ASIIN Seal

Accreditation Report

Based on
Preceding Evaluation Procedure

Degree programme
National Diploma of Computer Science Engineering

Provided by
Private University of Management Sciences and Technology of Megrine (UPES)

Version: 06 December 2024

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]
الإعلامية في لمهندس الوطنية الشهادة Diplôme National d'Ingénieur en Informatique	National Diploma of Computer Science Engineering	ASIIN	–	04
Date of the contract: 14.10.2024 **Submission of the final version of the self-assessment report:** 14.10.2024 **Desktop review and exchange of experts via phone call:** 25.10.-18.11.2024 **Date of the expert team's statement concerning the accreditation**: 18.11.2024				
Peer panel				
Prof. Dr. Dirk Dahlhaus	University of Kassel			
Prof. Dr. Moncef Tagina	ENSI/University of Manouba			
Dr. Martin Welsch	IBM Germany R&D			
Student expert	Cancelled participation at short notice			
ASIIN headquarter	Sophie Schulz (Evaluation procedure) Siegfried Hermes (Downstream Accreditation Procedure)			

[1] ASIIN Seal for degree programmes

[2] TC: Technical Committee for the following subject areas: TC 04 - Informatics/Computer Science

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

B Characteristics of the Degree Programme

Name	Areas of Specialization	Corresponding level of the EQF[3]	Mode of Study	Double/ Joint Degree	Duration	Credit points/ unit	Intake rhythm & First time of offer
National Diploma Computer Science Engineering	– Computer Science Engineering – Computer Systems and Networks – Industrial Computing	7	Full time	/	6 semesters	180 ECTS	Annually/ 2009

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

Preliminary Note

The following paragraphs are based on the evaluation report on the same programme dated 31 December 2023, in particular on the results of the experts' analysis and evaluation summarised in Chapter F of the evaluation report. The evaluation report is thus the main reference document and the essential basis of the accreditation procedure. This report is written entirely in accordance with the ASIIN General Criteria and the subject specific criteria of the relevant Technical Committee 04 - Informatics/Computer Science.

As the evaluation procedure is tailored from the outset to a possible subsequent accreditation, the results of the evaluation are summarised accordingly. This ensures that they can be easily translated into a proposal by the experts for the final decision of the Accreditation Commission on the accreditation of the programme. As a result, the accreditation procedure has been shortened, in particular by dispensing with the regular peer review visit. However, a statement/progress report by the higher education institution on the evaluation report is a regular part of this procedure and is taken into account in the experts' assessment and recommended decision (see Chapters D and E).

Overall, ESG 1.1 to 1.10 are fully covered in the combined evaluation and accreditation procedure, as are the respective conclusions of the experts and the Technical Committee (see Sections E and F) and the final decision of the Accreditation Commission (see Section G).

C Results of the Evaluation Procedure concerning the ASIIN Seal

In the evaluation report, the analysis of the expert group has resulted in the following statement regarding the fulfilment of the ASIIN criteria:

ASIIN General Criteria + Subject-Specific Criteria 04 – Informatics / Computer Science	**Meeting the Standards**			
	sufficient	*sufficient minor reservations / suggestions*	*partly sufficient major reservations*	*not sufficient critical reservations*
1 Degree programme: Concept, Content & Implementation				
1.1 Objectives and learning outcomes				**x**
1.2 Title of the degree programme		**x**		
1.3 Curriculum (including SSC 04 for Master programme)				**x**
1.4 Admission requirements			**x**	
1.5 Workload & credit points				**x**
1.6 Didactics and Teaching Methodology			**x**	
2 Exams: System, Concept and Organisation				
2 Exams: System, Concept and Organisation				**x**

ASIIN General Criteria + Subject-Specific Criteria 04 – Informatics / Computer Science	**Meeting the Standards**			
	sufficient	*sufficient minor reservations / suggestions*	*partly sufficient major reservations*	*not sufficient critical reservations*
3 Resources				
3.1 Staff and staff development				**x**
3.2 Funds and equipment				**x**
4 Transparency and Documentation				
4.1 Module descriptions	**x**			
4.2 Diploma and Diploma Supplement	**x**			
4.3 Relevant rules	**x**			
5 Quality Management: Quality Assessment and Development				
5 Quality Management: Quality Assessment and Development				**x**

The results of the evaluation process were categorised according to the possible outcomes of accreditation procedures. Thus, “critical concerns”, equivalent to “conditions” in an accreditation procedure, were addressed when the experts found serious deficiencies. “Major recommendations”, equivalent to "requirements", were addressed when they found deficiencies that they considered significant but also remediable within a reasonable period of time. Finally, “minor recommendations”, equivalent to “recommendations”, were addressed when they provided supportive guidance for the future development of the programme.

