Risk Management:

- To understand the risks incurred by civil engineering works and the persons occupying them.
- Acquire some tools for risk assessment and risk management
- Be aware of risk engineering
- Learn about phenomena, causes and consequences
- Consider solutions to satisfy the precautionary principle

Masterpieces: Principles of the realization of the main works and principles of calculation (sizing and verification)

Roads: Specific technical knowledge on the road as a technical system, intended for the circulation of vehicles for the transport of people and goods. A road system is built and maintained, maintained and operated in traffic, designed and planned.

Diagnosis and Repair: knowledge on the main causes of pathology of civil engineering workings: know how to analyse the phenomenology and causes of aging of concretes and steels. Moreover, this analysis stems from the exposure of the preventive and curative remedies generally employed

Civil Engineering Software: computer software and tools for drawing, design and calculation for civil engineering in accordance with the innovations of the sector.”

The following **curriculum** is presented:

Civil Engineering Department											
3rd Year GC - Semester 1											
N°	Module	Nature	Subject	global charge per semester	Weekly Volume (14 weeks)			Credits		Coefficients	
					Course	TP	subj	Mod	subj	Mod	
M311	Mathematics	Fondamental	Mathematics for engineers	42	3	0	3	5		3	4.5
			Probabilities and statistics	21	1.5	0	2			1.5	
M312	MMC andt RDM	Fondamental	MMC	42	3	0	3	8		3	6
			RDM	42	3	0	3			3	
M313	Computer	Fondamental	Algorithm and data structure	42	1.5	1.5	3	3		3	3
M314	Topography and General construction Proocess	Fondamental	Topography	42	3	0	3	8		3	6
			General construction Proocess	42	3	0	3			3	
M315	Mechanics and geology	Transversal	Fluid mechanics	21	1.5	0	2	4		1,5	3
			Geology	21	1.5	0	2			1,5	
M318	Langages	Transversal	English 1	21	1,5	0	2	8		1,5	6
			Mini-Project	42	0	3	2			3	
			French 1	21	1,5	0	2			1,5	
TOTAL				357	25h30 per week			30		28.5	

0 Appendix: Programme Learning Outcomes and Curricula

Civil Engineering Department										
3rd Year GC - Semester 2										
N°	Module	Nature	Subject	Global charge per semester	Weekly Volume (14 weeks)		Credits		Coefficients	
					Course	TP	subj	Mod	subj	Mod
M321	Mathematics	Fondamental	Numerical analysis	42	3	0	3	5	3	4,5
			Operational research	21	1,5	0	2		1,5	
M322	Structures 1	Fondamental	Reinforced concrete 1	42	3	0	3	9	3	7,5
			Calculation of structures 1	42	3	0	4		3	
			TP RDM	21	0	1,5	2		1,5	
M323	Soil mechanics 1	Fondamental	Soil mechanics 1	42	3	0	3	3	3	3
M324	Materials and Hydraulics	Fondamental	Construction materials	42	3	0	3	5	3	4,5
			General Hydraulics	21	1,5	0	2		1,5	
M325	DAO and electrical	Transversal	DAO	21	0	1,5	2	4	1,5	3
			Electricity of the building	21	1,5	0	2		1,5	
M326	Langages	Transversal	English 2	21	1,5	0	2	4	1,5	3
			French 2	21	1,5	0	2		1,5	
TOTAL				357	25h30 per week		30	25.5		

0 Appendix: Programme Learning Outcomes and Curricula

Civil Engineering Department										
4th Year GC - Semester 1										
N°	Module	Nature	Subjects	Global charge per semester	Weekly Volume (14 weeks)		Credits		Coefficients	
					Course	TP	subj	Mod	subj	Mod
M411	Roads 1	Fondamental	Roads 1	42	3	0	3	3	3	3
M412	Structures 2	Fondamental	Reinforced concrete 2	42	3	0	3	6	3	6
			Calculation of structures 2	42	3	0	3		3	
M413	Metallic Construction	Fondamental	Metallic Construction	42	3	0	3	3	3	3
M414	Climate Engineering and Soil mechanics	Fondamental	Climate Engineering	42	3	0	3	6	3	6
			Soil mechanics 2	42	3	0	3		3	
M415	Urban Hydraulics and urbanism	Fondamental	Hydrology and urban hydraulics	42	3	0	3	5	3	4,5
			Urbanism	21	1,5	0	2		1,5	
M416	Langages	Transversal	English 3	21	1,5	0	2	7	1,5	6
			PFA	42	0	3	3		3	
			French 3	21	1,5	0	2		1,5	
TOTAL				357	25h30 per week		30	28.5		

0 Appendix: Programme Learning Outcomes and Curricula

Civil Engineering Department 4th Year GC - Semester 2											
N°	Module	Nature	Subjects	Global charge per semester	Weekly Volume (14 weeks)			Credits		Coefficients	
					Course	TP	subj	Mod	subj	Mod	
M421	Finite elements and Planning	Fondamental	Finite elements	21	1,5	0	2	5	1,5	4,5	
			Planning and organization of works	42	3	0	3		3		
M422	Prestressed concrete and Pathology	Fondamental	Prestressed concrete	42	3	0	3	5	3	4,5	
			Diagnosis and repair of works	21	1,5	0	2		1,5		
M423	softwares GC	Fondamental	softwares GC: Piste-Covadis	42	0	3	3	6	3	6	
			softwares GC: Arche-Robot	42	0	3	3		3		
M424	Structures and VRD	Fondamental	VRD	21	1,5	0	2	6	1,5	4,5	
			Hydraulic works	21	1,5	0	2		1,5		
			Special works	21	1,5	0	2		1,5		
M425	Entrepreunariat and Market	Transversal	Public market	21	1,5	0	2	4	1,5	3	
			Entrepreunariat	21	1,5	0	2		1,5		
M426	Langages	Transversal	English 4	21	1,5	0	2	4	1,5	3	
			French 4	21	1,5	0	2		1,5		
TOTAL				357	25h30 per week			30	25.5		

0 Appendix: Programme Learning Outcomes and Curricula

Civil Engineering Department										
5th Year GC - Semester 1										
N°	Module	Nature	Subjects	Global charge per semester	Weekly Volume (14 weeks)		Credits		Coefficients	
					Course	TP	subj	Mod	subj	Mod
M511	Masterpieces	Fondamental	Masterpieces	42	3	0	3	6	3	6
			Bridge design and construction	42	3	0	3	3		
M512	Roads 2 and Transport	Fondamental	Roads 2	42	3	0	3	5	3	4,5
			Transport logistics systems	21	1,5	0	2		1,5	
M513	Quantity and Management of sites	Fondamental	Quantity and price estimation	21	1,5	0	2	6	1,5	4,5
			Risk management	21	1,5	0	2		1,5	
			Softwares GC : Ms Project-Primavera	21	0	1,5	2		1,5	
M514	CAO and Structure	Fondamental	CAO : Design and calculation	42	0	3	3	9	3	7,5
			Dynamics of structures	21	1,5	0	2		1,5	
			Plates and hulls	21	1,5	0	2		1,5	
			TP : Finite elements	21	0	1,5	2		1,5	
M515	HRM and law	Transversal	HRM	21	1,5	0	2	4	1,5	3
			Labor Law	21	1,5	0	2		1,5	
TOTAL				357	25h30 per week		30		25,5	

5th Year GC - Semester 2										
N°	Module	Nature	Subjects	Global charge per semester	Weekly Volume (14 weeks)		Credits		Coefficients	
					Course	TP	subj	Mod	subj	Mod
M52	End of study Project	Fondamental	End of study Project				30	30	10	10