ASIIN Seal & European Labels

Accreditation Report

Bachelor's Degree Programmes
Mechanical Design, Manufacture and Automation
Network Engineering

Provided by
College of Information, Shanxi Agricultural University, China

Version: 26 June 2020

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
机械设计制造及其自动化	Mechanical Design, Manufacture and Automation	ASIIN, EUR-ACE® Label	n/a	01, **02**
网络工程	Network Engineering	ASIIN, EUR-ACE® Label	n/a	**02**, 04
Date of the contract: 21.11.2017 **Submission of the final version of the self-assessment report:** 13.12.2018 **Date of the onsite visit:** 18./19.04.2019 **at:** Taigu, Shanxi				
Peer panel: Prof. Dr. Dirk Dahlhaus, University of Kassel; Prof. Dr. Christoph Rappl, University of Applied Sciences Deggendorf; Mr. Zongda Fang, Miji Electronics Appliances (Shanghai) Ltd. Mr. Taoning Li, Bachelor student at University of Shanghai for Science and Technology				
Representative of the ASIIN headquarter: Dr. Siegfried Hermes				
Responsible decision-making committee: Accreditation Commission for Degree Programmes				
Criteria used: European Standards and Guidelines as of 15.05.2015				

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

[2] TC: Technical Committee for the following subject areas: TC 01 – Mechanical Engineering/Process Engineering; TC 02 – Electrical Engineering/Information Technology); TC 04 – Informatics/Computer Science)

ASIIN General Criteria, as of 10.12.2015

Subject-Specific Criteria of Technical Committee 01 – Mechanical Engineering and Process Technology as of 09.12.2011

Subject-Specific Criteria of Technical Committee 02 – Electrical Engineering and Information Technology as of 09.12.2011

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
Mechanical Design, Manufacture and Automation	Bachelor of Engineering)	n/a	6	Full time	n/a	8 Semester	241 ECTS	Fall semester Sep. 01, 2003
Network Engineering	Bachelor of Engineering)	n/a	6	Full time	n/a	8 Semester	240 ECTS	Fall semester Sep. 01, 2013

For the Bachelor's degree programme Mechanical Design, Manufacture and Automation the institution has presented the following profile in the self-assessment report (p. 10):

„Nowadays, mechanical manufacturing is no longer a mechanical process in the traditional sense, but a new interdisciplinary subject integrating mechanical, electronic, optical, information, materials and management. It is an urgent need for professional promotion and development to cultivate engineering and technical personnel who possess comprehensive knowledge of machinery and electronics and have engineering practice and application innovation capabilities. Based on the advantages of local industrial trade, the program relies on regional advantages, integrates social resources, promotes school-enterprise integration, so as to continuously practice and explore multi-channel cultivation of students' professionalism, engineering practical ability and innovative ability, devoted to cultivating intelligent manufacturing talents to meet the social needs. "

For the Bachelor's degree programme Network Engineering the institution has presented the following profile in the self-assessment report (pp. 10-11):

„The graduates of this major have a wide range of employment, wide employment channels and high employment rate. The talents cultivated in this major not only have solid network professional knowledge and corresponding engineering practice ability, but also have strong enterprise management ability. They can provide SME management talents with professional

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

background to meet the needs of the society. Thus, students specialized in network engineering have a wide range of choices and a bright future in employment. After graduation, students can go to Huawei, Cisco, China Mobile, China Telecom and other large domestic and foreign telecom service providers, large-scale communication equipment manufacturers to carry out technical development, management, maintenance, etc., or to other enterprises and institutions engaging in the field of network engineering design, maintenance, teaching and management.“

C Peer Report for the ASIIN Seal[4]

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Relevant chapter of the SAR
- "Professional Ability Training System", see SAR, pp. 28 – 29, also Appendix of this audit report
- Figures 3-1 and 3-2 "Professional Ability Training System" in the SAR, see Appendix of this report
- "Professional Education Target Matrix" for each degree programme, Tables 2-3(a) and 2-3(b) of the SAR (pp. 12 - 20)
- Professional Graduate Satisfaction Survey for each degree programme in the SAR, cf. Tables 2-1 and 2-2 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

The College has defined qualification objectives for both Bachelor's degree programmes. The self-assessment report as well as the comprehensive programme information scheme "Professional Ability Training System" do consist of learning objectives clearly related to the Bachelor's level (level 6 of the European Qualification Framework[5]). So do different versions of objectives - module matrices in the SAR and, too, in the appendices. Although slightly differing in its phrasing, the competence profiles related to each Bachelor's programme could be considered correspondent to and largely covering the respective curric-

[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.

[5] See https://ec.europa.eu/ploteus/content/descriptors-page#footnote2 (Download 13.05.2019).

ulum. Since the experts assume that the condensed degree-related information in the document called “Professional Training Programme” is handed over to or available for the students, they henceforward refer to the learning objectives conveyed there.

Concerning the subject-related skills and competencies of graduates, the degree programmes under review plausibly address the core engineering-specific competence fields of Engineering fundamentals in Mathematics, Physics and the programme-related Engineering basics, of Engineering Analysis, Engineering design and Engineering practice. The module-objectives matrices further detail the modules / courses of each degree programme and attribute them to the intended programme learning objectives, thus confirming that the curricula principally correspond to the respective qualifications profile at programme level (see sec. 1.3). Insofar the intended learning objectives can be considered equivalent with the exemplary learning outcomes of the Subject-Specific Criteria (SSC) of the responsible Technical Committees. In this connection, the programme coordinators convincingly demonstrate that the feedback of (mostly regional) employing companies about the graduates’ qualifications portfolio is recognised in the course of the further development of the study programmes. Likewise, the graduates’ satisfaction with the programmes and the achieved qualifications is monitored on a regular basis and their feedback used for the programmes’ quality improvement – as shown in the SAR. Additionally, the quality assurance measures and methods of the College include the continuous teaching evaluation of students, thereby ensuring – from the expert panels’ perspective – a continuous monitoring and, if necessary, adaption of the programme objectives too.

The peers note positively that each qualification profile is inherently structured along the lines of general educational objectives (including a so-called “well-rounded education”) and professional qualifications. Personal and moral values do carry a considerable weight in all curricula, which is principally worthwhile, since higher education to some extent also aims at forming the character, ethics, social attitude and behaviour of the individual student. One might argue about the concrete contents and volume of this non-professional, general education. In principle though, this kind of personality building embedded in an undergraduate engineering programme and the related competence objectives are appreciable. The industry representatives reiterate this assessment in that they explicitly laude the social and personal competences the graduates acquire in the course of their studies.

Criterion 1.2 Name of the degree programme

Evidence:

- Relevant chapter of the SAR
- "Professional Ability Training System", see SAR, pp. 28 – 29, also Appendix of this audit report
- Professional Graduate Satisfaction Survey for each degree programme in the SAR, cf. Tables 2-1 and 2-2 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers conclude that the names of the degree programmes are appropriately addressing the learning objectives as well as the curricular contents of the degree programmes under consideration. Remarkably high approval rates of the degree programmes of both graduates and employers in recent years (above 85%) apparently may be indicative of the peers' assumption.

Criterion 1.3 Curriculum

Evidence:

- Relevant chapter of the SAR
- "Professional Education Target Matrix" for each degree programme in the SAR (pp. 12 - 20)
- Respective Course Plan, Appendices D1 and D2 of the SAR
- Respective Course Handbook, Appendices B1 and B2 of the SAR
- Graduation Rate and statistics, Tables 6-1 to 6-3 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers are convinced that the Bachelor's programmes offer study opportunities in technologically advanced fields of engineering with a high demand for a qualified workforce. Consequently, there should be promising job perspectives for the graduates of the degree programmes on the relevant tech labor market, which is confirmed by impressively high employment numbers, even in the comparatively young Bachelor's degree programme

Network Engineering. Employment rates of more than 90% of the cohorts in mostly regional companies matching the graduates' qualifications attest to this finding. This record strengthens the close contacts and manifold cooperation between the College and the regional tech industries. In turn, the feedback of the companies apparently ensures a curriculum design that closely reflects the competence needs and demands of the respective industries. On request, the industry representatives unanimously agreed with this notion. This also means that the Bachelor's programmes under consideration are application-oriented in the first place. The curricula are science-based without being research-oriented. Graduates are supposed to have a solid ready-to-use knowledge in their professional field of expertise, but, in general, are not trained for an academic career. This principle assumption is underlying the expert teams' assessment of the curricula of the Bachelor's programmes.

As already indicated, the contents and intended objectives (according to the module descriptions) are plausible under the presumption of a strong orientation towards knowledge-application in professional contexts. In general, many subject-related courses do not lead to a deep theoretical understanding of the matter, but instead follow the intention to give students hands-on knowledge, skills and competence in order to enable them to solve practical engineering problems in related professional fields. Otherwise, the calculated ECTS volume of most courses and, in particular, the included self-study time would hardly be convincing. With this qualification however, the curricula correspond to the exemplary engineering specific competences in the areas of Engineering Fundamentals, Engineering Analysis, Engineering Design, Engineering Practice and Transferable Skills of the Subject-Specific Criteria of the relevant ASIIN Technical Committees. This has been plausibly demonstrated in the respective module-objectives matrices included in the SAR.

Consequently, the curricula of the Bachelor's programmes Mechanical Design, Manufacturing and Automation as well as Network Engineering (see Appendix of this report) appear to be comprehensible and reasonable. Regarding this, the programme coordinators, inter alia, satisfactorily explain the implementation of the Finite element method course in the frame of the *Advanced Manufacturing Technology* module instead of introducing the method, as the peers would have expected, in the *Fundamentals of Mechanical Design* module. In a similar vein, the absence of advanced Thermodynamics and Heat transfer topics in the Mechanical Design Bachelor's programme seems understandable, given that the students do receive the basic knowledge and skills in Thermodynamics as far as needed, reserving a more comprehensive discussion of the subject in related majors of the College such as Combustion Engineering. The auditors appreciate the broad autonomy of the College in the curriculum design (short of certain obligatory modules/courses in the general education). As the College indicates and representatives of the industry partners confirm,

this autonomy at the same time allows for keeping the curriculum up to the scientific standard and current technological developments.