Following this translation scheme, the “critical concerns” as well as “major” and “minor recommendations" of the evaluation report are translated in the following list of possible conditions, requirements and recommendations:

Possible Conditions

V 1. (ASIIN 1.1, 1.3) The programme must enable its students to derive and develop scientific methods of computer science for difficult and complex problems, both in practice and in research, and to apply them together with the corresponding findings.

V 2. (ASIIN 1.1, 1.3) The programme must enable students to take up a scientific occupation with the aim of obtaining a doctorate.

V 3. (ASIIN 1.1, 1.3) The scientific level of the programme needs to be increased and the curriculum to be revised accordingly in order to adhere to EQF level 7. To do so, it must be ensured that all prerequisites are met for each module.

V 4. (ASIIN 1.5) The workload must be increased according to the minimum hours indicated in the ECTS users’ guide.

V 5. (ASIIN 2) The level of the exams must be increased. As a consequence, the form of examination must be chosen appropriately in order to test whether the learning outcomes have been achieved.

V 6. (ASIIN 3.1) The share of scientific personnel involved in research activities needs to be increased in order to ensure that the programme can be implemented at the intended level (EQF 7).

V 7. (ASIIN 3.2) Standard lab opportunities must be provided in order to ensure that the programme can be implemented at the intended level (EQF 7).

V 8. (ASIIN 5) The quality management system needs to be described and implemented in a transparent way.

Possible Requirements

A 1. (ASIIN 1.1) Define specific learning outcomes for the three different specializations offered in the programme.

A 2. (ASIIN 1.3) Ensure that up-to-date literature is used.

A 3. (ASIIN 1.3) Introduce bigger modules in order to make sure that the contents can be conveyed in the necessary depth.

A 4. (ASIIN 1.3) Mobility opportunities need to be offered.

A 5. (ASIIN 1.4) Define rules for the compensation of missing admission requirements.

A 6. (ASIIN 1.6) Teaching methodologies need to be chosen appropriately for conveying the intended competencies and learning outcomes.

A 7. (ASIIN 3.1) Introduce opportunities for research and teaching development.

Possible Recommendation

E 1. (ASIIN 1.2) It is recommended to ensure that the English translation of the program title is used consistently in all documents.

D Statement of the Higher Education Institution (14.10.2024)

After the completion of the preceding evaluation, the institution provided a Progress Report, in which it has detailed the activities planned or already implemented in order to resolve the concerns raised by the experts in the Evaluation Report.

In addition, UPES provided the following evidence:

Concerning Critical Issues:

C1-Appendix1- Accreditation Commitee Meeting Minutes.pdf
C1-Appendix2- Specific Learning Outcomes.pdf
C1-Appendix3- Learning Outcomes Matrix.xlsx
C1-Appendix4- Curriculum 2024-2025.pdf
C1-Appendix5- Curriculum 2023-2024.xlsx
C1-Appendix6- Sample of added Research Modules.pdf

C2 Appendix4 Research Policy .pdf
C2-Appendix1.pdf
C2-Appendix2- All Syllabis.pdf
C2-Appendix3- Sample of added Research Modules.pdf
C2-Appendix5- Research Laboratory Partnership.pdf
C2-Appendix6.pdf

C3-Appendix1- All Syllabis.pdf
C3-Appendix2- Accreditation Commitee Meeting Minutes.pdf
C3-Appendix3- Syllabus Neural Networks and Deep Learning.pdf
C3-Appendix4- Syllabus Soft Computing.pdf
C3-Appendix5- Syllabus Quantum Informatics.pdf
C3-Appendix6- Syllabus Green Software Engineering.pdf
C3-Appendix7- Syllabis RTS.pdf
C3-Appendix8- Sample Syllabis Modules with Research Projects.pdf
C3-Appendix9- Curriculum 2024-2025.pdf

C4-Appendix1- Curriculum 2024-2025.pdf
C4-Appendix2- Accreditation Commitee Meeting Minutes.pdf

C5-Appendix1- Sample of Pedagogical Commitee Meeting Minutes (Exam).pdf
C5-Appendix2- All Syllabis.pdf
C5-Appendix3- Examples of Final Exams.pdf
C5-Appendix4.xlsx
C5-Appendix5- Learning Outcomes Matrix.xlsx
C5-Appendix6- Partnership between UPES and APESU.pdf

C6-Appendix1.pdf
C6-Appendix2.pdf
C6-Appendix3.pdf
C6-Appendix4 Research Policy.pdf
C6-Appendix5.pdf
C6-Appendix6.pdf
C6-Appendix7- Sample Student Certificate of Participation (The Ethics of Academic Research).pdf
C6-Appendix8.pdf

C7-Appendix1.pdf
C7-Appendix2.pdf

C8-Appendix1.pdf
C8-Appendix2.pdf
C8-Appendix3.pdf
C8-Appendix4.pdf
C8-Appendix5.pdf
C8-Appendix6.pdf
C8-Appendix7.pdf
C8-Appendix8.xlsx

Concerning Major and Minor Recommendations:

R1-Appendix1- Specific Learning Outcomes.pdf
R1-Appendix2- Learning Outcomes Matrix.xlsx

R2-Appendix1- All Syllabis.pdf
R2-Appendix2- Syllabus (Neural Networks and Deep Learning).pdf
R2-Appendix3- Syllabus (Cyber Security).pdf
R2-Appendix4- Convention with CNUDST.pdf
R2-Appendix5- Sample Student Certificate of Participation (The Ethics of Academic Research).pdf

R3-Appendix1- Curriculum 2024-2025.pdf
R3-Appendix2- Syllabis RTS.pdf
R3-Appendix3- All Syllabis.pdf

R4-Appendix1.pdf
R4-Appendix2.pdf
R4-Appendix3.pdf

R6-Appendix1- Sample of Pedaogical Commitee Meeting Minutes (Teaching Methodology).pdf
R6-Appendix2- All Syllabis.pdf
R6-Appendix3- Sample of Certificate of Participation (Competency-Based Learning Approach).pdf
R6-Appendix4- Sample of Certificate of Participation (Problem-Based Learning).pdf
R6-Appendix5- Sample of Certificate of Participation (Project-Based Learning Approach).pdf

R7-Appendix1.pdf
R7-Appendix2.pdf
R7-Appendix3.pdf
R7-Appendix4.pdf

R8-Appendix1- Curriculum 2024-2025.pdf

E Final assessment of the experts based on the evaluation procedure and the Progress Report of the HEI (18.11.2024)

Detailed Assessment of the experts based on the progress report and the evidencing documentation provided by UPES:

Possible Conditions

V 1. (ASIIN 1.1, 1.3) The programme must enable its students to derive and develop scientific methods of computer science for difficult and complex problems, both in practice and in research, and to apply them together with the corresponding findings.

Initial Treatment	
Experts	not fulfilled It is revealing that the 'progress report' is *not* evidencing instances of modules and methods that are offered in an attempt to familiarize students with scientific work in the course of the curriculum. Instead, the alleged evidence in the document 'C1-Appendix1.pdf' mentioned in the report is nothing but a list of minutes taken from meetings of few people involved in the programme. The 'Specific Learning Outcomes' in the document 'C1-Appendix2.pdf' is a generic list of notions and terms which are partly contradicting and showing that they have been formulated by non-experts. For instance, '*computing theories*' or '*computing engineering*' do not exist and their inclusion in the learning outcomes of a curriculum is thus questionable. Some key topics of the 'theory of computation' (which *does* exist), e.g., automata theory, Turing machines, computational complexity, Landau symbols etc., can be found in module descriptions. However, they are considered parts of EQF level 6 undergraduate programmes. Concerning the curriculum, it is mentioned that the '*overhaul of the curriculum*' according to the documents 'C1-Appendix4.pdf' and 'C1-Appendix5.pdf' is a '*significant improvement*'. However, this is hardly convincing. Consider for instance the description of the module 'Engineering Mathematics' (this seems to be the module 'Mathematics for Engineers' with course code CTMAT11). It has only 3,5 ECTS, but treats derivatives and their applications, integration and its applications, ordinary and partial differential equations, infinite series, linear algebra, Laplace transforms and Fourier analysis. In particular, Dirac's delta function $\delta(t)$ is being

	treated (very likely as a generalized function since students are definitely not introduced to measure theory anyway). If *δ(t)* is indeed introduced as a generalized function, how can the latter be understood if there is no introduction to inner-product (i.e., Hilbert) spaces (it is not even there for finite dimensions)? The composition, order and depth of the mentioned topics thus show that there is apparently neither a coherent scientific approach to introduce students to the mathematical basics nor the required depth. This is an even more important problem in the field of Computer Science Engineering being per se on the edge of computer science and engineering. Here, computer science (which is essentially a discipline in the field of discrete math) and engineering (which is primarily electrical engineering) are based on substantially different roots and mathematical basics. Based on the evidences, educating students on an EQF level 7 to '*derive and develop scientific methods of computer science for difficult and complex problems*' as formulated in V 1 is impossible.