The strong profession- and application-orientation of the degree programmes is a major strength of the two Bachelor's programmes. It ensures the employability of the graduates who obviously meet the core qualification demands of the industry. The peers notice that the curriculum design and further development processes devote considerable efforts to assure the alignment of the degree programmes with the needs of the companies. Students, graduates and industry representatives have explicitly agreed on this assessment.

The expert panel notes that the practical competences are fostered through practical or experimental units connected with most of the technical courses of the respective Bachelor's programme as well as in different kinds of short-term and long-term internships, including a graduation practice (eight weeks duration). The internships include project-based internal internships at the college and the external internships in a company or business enterprise. Particularly the long-term internship shall make students familiar with real-life engineering tasks and the working environment in tech companies. In the peers' view, the internships are generally well integrated into the curricula and of significant importance with regard to the students' professional skills. On request, the students strongly agree with this judgment. Additionally, college counsellors and, in case of the company internships, business tutors look after the students in order to guarantee that they work on engineering-related assignments during their internships. Peers also note that the students have to prepare written reports about the internships.

The expert panel welcomes that the curricula of both Bachelor's programmes do entail a certain share of elective courses. Students are thus given the opportunity to acquire specific competencies and to a limited extent form their qualifications profile according to their interest. However, although the course plans indicate the electives, neither the plans nor the module descriptions transparently hint, which courses students shall choose from. Obviously, the students do not complain about that. The peers therefore suggest communicating the respective information within the study plan and/or the module/course descriptions more transparently.

Criterion 1.4 Admission requirements

Evidence:

- Respective chapter of the SAR
- Enrolment statistics, Appendices R1 and R2 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:
The admission requirements and procedural rules for the undergraduate programmes are a complex mixture of national, provincial / City provisions[6], college regulations, and a preset admission plan for full-time ordinary colleges and universities issued by the Ministry of Education. This results in an allocation list of enrolment numbers across a multitude of Chinese provinces. Coordinated by the admission offices of the provinces or cities, the College is competent to adjust the enrolment plan among different majors. The admission decision of the College needs to take into account the applicants' preferences of universities as well as examination scores and, if necessary, combined subject scores (Chinese and Mathematics). As the peers learnt, the responsible provincial admission offices as well as the College itself strictly adhere to and supervise the admission procedures. In case of negative admission decisions, the College is required to explain the outcome to those applicants assigned to but not accepted by the College. In the opinion of the peers, these rules are clearly designed to and may actually work in favour of a fair admission practice. They also contribute to the transparency of both the admission procedure and the final decisions.

The College has provided enrolment lists and numbers for the programmes (for the study years 2013 – 2017). The admission/enrolment numbers of applicants of other provinces and cities are marginal in comparison to those of Shanxi province. The overall enrolment numbers appear to have been constantly decreasing in the Mechanical Design, Manufacture and Automation major levelling off next to the planned enrolment size of 120. By contrast, the numbers in the Network Engineering major have been raising constantly, still nearly doubling the planned enrolment number of 60. The expert panel has the impression that the College can cope with the size of the admitted student cohorts.

The lists also reveal that the entrance examination scores differ between the various provinces, which is evidence of divergent educational qualifications of the applicants. This, in turn, requires the College to decide on appropriate supporting measures for students in their Freshman study period in order to avoid early withdrawal and at the same time maintain the quality level of the study programmes. The peers assume that the multi-level mentoring and tutoring system of the College (student counsellors, class tutors and academic tutors) functions as a vigorous instrument in closing learning gaps and adjusting divergent levels of knowledge. In view of the different knowledge background of the applicants, the peers consider this support system as an important quality assurance instrument.

[6] Prerequisite is a high school certificate or equivalent, which qualifies for the admission to the national entrance examination or unified examination in the relevant provinces and cities.

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

The peers consider the standards of the aforementioned criterion as *fulfilled satisfactorily*.

They appreciate the HEIs set up of the "General Education" and "Well-Rounded Education" courses to enhance the students' comprehensive (non-technical) qualifications.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Relevant chapter of the SAR
- Respective Course Plan, Appendices D1 and D2 of the SAR
- Respective Course Handbook, Appendices B1 and B2 of the SAR
- School-enterprise cooperation list for each programme, Appendices O1 and O2
- Audit discussions

Preliminary assessment and analysis of the peers:

The undergraduate programmes are "modularized" insofar that they generally consist of self-contained and thematically consistent courses. However, the programme planners do not use the term "module" in its familiar meaning, but rather as a collective term of thematically interlinked courses, structuring the various components of the curriculum, such as the "Mechanical Part Mapping", "Control Technology Foundation", "Advanced Manufacturing Technology", "Computer Systems Module" or "Network Technology" (to cite just a few out of both programmes). The courses allocated to each "module" or thematically oriented course catalogue may span over several semesters. The peers note that this unusual understanding of the term "module" does have the positive side effect of giving a clear idea of the curricular structure of the study programmes. The downside is that the Module Handbooks comprise "module" descriptions incorporating the relevant information of all related courses, which negatively affects their transparency and readability (see sec. 5.1).

The composition, volume and sequence of the courses appears to be generally plausible. However, the expert panel cautions that this assessment explicitly considers the application-oriented design of the curricula. Hands-on competencies and readily available professional qualifications are the prime focus of the programmes. This includes from the peers'

point of view a generally limited theoretical depth in the professional major courses, which they, nevertheless, deem adequate in terms of the practical usability of the professional knowledge and skills for engineering assignments. Despite this general approval, the *Metalworking practice* course in the Network Engineering programme as a course essentially designed to introduce students to industrial equipment and processes appears to be misplaced at the very end of the study plan. Already a course not directly linked to the professional objectives of this major, it would better achieve its propaedeutic aims if placed earlier in the curriculum. The peers advice the programme coordinators to consider this.

As to the coordination of the teaching staff, the College declared that the Bachelor's programmes are conducted independently, but closely coordinated between the teachers engaged in each programme (regular meetings). When asked, students attest to this statement.

As already mentioned, the various internships, in particular the industry placement during the graduation practice, are meaningfully integrated into the respective curriculum. Additionally, the co-supervision especially of the graduation practice by college and company tutors positively affects the achievement of the course objectives. In spite of existence of so-called corporate tutors (see also sec. 2.4), the peers have the impression that the coordination between the College and the companies during the industrial internships could be improved. The peer panel recommends taking appropriate measures to raise the effectiveness of the corporate tutor system.

Internationalization of its degree programmes is an outspoken aim of the College of Information. Accordingly, fostering the students' ability to perform in their respective profession in an international work environment is a correspondent objective in the Bachelor's programmes. Regarding this, it is principally welcomed that the general education includes four English language courses with a volume of altogether 10 ECTS. Extra-curricular activities and optional (professional) language courses could further contribute to the students' English proficiency. Moreover, coordinators declare recommending students to use and read English technical literature. However, the panel was astonished to see that the actual English-speaking competency of the students appears to be very limited. Reportedly, barely any professional course (mandatory or elective) taught in English is included in the curricula of the Bachelor's programmes. The peers therefore suggest successively developing and integrating at least some professional courses in English language (in addition to the mandatory College English courses). In addition, it might be worthwhile to think about establishing a system of graded language teaching according to the English level of students.

The peers appreciate that the students are principally allowed to change the respective major or school while the awarded credits and grades could be recognised. This seems to

be most convenient after the first study year or in the early study periods respectively. Although the opportunity of leaving the college or school for continuing the study in China or abroad exists (which, in the latter case, is even supported by certain grants), only few students apparently take the chance. The peers acknowledge that rules for the recognition of competencies gained at other universities at home and abroad do exist[7], although not directly framed in the wording of the Lisbon Convention[8]. The expert panel considers these rules as sufficiently fitting the accreditation requirements. Still, it supports any editorial clarification of these rules and all efforts to put them into a vigorous practice.

Criterion 2.2 Work load and credits

Evidence:

- Relevant chapter of the SAR
- Respective Course Plan, Appendices D1 and D2 of the SAR
- Respective Course Handbook, Appendices B1 and B2 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:
In the first place, a Chinese credit point system is in use according in which 16 contact hours (with 45 minutes per hour) correspond to one Chinese credit point. As to general education courses, 32 contact hours correspond to one Chinese credit point. Accordingly, the Chinese credit point system refers to the attendance time only.

The College has converted this system into the ECTS, thereby including the students' self-study time for each module. [It is noticed here that the presented „Course Plan" of the Mechanical Engineering, Manufacture and Automation programme has not yet fully implemented this conversion – in contrast to the module descriptions. The peers presume that the programme coordinators will do so accordingly.] Overall, the results look reasonable. Professional courses are attributed 4 to 8 ECTS points with few exceptions of 2 ECTS courses, basically concerning practical teaching units (experiments, projects and design courses and electives). The workload per semester ranges between 26 and 33 ECTS points. In principle, the peers consider this workload bearable, although the workload in the third study year of both programmes is comparatively high (66 ECTS points in the Mechanical

[7] See College of Information, Shanxi Agricultural University Student Academic Achievements Examination Management Specification, chap. 5, No. 7 (p. 9); Appendix F of the SAR

[8] Cf. Sec. III, Art. III.1 – III.5; available on the internet: https://www.coe.int/de/web/conventions/full-list/-/conventions/rms/090000168007f2c7 (Download: 02.05.2019)

Design programme respectively 64 ECTS points in the Network Engineering programme). The students have not been found complaining about that.