V 2. (ASIIN 1.1, 1.3) The programme must enable students to take up a scientific occupation with the aim of obtaining a doctorate.

Initial Treatment	
Experts	not fulfilled Eventually, there has been a certain misunderstanding by UPES. The criticality of the issue cannot be solved primarily by introducing workshops for research. It is rather about the contents and the level of education as a whole. Usually, an EQF level 7 degree is a *prerequisite* to do a doctorate in the field of both computer science and/or electrical engineering. Interpreting a successful doctorate as a competence of graduates from corresponding programmes, sufficient mathematical and theoretic skills are necessary to acquire this very competence. Yet, in the Computer Science Engineering programme of UPES, the basic mathematical classes are insufficient, since most of them are not compulsory and/or do not have sufficient depth (cf. comment to V 1). Furthermore, fundamental topics like time-variant and time-invariant linear system theory including stability in electrical engineering are not treated in the required depth and basic topics like, e.g., permutations, partitions and combinatorics are treated in the *elective* module 'Discrete Mathematics'. No matter whether the topics are taught in compulsory or elective modules, though, and considering courses outside UPES, the aforementioned topics are usually taught in the first two years of undergraduate, i.e.,

	EQF level 6 programmes, so that obviously graduates from the Computer Science Engineering programme of UPES are, in general, *not* able to do a doctorate. One can conclude that for specific choices of elective modules in the curriculum not even an EQF level 6 is being reached.

V 3. (ASIIN 1.1, 1.3) The scientific level of the programme needs to be increased and the curriculum to be revised accordingly in order to adhere to EQF level 7. To do so, it must be ensured that all prerequisites are met for each module.

Initial Treatment	
Experts	not fulfilled Evidences are numerous that essential topics are missing for a thorough understanding of topics being taught in different modules. Some of the issues have been raised already in the comments to V 1 and V 2.

V 4. (ASIIN 1.5) The workload must be increased according to the minimum hours indicated in the ECTS users' guide.

Initial Treatment	
Experts	partly fulfilled Looking at the sole size of the modules, the workload seems to be sufficient. However, since the teaching methods are not clearly defined and quantified (cf. comments to V 5 below), the workload cannot be quantified uniquely either.

V 5. (ASIIN 2) The level of the exams must be increased. As a consequence, the form of examination must be chosen appropriately in order to test whether the learning outcomes have been achieved.

Initial Treatment	
Experts	a) not completely fulfilled Level of exams: The level of the exemplary exams in the document 'C5-Appendix3 – Examples of Final Exams.pdf' is mostly undergraduate or even high school calculus, e.g., finding the roots of $f(x) = 1 - 3\exp(-x)$. Yet, some questions, e.g., KKT conditions in constrained optimisation, *can* be classified as being on a master level somehow.

	not fulfilled Form of examination: Even though the minutes of the discussions in the document 'C5-Appendix1 – Sample of Pedagogical Committee Meeting Minutes (Exam).pdf' show that there is an increased awareness of the necessity to synchronize the *form* of examination and the *intended learning outcomes*, the implementation does not seem to be successful in this regard. Consider, for instance, the elective module 'Web Systems Engineering' (number PRMCS-TCM-205) described in the document 'C5-Appendix2 – All Syllabis.pdf'. In the module header on p. 45, the 'Forms of Learning and Teaching' are • 'lecture', • 'lab' and • 'private study'. Yet, in the 'Teaching and Learning Activity' on p. 47, it says • 'lecture/class/seminar (face-to-face, video or computer mediated)' and • 'individual or group-based teaching tutorial/project'. A seminar has a completely different scope and intended learning outcome than a lecture. A project in engineering has a completely different focus, implementation and effort than a 'private study' for working up the contents of a lecture. Here, it seems that in many module descriptions, generic and partly contradicting formulations have been used, which evidences the missing coherence of the *form* of examination and the *intended learning outcomes*.

V 6. (ASIIN 3.1) The share of scientific personnel involved in research activities needs to be increased in order to ensure that the program can be implemented at the intended level (EQF 7).

Initial Treatment	
Experts	not fulfilled The core of this concern treats the missing staff resources, i.e., scientific personnel as described in detail in the final evaluation report on p. 16. In response to this, UPES provides the document 'C6 – Appendix1.pdf' and an alleged '*Completed action plan and its evidences*' in the progress report. Yet, looking at the document 'C6 – Appendix5.pdf', one finds the following enrolments of personnel: • Prof. Gammoudi for four hours **teaching** per week (pp. 1-17 of the document)

	• Dr. Limam as 'part time full professor' for '**being part of the pedagogical committee of UPES**' and to '**contribute to the development and improvement of the curricula**' and to '**teach courses**' (pp. 18-19) • Prof. Bouraoui for part-time **teaching** (pp. 20-25) • Dr. Mbarek for temporary **teaching** (*fr.* enseignant vacataire) (pp. 26-33) • Dr. Ghofrane Rehaiem for temporary **teaching** (pp. 34-37) • Mr. Riahi Montassar (consultant) for temporary **teaching** (pp. 38-53) • Dr. Mariem Thaalbi (consultant) for temporary **teaching** (pp. 54-58). It can be concluded that the hired personnel is improving the **teaching** quality somehow, but it is not clear to what extent. Citing from the final evaluation report '*First, with the lack of sufficiently qualified and experienced personnel, it is impossible to implement a degree programme at an advanced level (master's level). Second, the staff members involved in the programme do not receive any guidance or supervision from senior staff members and thus are unable to benefit from scientific/academic and research expertise from experienced and highly qualified personnel.'* while the first issue has been partly addressed, the second one is not addressed at all. The reason for this is that the involved people are *not involved in scientific research* at UPES and thus cannot educate/involve students in scientific projects and alike. The fact that two papers (cf. document 'C6 – Appendix2.pdf') have been written by personnel involved in the programme is a necessary, not a sufficient condition to guarantee the scientific level/involvement of students. In particular, the impact factor of the first paper being published in Elsevier ScienceDirect Procedia Computer Science is 2,3 and thus not an indication of research of sufficient quality. The second paper does not seem to be even published yet.

V 7. (ASIIN 3.2) Standard lab opportunities must be provided in order to ensure that the program can be implemented at the intended level (EQF 7).

Initial Treatment	
Experts	not fulfilled The only activity in this regard being taken by UPES is the involvement of the company 'Proservices' (cf. document 'C7 – Appendix2.pdf'). However, an external service provider, having personnel, which is almost exclusively consultants, clearly cannot cover the broad spectrum of lab facilities required to educate students scientifically in the different disciplines of computer science engineering. Moreover, 'Proservices' declares (cf. document 'C7 – Appendix2.pdf') their philosophy and goals as '*Deliver quality training in a constant search for customer satisfaction*' and '*We are committed to providing the highest quality training, aligned with emerging market trends and the evolving requirements of professional sectors.*' Scientific topics in computer science engineering are not identical to *emerging market* trends. Thus, again no nexus to science is being apparent since this is clearly not the business model of 'Proservices', let alone that they would have corresponding full-time employed researchers.

V 8. (ASIIN 5) The quality management system needs to be described and implemented in a transparent way.

Initial Treatment	
Experts	partly fulfilled The evidenced measures (cf. document 'C8 – Appendix1.pdf') are generally targeting the right metrics and measures. Yet, only four (documents 'C8 – Appendix4.pdf' through 'C8 – Appendix7.pdf)) out of the seven documents being provided to evidence quality metrics contain numerical percentages. Nothing is reported yet on the number of evaluations per query nor on their resulting significance. Therefore, it is hard to infer the quality from the results. Furthermore, it is unclear what will be actions being taken in case of insufficient quality in the different fields.

Possible Requirements

A 1. (ASIIN 1.1) Define specific learning outcomes for the three different specializations offered in the program.

Initial Treatment	
Experts	partly fulfilled A very broad spectrum of specific learning outcomes (SLO) have been *defined* (cf. document 'R1 – Appendix1 – Specific Learning Outcomes.pdf'), yet *not implemented in/assigned to modules* in the module handbook (cf. document 'C3-Appendix1- All Syllabis.pdf') in a specific way. For instance, an SLO '*Applying complex systems and software development and management principles, methodologies, techniques, and tools to innovatively and creatively analyze, design, implement and evaluate systems and applications at various complexity levels.*' is far too generic to understand what a specific module can contribute to this very SLO.