It is positively valued that the course descriptions in the respective Module Handbook contain detailed information about the workload and credit volume of both the attendance time and the self-study periods. Furthermore, the experts acknowledge that the various types of internships included in the curriculum are awarded, on average, a realistic share of ECTS points. On the other hand, the fixed ratio of 16:14 hours (attendance/self-study hours) pictures a very rigid understanding of the student workload-centred ECTS and, additionally, seems to be indicative of a more knowledge-based, input-oriented teaching system. As a result, either students are generally supposed to put less than one hour of self-study in the preparation and follow-up of one lecture hour or the attributed ECTS count might not cover their additional self-study time.

In this respect, it is significant that students have shown poorly informed about the difference between the two credit point systems and, especially, the core concern of the ECTS. The peers therefore suggest undertaking further efforts to get both the students and the teachers used to the ECTS as a workload-centred credit point system. In order to raise the overall awareness of this issue, it would be worthwhile to monitor the workload on a regular basis. The results could then be used as an instrument to correct the credit point allocation or course contents in case of significant discrepancies between the calculated and the actual student workload. In addition, they may help putting adequate weight to a realistic calculation of the students' self-study time. Therefore, the peers stipulate establishing a mechanism to ensure a systematic workload monitoring.

Criterion 2.3 Teaching methodology

Evidence:

- Respective chapter of the SAR
- Respective Module Handbook, Appendices B1 and B2
- Teacher's Teaching and Research Results, Appendices N1 and N2
- Audit discussions

Preliminary assessment and analysis of the peers:

The module handbooks provide an overview of the "types of teaching" applied in each module without clearly attributing teaching forms to courses. A range of different teaching methods is in use such as lectures, seminars, experimental classes, internships, etc. According to the SAR, fundamental courses are mostly taught in large classes, while engineering

fundamentals courses are taught in small classes. Most of the professional modules (more precisely: courses within modules) include theoretical knowledge as well as experiments. The auditors understood that for the practical parts ("experimental classes") the students are subdivided into small groups of 3-4 students, which is appropriate for laboratory work from their point of view.

Programme coordinators, members of the teaching staff and the SAR all strongly insisted that teaching methods and the improvement of individual teaching competences are core issues of the College's commitment to the quality of teaching and learning. Constant engagement of the lecturers in continuous professional development (CDP) activities such as participation in conferences, research projects, publications, patents etc. do certainly contribute to the teaching quality (although not always at a high-profile level by international standards). In this regard, the respective list annexed to the SAR is positively noted, since it attests to the College's efforts in further developing the teaching quality. In the same vein, correspondent student achievements confirm that the College successfully provides incentives for the students' engagement in specified project and research activities.

From the audit discussions and the inspection of the College's infrastructure (related to the degree programmes) the peers came to the conclusion, that students do have only limited access international scientific journals and databases. In order to widen their opportunities and to strengthen their abilities to work scientifically, peers therefore recommend improving this situation. Referring to their favourable impression of the financial resource base of the College (see below sec. 4.3), the peer panel observes very good conditions to meet this challenge.

In this connection, the peers also noticed that the resources of the College and CUPT libraries have not been rationally integrated presently. The book inquiry system of the college library is independent. They therefore suggest that the libraries of both institutions be networked.

Criterion 2.4 Support and assistance

Evidence:

- Relevant chapter in the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:
It is appreciable that a number of different advisory offices are in place. For administrative routine support of undergraduate students, the *Student Office* is in charge of guiding, managing, and coordinating student work and counsellors throughout the school. *Student counselors* are responsible for the guidance and psychological counseling of students and – according to the SAR – should familiarize students with the professional development status and future career options, help them establishing reasonable career goals, and considering their career plans from the beginning of their studies.

Academic guidance in the first instance is said to be provided by the teaching staff. Apart from that, institutionalized procedures give students the opportunity of direct feedback to the school's or department's head office on issues of study and exam organization. Additionally, every class has a *class tutor*, who normally is a head teacher and responsible for providing students with professional advice and guidance. Different kinds of *Corporate tutors* are established to optimize the school-enterprise cooperation. As mentioned earlier, the corporate tutor system, which the expert panel strongly supports, seems to be partly dysfunctional at present. The peers suggest putting further efforts on the optimization of this system.

Apart from this, the auditors recognize that the College has established appropriate processes and responsibilities to effectively advice and counsel students. The students also confirmed that information for the study programmes are available on the internet and that every student receives a complete set of information for the respective degree programme after admission and enrolment. Even though the general webpage is largely accessible in Chinese language only, the peers are convinced that sufficient information is available and that the subject-specific and general advisory methods are suitable to help students achieve the learning outcomes and complete their degree within the normal period of study.

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

The peer panel considers the requirements of the above-mentioned criterion as *partly not fulfilled*.

Application of the term "module" vs. "course"

The peer panel takes note of the unfamiliar usage of the term "module" in the design of the degree programmes. It appreciates the benefit the term provides in understanding the structure of the curricula, but also indicates the accompanying deficiencies regarding the

rather non-transparent course-related information (see below sec. 5.1 in connection with sec. F, E 7.).

Application- and profession-oriented structure and curricula of the programmes

The peers once again point out clearly that in their opinion the programmes and curricula under review are significantly marked by the students' application- and profession-related competencies. Surely, this is a signature element of the programme design and obviously a key factor of the HEIs educational philosophy – as the self-imposed vicinity to the German universities of applied sciences also suggests. However, stating this, by no means is aimed at inducing a general "shift from bestowing knowledge to cultivating ability" – as the statement reads –, as long as the intended qualification is to be scientifically based and not purely at technicians' level. Hence, there always must be a careful balance between theoretical knowledge and practical engineering skills, even if the application-oriented and practical aspects are the major objective.

Credit point system and workload assessment

The peers underline the importance of the consistent use of a learner-centred credit point system such as the ECTS and its inherent focus on realistically calculating the student workload of combined attendance and self-study time. The peers appreciate the HEI's announcement of further steps on the way to a more learner-oriented system. Hence, they propose a requirement fostering this process (see below, sec. F, A 3.).

English proficiency of students / coordination between the college and the companies / access to (international) literature and databases

The peers appreciate very much the efforts and measures envisioned by the College to initiate a quality development in the respective fields (English language skills of students; students' access to international literature and databases; cooperation between college and companies). In order to support these efforts, they confirm recommendations initially framed for the related issues (see below, sec. F, E 3. – 6.).

Rules for recognition of competencies gained at other HEIs

As mentioned above, the peers acknowledge that certain rules for the recognition of the academic achievements gained at other HEIs (at home or abroad) are already in place. Yet, these could be framed more clearly and comprehensively – for instance along the lines of chapter III of the so-called Lisbon Convention (see above p. 15, footnote 8). However, no immediate action is necessary from the peers' point of view.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Relevant chapter of the SAR
- Respective Module Handbook, Appendices B1 and B2 of the SAR
- College of Information, Shanxi Agricultural University Examination Outline Management Measures, Appendix E of the SAR
- College of Information, Shanxi Agricultural University Student Academic Achievements Examination Management Specification (excerpts in English translation), Appendix F of the SAR
- Student Score List for each degree programme, Appendix M1 and M2 of the SAR
- Exam Pass Rate of 10 Core Courses in 2017 per degree programme, tables 6-4 and 6-5 of the SAR
- Clarification on the award of a *Certificate of Graduation* and a *Diploma of Degree* at CISAU, Appendix NO4.Q&A of the Additional Information provided after the onsite-visit
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers take note of the regulations in place defining the rules and conditions of assessment in undergraduate degree programmes at the College of Information, Shanxi Agricultural University (cf. Appendix F of the SAR). According to these rules and the remarks of programme coordinators and the teaching staff, the methods of examination include written examination, oral examination, reports, presentations etc. A summative information of the assessment methods is included in the relevant module/course descriptions. The assessment method in general comprises various forms of continuous assessment during the semester and the final examinations, usually conducted during the examination week at the end of each semester. In any case, final examinations and forms of a continuous assessment (assignments, exercises, and homework) combine to a considerably high examination burden. However, both the students and the lecturers praise this examination system as an instrument to effectively monitor the individual learning progress and ensure a comprehensive understanding of the respective matters.

The peers acknowledge that according to the SAR the examination results are analysed in order on the one hand to check and improve the quality of the exams (tests) and on the other hand to support students, who fail to pass certain exams. Students are allowed to retake an examination two times in the next semester and "as a pre-graduate clearance". This implies that an unnecessary prolongation of the study duration is principally avoidable. It seems not least due to the continuous monitoring of the students' learning progress that retaking an examination is the overall rare exception. In fact, the examination system is designed in such manner that students normally do not fail finally. This, in turn, may be explanatory of the remarkably high graduation rate of nearly 100% in both degree programmes.

Typically, assessments in compulsory courses are written exams, while elective courses may also be assessed through oral exams, presentations, experimental works or other assessment forms. In sum, the audit team concludes that the examination system as such and the examination forms in particular aim at supporting students to achieve the intended learning outcomes.

Students shall conduct a 12-week *Bachelor Thesis* in the eighth semester under the guidance of College supervisors. Particularly regarding off-campus Bachelor Theses, they are required to keep close contact with their supervisors on campus. As the SAR states and teachers confirm, graduating students report the thesis progress in the mid-term review to make sure that it is in accord with the thesis design and meets the requirements and expectations at the Bachelor's level. By the same account, thesis topics are usually proposed by the supervising teachers and in case of off-campus projects mutually agreed upon by the College supervisor and the responsible company tutor. It is plausible that thesis topics might directly evolve out of the graduation practice, in which students have to work on engineering assignments related to their major.

With their thesis work, students are required to prove that they are able to solve an engineering task of an adequate level of difficulty independently and within a given timeframe. Besides the written work, the *Bachelor Thesis* entails an oral defence of the results. From the peers' perspective, the rules and requirements for the *Bachelor Thesis* and their implementation are supportive in achieving each programme's learning objectives. Samples of Bachelor Theses provided for inspection during the onsite-visit in general confirmed this impression. Regarding the topics and proposed engineering solutions, they also clearly reflect the application-orientation of the Bachelor's programmes under review.

As the peer panel learns, the College regulations allow for a graduation with or without a degree certificate. Completing a Bachelor thesis, according to that, is prerequisite for the degree-earning certificate. By contrast, students failing the graduation requirements of the

College may be qualified for the award of a certificate of completion. The peers take note of the related provisions. From their perspective, the award of the degree certificate under the condition of completing a Bachelor thesis fits the relevant accreditation criterion for study programmes at the Bachelor's level.

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

The peers consider the demands concerning the examination system sufficiently *fulfilled*.

4. Resources

Criterion 4.1 Staff

Evidence:

- Relevant chapter of the SAR
- Staff handbook for each degree programme, Appendices A1 and A2 of the SAR
- Teacher's Teaching and Research Results of both degree programmes, Appendices N1 and N2 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers note that altogether 19 full-time teachers are engaged in the Mechanical Design, Manufacture and Automation Bachelor's programme, apart from 10 experimental staff members and 6 counsellors. The teaching staff of the Network Engineering Bachelor's programme is composed of 17 full-time teachers, 2 experimental staff members and 6 counsellors too. Additionally, a considerable share of the overall teaching staff are part-time lecturers, primarily employees from the Shanxi Agricultural University as one of the two co-sponsors of the College of Information. The academic status and school/department position depend on the teaching and research record as well as the professional background experience and ranks professors, assistant professors, lecturers, and teaching assistants. The staff handbook of each major in detail informs about the academic and professional qualifications and background of the respective teaching staff. The regular workload of teaching staff members comprising the teaching hours and – except for the teaching assistants – a certain share of research hours is 192 hours per semester, which appears to be acceptable.

Although the staff handbooks leave the impression that the overall academic and professional qualification of the teaching staff is appropriate, the available information also clearly demonstrates that the academic qualification of the Colleges' full-time staff only rarely exceeds the Master's degree. Having yet only one (associate) professor as regular (full-time) staff member in each major's professional educational programme is in the opinion of the peers a serious shortcoming. Although many teachers of the College undeniably invest significant efforts in research activities of some kind, the PhD degree of professors and lecturers is indispensable to impart a methodologically structured approach to science and research to students. The overall quality of any teaching and research activities in the schools and departments of the colleges essentially depend on this scientific attitude and research competence. Likewise do, in the last instance, the teaching, guiding and supervising responsibilities of the teaching staff in the Bachelor's programmes under review. The College obviously admits to this in stating that a "high-level teaching team will be established in the next 4 to 5 years", which should include as a first step "to strengthen the introduction of doctors and improve the doctoral rate of teachers to be no less than 35%" (SAR, p. 43). The peer panel welcomes this time-schedule principally, but as the college is applying for an accreditation of the Bachelor's programmes, it shall adjust this strategy with regard to the teaching staff capacity building. The peers consider at least one full professor with a PhD in charge for each programme a necessity. In order to achieve the quality objectives of each programme and to raise the basic research capability of the College, this might also be conducive to a recruiting and professional development strategy aimed at a more balanced qualification structure of the teaching staff. As to that, the audit team additionally deems a meaningful short- and medium-term concept for recruiting more teaching staff with advanced academic qualifications (above Master degree) and research records indispensable. Qualified professors of Shanxi Agricultural University lecturing professional courses may serve as a good starting point, particularly as – according to the clarification of the College – the university "offers the guidance on teaching and administrative management".

Criterion 4.2 Staff development

Evidence:

- Relevant chapter of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

The peers learnt from the SAR that the College provides a preparatory educational training for newly appointed young staff. According to the SAR, the College has also implemented

the “Young Teacher Tutorial System” allocating tutors to young staff. In addition, it encourages young teachers either to take temporary trainings in related companies or to go abroad for international teaching and research experience. Thus, the College convincingly supports the professional advancement of the teaching staff, which depends on their teaching and research record as well as their international study experience. Various financial incentives for excellent teaching attest to this observation. It may be highlighted here that lecturers are also prompted to carry out education and teaching research, as it can be presumed that the results will be transferred to the teaching practise and thus contribute to its continuous improvement.

In general, the auditors welcome the presented opportunities for the further development of subject-relevant knowledge and teaching skills. The only point of criticism is, as argued above, that the rate of advanced degree holders and, consequently, the teaching and research capabilities of the College (particularly in the field of professional technology) needs to be enlarged.

During the audit-visit, the auditors observe that the English proficiency not only of the students (see sec. 2.1), but also of the teaching staff could be improved. Therefore, they advise the college to foster the English teaching competencies of the teaching staff through adequate means.

Criterion 4.3 Funds and equipment

Evidence:

- Relevant chapter of the SAR
- Information about the relationship between the College and Shanxi Agricultural Information, Appendix NO2.Q&A of the Additional Information provided after the on-site-visit
- Equipment procurement in recent years for both degree programmes, Appendices G1 and G2 of the SAR
- Laboratory information for each degree programme, Appendices H1 and H2 of the SAR
- Information about the budgetary situation of the college and a medium-range forecast, Appendix NO3.Q&A of the Additional Information provided after the onsite-visit
- Onsite-inspection of relevant infrastructure of the programmes
- Audit discussions

Preliminary assessment and analysis of the peers:

Concerning the physical and financial resources available for the Bachelor's programmes, the expert panel takes note of the HEI's clarification of the organizational and legal structure of the College of Information, Shanxi Agricultural University (SXAU). According to that, the College is an independent private HEI, co-sponsored by Shanxi Agricultural University and Shanxi Taigu Investment Co. Ltd. The purported autonomy seems to contradict the fact that both co-sponsors are by law and contract given specific responsibilities with Shanxi Agricultural University in charge of "the guidance on teaching and administrative management".[9] It would be difficult to understand how Shanxi Agricultural University should bear its responsibility without the competence to interfere in strategic decisions of the college such as, for instance, the establishment or discontinuation of degree programmes. In fact, the peers learn that representatives of the University are members of the Board of Directors as decision-making body for the college affairs. Thus, the audit panel concludes that because of the actual influence of the university the (formal) independency of the college is in fact somewhat flawed. However, from the peers' perspective this could even turn out to be a benefit, since it requires a strong commitment of SXAU. As mentioned earlier, the ultimate responsibility for the teaching process might be reflected in a correspondent engagement in the teaching process (particularly of PhD holding professors and associate professors; see above sec. 4.1).

Regarding the financial basis, the college is essentially reliant on study fees as well as the financial resources provided by Shanxi Taigu Investment Co. Ltd. as the second co-sponsor. According to the explanation note of the College, the company "as the exclusive investor of CISAU provides funding and financial assistance for the operation of CISAU".[10] The good impression of the lab equipment and generally of the campus infrastructure convinced the peers of the apparently solid financial basis of the college and the degree programmes. The additionally provided "Revenue and Expenditure Budget 2019" and medium-range financial forecast contribute to this general observation.

The peer panel notes that the cooperation between Shanxi Agricultural University and Shanxi Taigu Investment Co. Ltd. follows national legislation "On the Setup and Management of Independent College". The respective order of the Ministry of Education[11] obviously requires the co-sponsors to committing themselves to mutual rights and duties concerning the established college. Regarding this, the expert panel infers that the material and financial resource base rests on a meaningful long-term arrangement between two significant academic and industry partners. It appreciates that this partnership apparently

[9] See Appendix NO2.Q&A of the Additional Information provided after the onsite-visit.
[10] Ibid.
[11] Order of the People's Republic of China Ministry of Education, No. 26.

also includes an overall responsibility of the partners for the quality development of the College and its programmes. Thus, irrespective of the ultimate meaning of the "autonomy" of the College of Information, its legal ties to SXAU in the eyes of the peers per se contribute to the quality assurance of the programmes and may be further used for their improvement.

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

The peers conclude that the requirements concerning the resources for running the programmes *are not fulfilled satisfactorily*. In particular, they consider the present composition and qualification of the teaching staff as not convincing.

Teaching staff

The expert panel welcomes the efforts the College undertakes in order to develop a highly qualified teaching staff for the degree programmes. Obviously, major improvements in this respect will take some time, which is why the medium-term schedule for overhauling the teaching staff recruitment strategy seems reasonable. However, certain precautionary measures regarding the ultimate coordination and responsibility for the programmes as well as the development of the teaching personnel in the opinion of the peers could and should be taken immediately. Based on the reasons detailed above, the peers strongly confirm respective requirements phrased in their preliminary assessment (see below, sec. F, A 1. and A 2.). With regard to the build-up of a qualified faculty and a higher percentage of teachers with academic qualifications above Master's degree, the HEI's statement does contain a medium-term objective – as did the SAR prior to it – , but there is no "concept" for the achievement of this objective so far. Such a concept has to be provided in the further course of the accreditation (see below, sec. F, A 2.).

Research capabilities and English language skills of the teaching personnel

The peers appreciate the indications of the College about the already existing supporting structure for the teaching staff in the above fields. However, they feel that it should be proven in the course of the reaccreditation that further steps have been taken to improve the English command and research capabilities of the teachers (see below, sec. F, E 1. and E 2.).

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Respective Module Handbook, Appendices B1 and B2 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:
The audit team generally concludes that the module/course descriptions in general adequately reflect the respective curriculum and contain meaningful information about the individual modules. In particular, the descriptions provide comprehensive information about the different types of learning and teaching, the methods of assessment used in each module/course, the workload calculation and credit point attribution. Most of them also clearly indicate which knowledge, skills and competencies students are supposed to achieve in order to reach the intended qualification profile. Furthermore, is seems that the students do have access to the "Module Handbooks" on the webpages of the College, even in English language. Although peers are unable to verify this, they do not doubt the respective confirmation of the students.