A 2. (ASIIN 1.3) Ensure that up-to-date literature is used.

Initial Treatment	
Experts	partly fulfilled UPES has apparently done a major revision of literature required in the different modules. However, it seems to be rather a collection of somewhat randomly chosen references and books in the corresponding module areas. For instance, the progress report states that '*outdated works have been removed and recent publications added, most of which have been published in the last five years. These new references include books, academic journal articles, and conference proceedings*'. However, looking at the document 'R2-Appendix1 – All Syllabis.pdf', one does not find a single IEEE paper (journal or conference), so that the listed literature references are clearly incomplete. Furthermore, e.g., looking at the compulsory module 'Operating Systems' (number PRMCS –TCM-103), it is important in the fast-changing field of computer science engineering to update literature continuously (Tanenbaum's book "Modern Operating Systems " is available in the 5th Edition, Pearson, 2022 comprising a new chapter on Windows 11 etc.).

A 3. (ASIIN 1.3) Introduce bigger modules in order to make sure that the contents can be conveyed in the necessary depth.

Initial Treatment	
Experts	fulfilled The module handbook is structured according to compulsory and elective modules of appropriate sizes.

A 4. (ASIIN 1.3) Mobility opportunities need to be offered.

Initial Treatment	
Experts	not fulfilled Mobility is about exchange with other academic or related institutions. Opportunities in this regard comprise two essential items: 1. the time for doing an exchange 2. the list of partner institutions. Even though it is claimed in the preamble of the document 'R4 – Appendix1.pdf' that the student *'… will discover a wide range of academic programs and specialized bootcamps in the field of computer science, designed to enrich (her/his) skills and broaden (her/his) horizons …*', the subsequent pages do not refer to either of the aforementioned two items. While nothing is being reported on the first item, concerning the second item, it is essentially about the partner 'Proservices' (cf. comments to V 7) which is a company of consultants, not an academic institution. In this regard, also the MoU with the International Cultural Communication Center Malaysia (ICCCM) in the document 'R4 – Appendix3.pdf' is irrelevant. On the web site of ICCCM, it says: *The International Cultural Communication Center Malaysia (ICCCM) was established in 2009. It was created to promote cultural exchange and enhance international understanding through communication and the sharing of diverse cultural perspectives. The center often focuses on fostering intercultural dialogue, facilitating cross-cultural partnerships, and providing a platform for artistic and intellectual engagement between different nations and communities*. So, the ICCCM is not an academic institution where students can be educated in computer science engineering, but rather in 'cultural exchange'. In particular, it is hard to understand why 'Chinese occupational education standards' are promoted and 'Chinese-foreign cooperative education programs or institutions' are established. Finally, the yet to be signed partnership agreement with CY TECH in Cergy and Pau, France, is again questionable, since CY TECH is offering exclusively undergraduate programmes in computer science and engineering and summer schools of three weeks only.

A 5. (ASIIN 1.4) Define rules for the compensation of missing admission requirements.

Initial Treatment	
Experts	not fulfilled The targeted two 'reinforcement weeks' are clearly insufficient to equalise knowledge missing from a previous undergraduate/preparatory degree and thus to qualify the students for admission into the computer science engineering programme. Yet, no matter *how* the qualification is being structured and what amount of credits it comprises, it is not clear from the document 'Procedure – admission.pdf' how the 'Eligibility criteria' are implemented with respect to the reinforcement weeks.

A 6. (ASIIN 1.6) Teaching methodologies need to be chosen appropriately for conveying the intended competencies and learning outcomes.

Initial Treatment	
Experts	not fulfilled There is no matching between the teaching methodologies and the intended competencies and learning outcomes (cf. comments to C 5 on form of examination).

A 7. (ASIIN 3.1) Introduce opportunities for research and teaching development.

Initial Treatment	
Experts	not fulfilled UPES provides exactly the same line of arguing as for V 6. The only difference is the target group. While V 6 is about students, A 7 is about scientific personnel with UPES, which, however, does not exist to a sufficient level. In analogy to comments on V 6, there is *no* research being conducted at UPES and consequently, there are *no* opportunities for research and teaching development either. Giving one day off for personnel to conduct research is clearly *not* the means to account for this issue.

Possible Recommendation

E 1. (ASIIN 1.2) It is recommended to ensure that the English translation of the programme title is used consistently in all documents.