Because of the different understanding of the term "module", as discussed earlier (see sec. 2.1), the presentation of the module/course descriptions appears very dense and comprehensive and thus less transparent. Since "modules" in the meaning of the College refers to a cluster of subject-related courses (the proper reference units), all cluster-related "courses" are presented consecutively and at once under the heading of the "module". This makes it difficult to identify specific course-related information. On the other hand, the students seem to be used to this kind of module/course information and did not voice any concern about it. By contrast, they generally laud the informative and readily accessible websites of the College. Consequently, no immediate corrective action is required from the peers' perspective. Nevertheless, the panel principally suggests adapting the module handbooks in such manner that the descriptions more transparently convey the course-related information, as the courses are the prime learning unit.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Degree and Diploma Certificate Template for each degree programme, Appendices J1 and J2 of the SAR

- Student transcript sample for each degree programme, Appendices K1 and K2 of the SAR

Preliminary assessment and analysis of the peers:
According to the available information, the College does not issue a Diploma Supplement, which informs interested parties like employers or other universities about the structure, content and level of the successfully completed degree, the individual achievements and, furthermore, contains some basic information about the national system of higher education. The Diploma Supplement would be beneficial to the graduates, since it allows interested parties an assessment of applicants in comparison to possible competitors. Hence, the panel concludes that a Diploma Supplement should be issued obligatory.[12]

For the above-mentioned purpose, it would also be helpful to provide statistical data according to the ECTS-User's guide[13] besides the final grade in one of the final documents (Diploma Supplement or Transcript of Records).

Criterion 5.3 Relevant rules

Evidence:

- According to the SAR (p. 38) following Rules and Regulations apply:
- College of Information, Shanxi Agricultural University Student Affairs Office Grievance Measures (Trial)
- College of Information, Shanxi Agricultural University Student Disciplinary Regulations (Trial)
- Interim Measures for the Financial Aid for Students with Financial Difficulties in the College of Information, Shanxi Agricultural University
- Interim Measures for the Identification of Students with Financial Difficulties in the College of Information, Shanxi Agricultural University
- College of Information, Shanxi Agricultural University Student Work-study Program Management (Trial)
- College of Information, Shanxi Agricultural University Scholarship Selection Method (Trial)

[12] The Diploma Supplement could be modelled according to a format provided by the European Commission, see for instance: https://europass.cedefop.europa.eu/sites/default/files/dsupplementexamples-en.pdf (Download: 10.05.2019)

[13] See https://europass.cedefop.europa.eu/sites/default/files/ects-users-guide_en.pdf (Download: 10.05.2019)

- College of Information, Shanxi Agricultural University National Scholarship Evaluation Implementation Rules (Trial)
- College of Information, Shanxi Agricultural University Scholarship Evaluation Implementation Rules (Trial)
- College of Information, Shanxi Agricultural University National Scholarship Evaluation Implementation Rules (Trial)
- College of Information, Shanxi Agricultural University recommended excellent members to join the party implementation rules (Trial)

Preliminary assessment and analysis of the peers:
The peers note that all aspects of admission, examination, progress, probation and disqualification and grading policy are addressed in the relevant study and exam regulations and, reportedly, outlined on the College webpages. The College declares that all these regulations are fully implemented in Chinese laws and available for all relevant stakeholders. The peers especially appreciate that the College apparently also strives to translate all study-related information and documents into English, thus underling the efforts to internationalize its educational offers.

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

The expert panel considers the requirements concerning the transparency and documentation of the Bachelor's degree programmes *not yet fulfilled satisfactorily*.

Diploma Supplement

The peers appreciate the College's announcement to issue of a Diploma Supplement according to the requirements in the future. This should be evidenced in the course of the accreditation (see below, sec. F, A 4.).

Module handbook

On the reasons discussed in their preliminary assessment, the peers recommend to indicate more transparently the course-related information in the module handbooks. While they are principally satisfied with the module/course descriptions, they nevertheless recommend improving them accordingly in the framework of future revisions (see below, sec. F, E 7.).

Statistical Data / ECTS grading table

In order to allow potential external stakeholders (such as employers or receiving HEIs) a better assessment of the individual achievement of graduates, it is recommended to provide an appropriate grading scale, which might be tailored according to the ECTS User's guide (see below, sec. F, E 8.).

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Relevant chapter of the SAR
- Assessment Form for each degree programme, Appendices I1 and I2 of the SAR
- Teaching Quality Evaluation Form for each degree programme Appendices L1 and L2 of the SAR
- Students Score List for each degree programme, Appendix M1 and M2 of the SAR
- Exam Pass Rate of 10 Core Courses in 2017 per degree programme, tables 6-4 and 6-5 of the SAR
- Audit discussions

Preliminary assessment and analysis of the peers:

The auditors see that the College has defined and implemented a set of quality assurance measures, feedback cycles and follow-up processes. Thus, the teaching process is subject to the scrutiny of student evaluations and graduates' surveys. Reportedly, student statistics such as admission and graduation rates as well as examination scores are analysed and results used to remove shortcomings of the degree programmes and to provide adequate support for students. Additionally, the peers received the impression that the college undertakes significant efforts to get feedback from employers and cooperating companies regarding the demands of the industry and new technological developments, which industry representatives explicitly confirm.

Concerning the evaluation of teaching, the College essentially relies on various modes of surveying the teaching performance and achievements. According to the SAR, the evalua-

tion and survey instruments in use deliver meaningful feedback of employers, peer colleges, teachers and students. Thus, the college lays special emphasis on supervising the teaching process through co-teachers of the responsible department/school. Graduate and employment surveys serve to gather information about the employment situation of the graduates and the feedback of the employers about the qualifications of graduates. In that respect, the alumni activities of the college are worthwhile and emphatically supported. Student evaluations are conducted regularly and reportedly have high return rates due to appropriate procedural precautions. In the audit discussion, students name several instances of improvements of the teaching process resulting from student evaluations.

Regarding the learning progress and achievements, the college points to a careful analysis of the examination results on a regular basis as a means for detecting and removing major deficiencies in the courses. Exemplary passing rates of 10 core courses in both degree programmes illustrate the apparent success of an educational process closely monitoring the study progress of students by means of continuous assessment and effective supporting measures.

The overall high employment rate and satisfaction of the companies with the qualification of the graduates documented in the available employment statistics, is impressive too. From the perspective of the peers, these results generally reassure the educational strategy primarily aimed at a ready-to-use, practise-oriented engineering qualification profile.

Taken together, the peers conclude that the quality cycles in place for the Bachelor's degree programmes are principally working well. In particular, they receive the impression that the results of the different quality assurance instruments and their follow up are benefitting the quality development of the programmes.

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

The peers conclude that the quality assurance measures in practice for the Bachelor's programmes under review *fully meet the requirements*.

D Additional Documents

No additional documents needed.

E Comment of the Higher Education Institution (10.06.2019)

The institution provided a detailed statement, which the peers take note of in their final assessment (at the end of each criterion in the previous chapters of this report).

F Summary: Peer recommendations (16.06.2019)

Taking into account the additional information and the comments given by the College 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
Ba Machine Design, Manufacture and Automation	With requirements for one year	EUR-ACE®	30.09.2024
Ba Network Engineering	With requirements for one year	EUR-ACE®	30.09.2024

Requirements

For all degree programmes

A 1. (ASIIN 4.1) Provide evidence that at least one full professor with a PhD is in charge for each programme in order to responsibly define and reliably achieve the learning outcomes in the focus of the correspondent programme.

A 2. (ASIIN 4.1) Provide a meaningful concept for recruiting more teaching staff with advanced academic qualifications (above Master degree) and research records.

A 3. (ASIIN 2.2) Establish a process to systematically monitor the student workload in order to adapt the credit point allocation or the course design in case of significant discrepancies.

A 4. (ASIIN 5.2) Issue a Diploma Supplement and ensure that it contains detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student.

Recommendations

For all degree programmes

E 1. (ASIIN 2.1) It is recommended to successively develop and integrate at least some professional courses in English language in order to strengthen the students' command of professional English.

E 2. (ASIIN 4.2) It is recommended to foster the English teaching competences of the teaching staff.

E 3. (ASIIN 4.2) It is recommended to strengthen the research capabilities of the teaching staff, thus promoting its professional expertise and ensuring the quality level of the degree programmes according to the scientific and technical development in the respective fields of knowledge.

E 4. (ASIIN 2.1) It is recommended to improve the coordination between the college and the companies with regard to the content and conduct of the external internships, and thereby foster the practical orientation of the degree programmes.

E 5. (ASIIN 2.3) It is recommended to provide better access to international scientific journals, databases etc. in order to widen the students' opportunities and to strengthen their abilities to work scientifically.

E 6. (ASIIN 2.3) It is recommended that the library resources of Shanxi Agricultural University and the College of Information be networked.

E 7. (ASIIN 5.1) It is recommended to adapt the module handbooks in such manner that the descriptions more transparently convey the course-related information, as the courses are the prime learning unit.

E 8. (ASIIN 5.2) It is recommended to provide statistical data according to the ECTS-User's guide in addition to the final grade in one of the final documents (ToR, Diploma Supplement).

G Comment of the Technical Committees

Technical Committee 01 – Mechanical Engineering / Process Engineering (17.06.2019)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and follows the assessment of the peers. It shares the distinct concerns expressed by the auditors in the report, particularly with regard to the qualification of the teaching staff.

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

Following the concerns of the peers, the Technical Committee concludes that a final assessment of whether the engineering-specific learning outcomes of its Subject-Specific Criteria are fully met in the Bachelor's programmes Machine Design, Manufacture and Automation and Network Engineering is dependent upon of the fulfilment of the requirements.

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Machine Design, Manufacture and Automation	With requirements for one year	EUR-ACE *Upon fulfilment of the requirements*	30.09.2024
Ba Network Engineering	With requirements for one year	EUR-ACE *Upon fulfilment of the requirements*	30.09.2024

Technical Committee 02 – Electrical Engineering/Information Technology (17.06.2019)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee intensively discusses the procedure. As the peers do, it considers the issue of the qualification of the teaching staff a decisive point with respect to the quality and further development of the degree programmes. It is of major concern that nearly

none of the salaried staff of the College of Information has academic merits above the Master's degree. On the other hand, the Technical Committee acknowledges that there are many experienced lecturers among the teaching staff with close connections to the professional world and intimate knowledge of its demands and technical developments. The programmes are running for many years and well received by the companies. It goes without doubt that they do have curricular weaknesses addressed in related requirements and recommendations. Yet these are comparable to similar programmes across countries and cultures, and there is little evidence that they could be traced directly to the lack of professional competence of the responsible staff. However, overcoming the structural deficits of the programmes and ensuring their quality improvement would need the guidance and incentives from research-experienced personnel in the related disciplinary fields and, in the medium and long run, a constant increase in the qualification base of the teaching staff.

The Technical Committee concludes that having such personnel in charge of the programmes will be conducive to the further development of the degree programmes in the above direction, thus confirming the assessment of the peers. In order to clarify this, the Technical Committee proposes amending the related requirement 1.

Apart from that, the Technical Committee follows the assessment and recommended resolution of the peers without further modifications.

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

Because of the staff-related concerns, the Technical Committee concludes that a final assessment of whether the engineering-specific learning outcomes of its Subject-Specific Criteria are fully met in the Bachelor's programmes Machine Design, Manufacture and Automation and Network Engineering is dependent upon of the fulfilment of the curriculum-related requirements.

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

Degree Programme	**ASIIN-seal**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Machine Design, Manufacture and Automation	With requirements for one year	EUR-ACE *Upon fulfilment of the requirements*	30.09.2024
Ba Network Engineering	With requirements for one year	EUR-ACE *Upon fulfilment of the requirements*	30.09.2024

Technical Committee 04 – Informatics/Computer Science (Circulation procedure in June 2019)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee considers the staff resources and, in particular, the overall qualification of the staff as questionable and wonders, whether the programmes could be accredited given the actual qualification level of most of the teaching staff, including the programme coordinators. The Committee learns that, until very recently in the Chinese system of higher education, teaching staff with a discipline-related PhD could rarely be found in the HEIs. Today, this has been changed considerably but still turns out to be the case in this new type of Higher Education Institutions. The Technical Committee does not dispute the enthusiasm and vigor of the teaching staff in delivering high-quality and labor market-oriented degree programmes. However, the Committee concludes that it takes at least one full professor with a PhD and relevant research competence in the disciplinary field of each programme to keep the programme development on track with the demands of new scientific results and technical developments. Thus, the Committee confirms the necessity of requirements 1 and 2. It also agrees with the other assessment of the peers without changes.

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Network Engineering	With requirements for one year	EUR-ACE *Upon fulfilment of the requirements*	30.09.2024

H Decision of the Accreditation Commission (28.06.2019)

Assessment and analysis for the award of the ASIIN seal:

The Accreditation Commission discusses the procedure. It particularly agrees with the experts' critical assessment of the overall qualification of the teaching staff and considers a major improvement in that regard necessary in order to keep the programmes in track with the development in the respective technological fields (requirement 1). There should be at least one person, which through its research capability is best qualified to structure and promote the (further) development of the degree programmes. No professional experience whatsoever can easily compensate for that research competence. Additionally, the Accreditation Commission deems it necessary, that the full professor should be holder of a PhD at the same time, since it is particularly the science-based approach to research, which qualifies the PhD holder to be in charge of the degree programmes under review. That is why the Accreditation Commission decides not to follow the proposed amendment of the respective requirement of TC 02, which would broaden the opportunities of fulfilment. Apart from that, the Accreditation Commission agrees with the assessment and recommended resolution of the peers and the Technical Committees.

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

The Accreditation Commission decides that a final judgment of whether the engineering-specific learning outcomes of the Subject-Specific Criteria of the Technical Committee 02 are fully met is dependent upon of the fulfilment of the resources-related requirements. The Commission therefore decides postponing the award of the label until then.

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

Degree Programme	**ASIIN-seal**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Machine Design, Manufacture and Automation	With requirements for one year	EUR-ACE *Upon fulfilment of the requirements*	30.09.2024

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Network Engineering	With requirements for one year	EUR-ACE® *Upon fulfilment of the requirements*	30.09.2024

Requirements

For all degree programmes

A 1. (ASIIN 4.1) Provide evidence that at least one full professor with a PhD in the related fields is in charge for each programme in order to responsibly define and reliably achieve the learning outcomes in the focus of the correspondent programme.

A 2. (ASIIN 4.1) Provide a meaningful concept for recruiting more teaching staff with advanced academic qualifications (above Master degree) and research records.

A 3. (ASIIN 2.2) Establish a process to systematically monitor the student workload in order to adapt the credit point allocation or the course design in case of significant discrepancies.

A 4. (ASIIN 5.2) Issue a Diploma Supplement and ensure that it contains detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student.

Recommendations

For all degree programmes

E 1. (ASIIN 2.1) It is recommended to successively develop and integrate at least some professional courses in English language in order to strengthen the students' command of professional English.

E 2. (ASIIN 4.2) It is recommended to foster the English teaching competences of the teaching staff.

E 3. (ASIIN 4.2) It is recommended to strengthen the research capabilities of the teaching staff, thus promoting its professional expertise and ensuring the quality level of the degree programmes according to the scientific and technical development in the respective fields of knowledge.

E 4. (ASIIN 2.1) It is recommended to improve the coordination between the college and the companies with regard to the content and conduct of the external internships, and thereby foster the practical orientation of the degree programmes.

E 5. (ASIIN 2.3) It is recommended to provide better access to international scientific journals, databases etc. in order to widen the students' opportunities and to strengthen their abilities to work scientifically.

E 6. (ASIIN 2.3) It is recommended that the library resources of CUPT and the College of Information be networked.

E 7. (ASIIN 5.1) It is recommended to adapt the module handbooks in such manner that the descriptions more transparently convey the course-related information, as the courses are the prime learning unit.

E 8. (ASIIN 5.2) It is recommended to provide statistical data according to the ECTS-User's guide in addition to the final grade in one of the final documents (ToR, Diploma Supplement).

I Fulfilment of Requirements (26.06.2020)

Analysis of the peers and the Technical Committees (June 2020)

Requirements

For all degree programmes

A 1. (ASIIN 4.1) Provide evidence that at least one full professor with a PhD in the related fields is in charge for each programme in order to responsibly define and reliably achieve the learning outcomes in the focus of the correspondent programme.

Initial Treatment	
Peers	Fulfilled Justification: Two new professors have been appointed for the both BSc programmes. Although it is impressive that two new professors could be hired in due time, in comparison to European BSc programmes, the share of professors in teaching and research is critically low. A still weak point is the fact that while the responsibilities of the professors have been described, no evidence is provided how the corresponding goals are to be achieved and till when. The new professors should take on their responsibilities together with other professors and the dean of department. These obligations need to be completed by a team. Overall, however, it seems that the university has understood the need to strengthen the faculty in order to improve the programmes substantially.
TC 01	Fulfilled Justification: The technical committee follows the decision of the peers.
TC 02	Not completely fulfilled Justification: The justification of the peers does not explain why the requirement was considered to be fulfilled. Instead, it becomes clear from the justification that the university has not yet provided sufficient evidence to consider the requirement to be completely fulfilled.
TC 04	Not completely fulfilled Justification: The justification of the peers does not explain why the requirement was considered to be fulfilled. Instead, it becomes clear from the justification that the university has not yet

	provided sufficient evidence to consider the requirement to be completely fulfilled.

A 2. (ASIIN 4.1) Provide a meaningful concept for recruiting more teaching staff with advanced academic qualifications (above Master degree) and research records.

Initial Treatment	
Peers	Not completely fulfilled Justification: While the university reports on having employed new teachers and what they plan to do, the strategy to change the general set-up with respect to the academic qualifications of the faculty and their practical engineering background with experience from real-world and up-to-date problems is not clearly formulated. Providing a recruiting concept does not only mean to employ new staff. It is necessary to develop a concept for the systematic and sustainable establishment of an academic quality personnel team, combining recruitment and dismissal, and gradually building a teaching team that meets the requirements. Colleges should make policies to ensure the quality of teachers' team, for instance by means of workload subsidy for academic research, raised wages, encouragement and reward and so on. At present, more than 95% of the teachers in the two majors have master's degree or above, but their academic research and technical application record of the past years is scarce. It can be seen from students' graduation projects that most of them are not practical application projects. The establishment of a teachers' academic training plan might be an additional means to improve teachers' academic level, including domestic and foreign academic exchanges, workshops and composition of joint research projects.
TC 01	Not fulfilled Justification: The technical committee follows the decision of the peers.
TC 02	Not (completely) fulfilled Justification: A fully developed concept has yet to be submitted.
TC 04	Not (completely) fulfilled Justification: The technical committee follows the majority of the peers.

A 3. (ASIIN 2.2) Establish a process to systematically monitor the student workload in order to adapt the credit point allocation or the course design in case of significant discrepancies.