Initial Treatment	
Experts	fulfilled

	On the official website as well as in the provided documents, no deviations from the recommendation could be identified.

F Summary: Expert recommendation (18.10.2024)

Overall, based on the progress report and corresponding documentation provided by UPES, the experts conclude that UPES

- does not have an organisational structure based on a sufficient number of academic staff, who would work not only as lecturers, but also as native researchers, and who would provide the students of the programme with state-of-the-art offers, e.g. for master's thesis topics, seminars, laboratories, etc. Instead, e.g. for laboratories, UPES tries to involve service providers for this purpose (namely the company 'Proservices', which, however, does not offer anything in a proper academic framework).
- does not have a concept for learning outcomes arising from the nexus of computer science and engineering in the CSE curriculum, where the outcomes would be translated into compulsory Master's level modules, particularly in disciplines that are fundamental to both computing and engineering.
- does not have sufficient building area for required lab facilities, libraries, lecture halls etc.
- has not yet understood what an EQF 7 level requires (e.g., preparation for a PhD, offerings for student mobility).
- is not a university, but a private institution that seems to be trying to generate business, which would be acceptable if it offered a consistent curriculum.

Taking into account the progress report and the additional documentation, the experts summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
National Diploma of Computer Science Engineering	*Refusal*			

G Comment of the Technical Committee 04 – Informatics/Computer Science (21.11.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses whether the deficiencies are so serious that a refusal should be recommended directly instead of a suspension. However, as not a single one of the deficiencies could be resolved within a year following the previous evaluation, there is a lack of belief that the remaining points of criticism could be adequately addressed within the next 15 months. The Technical Committee therefore agrees with the experts and recommends refusing the procedure.

The Technical Committee 04 – Informatics/Computer Science recommends the award of the seal as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
National Diploma of Computer Science Engineering	*Refusal*			

A Decision of the Accreditation Commission (06.12.2024)

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

The Accreditation Commission discusses the procedure and follows the assessment of the experts and the Technical Committee and comes to the conclusion that there are still too serious deficiencies that cannot be adequately addressed within the next 15 months. For this reason, the Accreditation Commission votes in favour of a refusal.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
National Diploma of Computer Science Engineering	*Refusal*			

Appendix: Programme Learning Outcomes and Curricula

According to SAR, C1 – Appendix 2 Specific Learning Outcomes, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the NED programme Computer Science Engineering:

Competencies Families	Specific Learning Outcomes (Computer Science Engineering)	
Family 1 *Scientific and Technical Tools*	**SLO1**	Gaining advanced knowledge of computing theories, methods, practices and scientific tools for engineering.
	SLO2	Applying computing engineering to analyze, solve and optimize complex problems in practical engineering fields.
	SLO3	Demonstrating advanced proficiency in software engineering methodologies, artificial intelligence, and data science techniques for designing and implementing innovative solutions in computer engineering contexts.
Family 2 *Technological Skills*	**SLO4**	Acquiring practical skills in relevant sub-areas of the field of computer science engineering at Master level.
	SLO5	Designing a research or project plan on the basis of a realistic problem description in the field of computer science and can contribute to its progress with original solutions.
	SLO6	Applying complex systems and software development and management principles, methodologies, techniques, and tools to innovatively and creatively analyze, design, implement and evaluate systems and applications at various complexity levels.
	SLO7	Selecting appropriate hardware, software, tools, and technologies to develop, integrate, test, configure and maintain secure computer engineering infrastructure, networks, systems, and applications that satisfy the users' needs while considering relevant risks and latest technological advances.
	SLO8	Solving complex real-world problems by integrating computer science methods, developing and using computer applications, and structured and data-driven approaches to decision making.
Family 3	**SLO9**	Developing the required soft and foreign language communicative as well as managerial skills.

Communication and Managerial Skills	**SLO10**	Communicating effectively to demonstrate the results, knowledge, skills, and advanced principles in a variety of professional contexts.
Family 4 *Self-development, Innovation and Projects*	**SLO11**	Collaborating effectively within teams to manage projects successfully, design, develop, and implement innovative solutions.
	SLO12	Working with autonomy as a responsible citizen, constructive decision-maker, and cooperative team member based on universal ethics and principles with the ability to develop entrepreneur and leadership skills and actively participating in serving the society.