Initial Treatment	
Peers	Satisfactorily fulfilled Justification: The measures proposed seem suggestive and to have the potential to indeed acquire a better monitoring of the achievement of the curricular objectives and targeted competencies. At the same time, the penalties described in Table 6 of the report seem unnecessary and not really contributing anything in terms of the required monitoring purposes. The peers note that the College has not adopted "classical" monitoring instruments like workload evaluations. However, in their view the described learning management system could effectively be engaged to monitor the learning progress of students and thus, indirectly, also to assess the appropriateness of the credit point allocation and accompanying workload burden.
TC 01	Fulfilled Justification: The technical committee follows the decision of the peers.
TC 02	Fulfilled Justification: The technical committee follows the decision of the peers.
TC 04	Fulfilled Justification: The technical committee follows the decision of the peers.

A 4. (ASIIN 5.2) Issue a Diploma Supplement and ensure that it contains detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student.

Initial Treatment	
Peers	Not fulfilled Justification: The report falls short to evidence the required diploma supplement. It would have been straightforward just to issue the Diploma Supplement and to attach it to the report. Instead, it is only described what such a supplement could do. According to the description in the report, the DS does little to inform potential stakeholders about the structure, learning objectives and contents of the study programme, detailing instead information about the individual holder. Thus, the requirement A.4 is still to be addressed according to the specifications described in the requirement. As an example, a template of a European Diploma Supplement might be attached to the letter to the College.
TC 01	Not fulfilled

	Justification: The technical committee follows the decision of the peers.
TC 02	Not fulfilled Justification: The technical committee follows the decision of the peers.
TC 04	Not fulfilled Justification: The technical committee follows the decision of the peers.

Decision of the Accreditation Commission (26.06.2020)

The Accreditation Commission discusses the fulfilment of requirements. It agrees with the assessment of the peers and the Technical Committees that requirement A3 is fulfilled, whereas requirements A1 and A2 and A4 are not satisfactorily fulfilled.

The Accreditation Commission extends the award of the seals as follows:

Degree Programme	**ASIIN-seal**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Machine Design, Manufacture and Automation	Requirement A1, A2, A4 not fulfilled	EUR-ACE® *Upon fulfilment of the requirements*	6 months prolongation
Ba Network Engineering	Requirement A1, A2, A4 not fulfilled	EUR-ACE® *Upon fulfilment of the requirements*	6 months prolongation

Justification regarding requirements A1, A2, A4:

With regard to requirement A1 the Commission acknowledges that two new professors have been appointed for the two Bachelor programmes. Although it is impressive that two new professors could be hired in due time, the share of professors in teaching and research is critically low, in particular compared to European programmes. A still weak point is the fact that while the responsibilities of the professors have been described, no evidence is provided as to how and until when the corresponding goals are to be achieved. The Commission thus asks for more information regarding this issue.

As regards requirement A2 the Commission notes that the university reports on having employed new teachers and what they plan to do. However, the strategy to change the general set-up with respect to the academic qualifications of the faculty and their practical

engineering background with experience from real-world and up-to-date problems is not clearly formulated. Providing a recruiting concept does not only mean to employ new staff. It is necessary to develop a concept for the systematic and sustainable establishment of an academic quality personnel team, combining recruitment and dismissal, and gradually building a teaching team that meets the requirements. Colleges should develop policies to ensure the quality of teachers' team, for instance by means of workload subsidy for academic research, raised wages, encouragement and reward and so on. At present, more than 95% of the teachers in the two majors have master's degree or above, but their academic research and technical application record of the past years is scarce. It can be seen from students' graduation projects that most of them are not practical application projects. The establishment of a teachers' academic training plan might be an additional means to improve teachers' academic level, including domestic and foreign academic ex-changes, workshops and composition of joint research projects.

Regarding requirement A4 the rectification report falls short to attest the required diploma supplement. It would have been straightforward just to issue the Diploma Supplement and to attach it to the report. Instead, it is only described what such a supplement could do. According to the description in the report, the Diploma Supplement does little to inform potential stakeholders about the structure, learning objectives and contents of the study program, detailing instead information about the individual holder. Thus, the requirement A4 is still to be addressed according to the specifications described in the requirement.

Analysis of the peers and the Technical Committee/s (19.11.2020)

Requirements

For all degree programmes

A 1. (ASIIN 4.1) Provide evidence that at least one full professor with a PhD in the related fields is in charge for each programme in order to responsibly define and reliably achieve the learning outcomes in the focus of the correspondent programme.

Initial Treatment	
Peers	Fulfilled Justification: Two new professors have been appointed for the both BSc programmes. Although it is impressive that two new professors could be hired in due time, in comparison to European BSc programmes, the share of professors in teaching and research is critically low. A still weak point is the fact that while the

	responsibilities of the professors have been described, no evidence is provided how the corresponding goals are to be achieved and till when. The new professors should take on their responsibilities together with other professors and the dean of department. These obligations need to be completed by a team. Overall, however, it seems that the university has understood the need to strengthen the faculty in order to improve the programmes substantially.
TC 01	Fulfilled Justification: The technical committee follows the decision of the peers.
TC 02	Not completely fulfilled Justification: The justification of the peers does not explain why the requirement was considered to be fulfilled. Instead, it becomes clear from the justification that the university has not yet provided sufficient evidence to consider the requirement to be completely fulfilled.
TC 04	Not completely fulfilled Justification: The justification of the peers does not explain why the requirement was considered to be fulfilled. Instead, it becomes clear from the justification that the university has not yet provided sufficient evidence to consider the requirement to be completely fulfilled.
AC	Not completely fulfilled Justification: The justification of the peers does not explain why the requirement was considered to be fulfilled. Instead, it becomes clear from the justification that the university has not yet provided sufficient evidence to consider the requirement to be completely fulfilled.
Secondary Treatment	
Peers	fulfilled Vote: unanimous Justification: Two new professors have been hired representing the necessary basis for achieving the requirements. The both professors can be considered the first members of the academic staff. In addition, the second version of the improvement report plans to add five doctoral degree professors by the end of 2025. Every professor will lead a team of teachers to consider the construction of teaching materials, curriculum construction, research direction and laboratory construction. The learning outcomes in the focus of the correspondent programmes are associated, among other aspects, with the topics mentioned in tables 1-6 and 1-7, respectively. The topics are formulated in a rather general style, but seem to point towards the right direction.
TC 01	not completely fulfilled

	Vote: unanimous Justification: Two new professors are not enough for a program that aims at receiving a European Label that indicates that the standards at this university are similar to European universities.
TC 02	fulfilled Vote: unanimous Justification: The technical committee follows the decision of the peers.
TC 04	fulfilled Vote: unanimous Justification: The technical committee follows the decision of the peers.
AC	fulfilled Vote: unanimous Justification: The AC follows the decision of the peers and the majority of the technical committees.

A 2. (ASIIN 4.1) Provide a meaningful concept for recruiting more teaching staff with advanced academic qualifications (above Master degree) and research records.

Initial Treatment	
Peers	Not completely fulfilled Justification: While the university reports on having employed new teachers and what they plan to do, the strategy to change the general set-up with respect to the academic qualifications of the faculty and their practical engineering background with experience from real-world and up-to-date problems is not clearly formulated. Providing a recruiting concept does not only mean to employ new staff. It is necessary to develop a concept for the systematic and sustainable establishment of an academic quality personnel team, combining recruitment and dismissal, and gradually building a teaching team that meets the requirements. Colleges should make policies to ensure the quality of teachers' team, for instance by means of workload subsidy for academic research, raised wages, encouragement and reward and so on. At present, more than 95% of the teachers in the two majors have master's degree or above, but their academic research and technical application record of the past years is scarce. It can be seen from students' graduation projects that most of them are not practical application projects. The establishment of a teachers' academic training plan might be an additional means to improve teachers' academic level, including domestic and foreign academic exchanges, workshops and composition of joint research projects.

TC 01	Not fulfilled Justification: The technical committee follows the decision of the peers.
TC 02	Not (completely) fulfilled Justification: A fully developed concept has yet to be submitted.
TC 04	Not (completely) fulfilled Justification: The technical committee follows the decision of the peers.
AC	Not (completely) fulfilled Justification: The accreditation commission follows the decision of the peers.
Secondary Treatment	
Peers	Fulfilled/not completely fulfilled Vote: 2:1 Justification: According to the treatment document of the first improvement report, the university really understands that the construction of a teachers' team is a long-term and continuous improvement work, which requires a clear strategic goal, the implementation of specific methods and the process of guarantee measures. From the second version of the improvement report, it can be seen that they have drafted an executable teacher-building plan with clear objectives and corresponding policies, measures and resources, including human resources and funds. In consideration of the training needs of teachers' comprehensive ability, corresponding measures are now taken (e.g. training teachers in cooperation with foreign university; participating in and holding international conferences; employing enterprise engineers to participate in school teaching process; and increasing 15% income for these two majors teachers). According to one of the peers, what still needs to be added is a plan for dismissing teachers who fail to meet the necessary requirements. The construction of teachers' team must be a combining system of recruitment and dismissal. Since this part is missing, the requirement is only partially fulfilled.
TC 01	Fulfilled Vote: unanimous Justification: The university provided a concept for recruiting more teaching staff and proved that by recruiting two professors.
TC 02	Fulfilled Vote: per majority Justification: A concept for recruiting more qualified teaching staff has been provided. Concepts for the dismissal of inadequate teaching staff do not exist in Germany either.
TC 04	Fulfilled

	Vote: unanimous Justification: The concept has been provided and the requirement does not ask for a plan for dismissing teachers who do not meet the criteria. Moreover, recruiting concepts of German HEIs don't include such plans either.
AC	Fulfilled Vote: unanimous Justification: The AC follows the decision of the Technical Committees.

A 4. (ASIIN 5.2) Issue a Diploma Supplement and ensure that it contains detailed information about the educational objectives, intended learning outcomes, the structure and the academic level of the degree programme as well as about the individual performance of the student.