Competencies Families	Specific Learning Outcomes (Computer Systems and Networks)	
Family 1 *Scientific and Technical Tools*	**SLO1**	Gaining advanced knowledge of computing theories, methods, practices and scientific tools for engineering.
	SLO2	Applying computing engineering to analyze, solve and optimize complex problems in practical engineering fields.
	SLO3	Demonstrating advanced proficiency in computer systems infrastructure, security protocols, and network technologies for designing and implementing innovative solutions within appropriate contexts.
Family 2 *Technological Skills*	**SLO4**	Acquiring practical skills in relevant sub-areas of the field of computer systems and networks at Master level.
	SLO5	Designing a research or project plan on the basis of a realistic problem description in the field of computer science and can contribute to its progress with original solutions.
	SLO6	Applying complex systems and software development and management principles, methodologies, techniques, and tools to innovatively and creatively analyze, design, implement and evaluate systems and applications at various complexity levels.
	SLO7	Selecting appropriate hardware, software, tools, and technologies to develop, integrate, test, configure and maintain secure computer infrastructure, networks, systems, and applications that satisfy the users' needs while considering relevant risks and latest technological advances.
	SLO8	Designing, planning, and implementing resilient network architectures while integrating robust security measures to safeguard data integrity, confidentiality, and availability within diverse computing environments.

	SLO9	Conducting experiments on networked applications and distributed systems, and be able to properly interpret data that result from such experiments.
	SLO10	Designing and implementing of IT infrastructures, secure communication systems and protocols.
Family 3 *Communication and Managerial Skills*	**SLO11**	Developing the required soft and foreign language communicative as well as managerial skills.
	SLO12	Communicating effectively to demonstrate the results, knowledge, skills, and advanced principles in a variety of professional contexts.
Family 4 *Self-development, Innovation and Projects*	**SLO13**	Collaborating effectively within teams to manage projects successfully, design, develop, and implement innovative solutions.
	SLO14	Working with autonomy as a responsible citizen, constructive decision-maker, and cooperative team member based on universal ethics and principles with the ability to develop entrepreneur and leadership skills and actively participating in serving the society.

Competencies Families	**Specific Learning Outcomes (Industrial Computing Engineering)**	
Family 1 *Scientific and Technical Tools*	**SLO1**	Gaining advanced knowledge of computing theories, methods, practices and scientific tools for engineering.
	SLO2	Applying computing engineering to analyze, solve and optimize complex problems in practical engineering fields.
	SLO3	Demonstrating advanced knowledge of control systems, embedded systems design, software engineering methodologies, artificial intelligence, and data science techniques for designing and implementing innovative solutions in industrial computing engineering contexts.
Family 2 *Technological Skills*	**SLO4**	Acquiring practical skills in relevant sub-areas of the field of industrial computing engineering at Master level.
	SLO5	Designing a research or project plan on the basis of a realistic problem description in the field of computer science and can contribute to its progress with original solutions.
	SLO6	Applying industrial complex systems and software development and management principles, methodologies, techniques, and tools to innovatively and creatively analyze, design, implement and evaluate systems and applications at various complexity levels.
	SLO7	Selecting appropriate hardware, software, tools, and technologies to develop, integrate, test, configure and maintain secure industrial computing infrastructure, networks, systems, and applications that satisfy the users' needs while considering relevant risks and latest technological advances.
	SLO8	Designing, constructing, and refining intricate industrial control systems, ensuring optimal functionality, efficiency, and reliability to meet industry demands and enhance operational performance.

	SLO9	Developing and analyzing embedded systems, considering real-time constraints and hardware limitations, to design solutions that ensure robust performance and functionality across diverse real-world application domains.
	SLO10	Designing solutions for complex engineering problems that meet specified needs with consideration for public health, safety, welfare, and environmental, sustainability, and economic factors, as well as other realistic constraints related to the design solution, while complying with relevant standards and design codes.
Family 3 *Communication and Managerial Skills*	**SLO11**	Developing the required soft and foreign language communicative as well as managerial skills.
	SLO12	Communicating effectively to demonstrate the results, knowledge, skills, and advanced principles in a variety of professional contexts.
Family 4 *Self-development, Innovation and Projects*	**SLO13**	Collaborating effectively within teams to manage projects successfully, design, develop, and implement innovative solutions.
	SLO14	Working with autonomy as a responsible citizen, constructive decision-maker, and cooperative team member based on universal ethics and principles with the ability to develop entrepreneur and leadership skills and actively participating in serving the society.

The curriculum 2024-2025 presented in the SAR, Appendix file C1 – Appendix4 – Curriculum 2024-2025, has been added as a separate document.