Initial Treatment	
Peers	Not fulfilled Justification: The report falls short to evidence the required diploma supplement. It would have been straightforward just to issue the Diploma Supplement and to attach it to the report. Instead, it is only described what such a supplement could do. According to the description in the report, the DS does little to inform potential stakeholders about the structure, learning objectives and contents of the study programme, detailing instead information about the individual holder. Thus, the requirement A.4 is still to be addressed according to the specifications described in the requirement. As an example, a template of a European Diploma Supplement might be attached to the letter to the College.
TC 01	Not fulfilled Justification: The technical committee follows the decision of the peers.
TC 02	Not fulfilled Justification: The technical committee follows the decision of the peers.
TC 04	Not fulfilled Justification: The technical committee follows the decision of the peers.
AC	Not (completely) fulfilled Justification: The accreditation commission follows the decision of the peers.
Secondary Treatment	
Peers	fulfilled/not completely fulfilled Vote: 1:2 Justification:

	According to the rectification report, the diploma supplement covers the following contents: official length of program; admission requirements; content and results obtained; qualification features; and how to get further information. However, while the university describes what kind of information the Diploma Supplement will contain, the university has not provided a (sample) diploma supplement. It is thus not possible to figure out what exactly will be part of the diploma supplement. Although the content seems to be ok, there is still far too much text for a comprehensive diploma supplement. Therefore, the requirement can only be considered partially fulfilled.
TC 01	Not fulfilled Vote: unanimous Justification: The technical committee follows the majority of the peers.
TC 02	Not (completely) fulfilled Vote: unanimous Justification: Since the university has not issued a diploma supplement, the requirement is not completely fulfilled.
TC 04	Not (completely) fulfilled Vote: per majority (7:1) Justification: A diploma supplement has not been issued.
AC	Fulfilled Vote: unanimous Justification: The university has handed in a sample diploma supplement for each study program

Decision of the Accreditation Commission (03.12.202)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Mechanical Design, Manufacture and Automation	All requirements fulfilled	EUR-ACE® *Upon fulfilment of the requirements*	30.09.2024
Ba Network Engineering	All requirements fulfilled	EUR-ACE® *Upon fulfilment of the requirements*	30.09.2024

Appendix: Programme Learning Outcomes and Curricula

According to SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Mechanical Design, Manufacture and Automation:

2.3 Professional Learning Outcomes (Knowledge, Ability and Literacy)

1. Humanities and Innovation

- Have good humanistic literacy and a healthy personality;
- Understand the basic knowledge of innovation and entrepreneurship, have entrepreneurial awareness, and have the ability to innovate.

2. Basic Scientific Literacy and Engineering Skills

- Familiar with the basics of mathematics and natural sciences and apply them to solve engineering problems;
- Understand and participate in the production and management processes of general manufacturing/IT companies to understand potential positions and technical requirements;
- Understand the main directions and prospects of modern technology development and application, such as the intelligentization of technological products and the effective use of resources / the effective use of wireless network resources.

3. English and International Communication Skills

- Be equipped with a certain English writing and expression ability, and the knowledge of cross-cultural communication
- Have a certain level of professional English knowledge, and be able to read and understand English references.

4. Information Technological Application Capability

- Understand the basics of information technology and have the ability of effectively getting and applying information;
- Know the general methods of literature, information and data retrieval;
- Master the basics of computer knowledge, high-level programming languages and software related to mechanical engineering/network information security
- Ability to combine computer and expertise, especially computer-aided design, analysis, manufacturing and measurement capabilities/network engineering basics, basic methods and application capabilities of related tools.

5. Engineering and Professional Practice

(1) Engineering and Professional Practice of Mechanical Design, Manufacturing and its Automation

- Understand the industrial production and development process of mechanical products;
- Certain innovative design capabilities to process and improve mechanical products;
- Ability to use tools according to professional standards and specifications;
- Ability to evaluate product and process quality.

6.Communication, Cooperation and Competitiveness

- Have a healthy mind and personality;
- Have a sense of social responsibility;
- Have team spirit;
- Have certain management capabilities;
- Ability to compete in a competitive environment and challenging work.

7.Professional Skills and Abilities

- Ability to work with professional knowledge;
- Ability to do further-education, further-studying and scientific research.

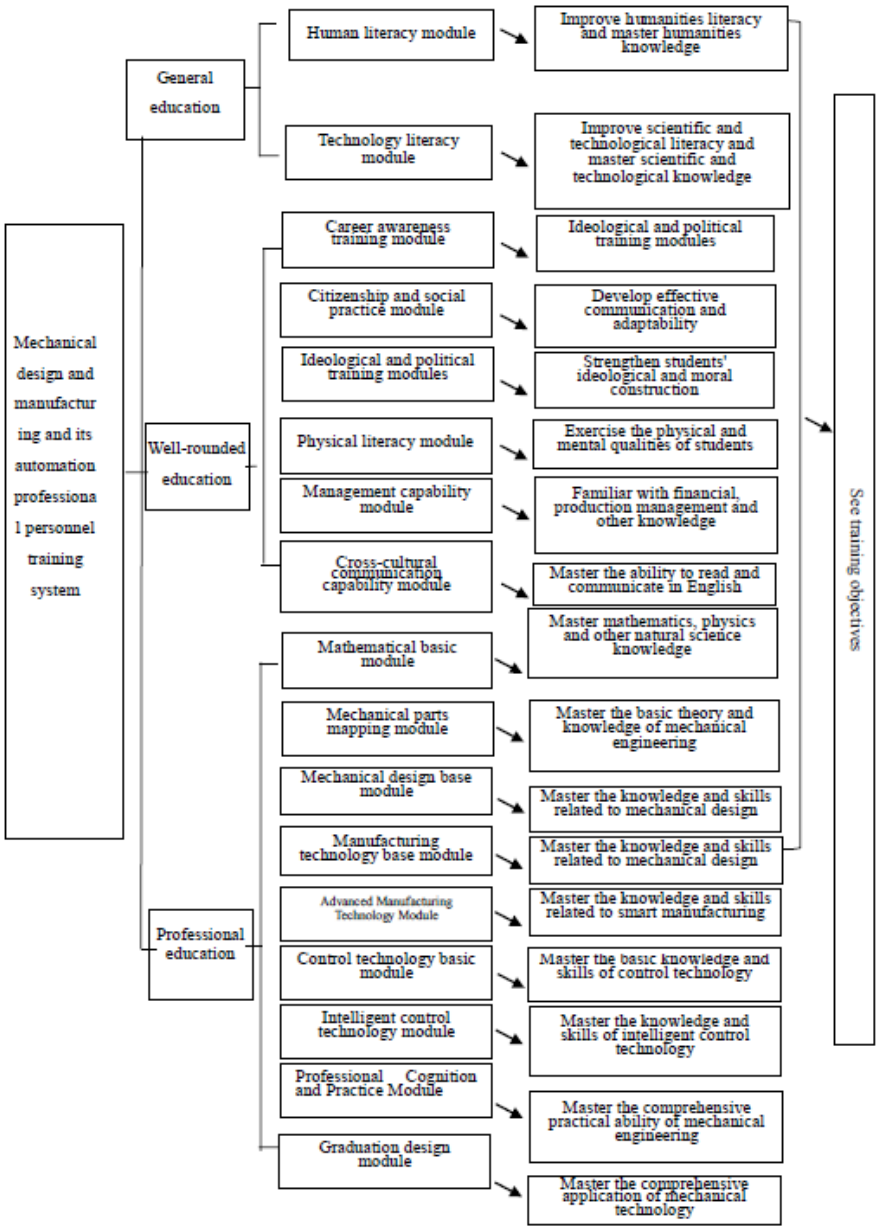

Figure 3-1 Mechanical design,manufacturing and its automation professional ability training system

The following **curriculum** is presented:

Mechanical Design & Manufacturing and Automation Program																			
Module Name	Course Name			S1		S2		S3		S4		S5		S6		S7		S8	
	Course Name	Type	Attri-bute	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours
Humanistic Accomplishment	Humanistic Spirit and Life Care	L	C			2	64												
	Communication Expression and Rational Evaluation	L	C					2	64										
	Artistic Creation and Aesthetic Experience (Including Artistic Accomplishment and Practice)	L&P	C							3	96								
	Moral Commitment and Value Moulding	L	C									2	64						
	Social Change and Civilization Dialogue	L	C											2	64				
	Celebrity Lecture	L	E													1	32		
Science and Technology Literacy	Ethics of Life Science	L	C			1	32												
	A Brief History of Time	L	C			1	32												
	Mobile Internet and Technology Progress	L	C			1	32												
	Information Technology and Society	L	C											1	30				
	Computer Application Foundation	L&P	C	6	96														
Vocational Consciousness Training	Career Development and Guidance	L	C															1	32
	Generate Your Bussiness	P	C													0.5	16		
	Start Your Bussiness	P	C													0.5	16		
	Innovation Achievement	P	C															1	32
	Key Career Ability	L	C											1	32				
Civic Consciousness and Social Practic	Campus Activities and Social Practice	P	C															1	1w
	Volunteer Service	P	C															1	1w

Mechanical Design & Manufacturing and Automation Program																						
Module Name	Course Name			Type	Attri-bute	S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name					CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
Ideological Politics and Moral Cultivation	Moral Education and Basics of Law			L&P	C	1.5	48															
	Outline of Modern Chinese History			L	C							1	32									
	Situation and Policy			L&P	C															1	32	
	Introduction to Fundamentals Principles of Marxism			L&P	C			1.5	48													
	Introduction to Maoism and Theoretical System of Socialism with Chinese Characteristics			L&P	C					3	96											
Body Accomplishment	Physical Education I			L	C	0.5	16															
	Physical Education II			L	C			0.5	16													
	Physical Education III			L	C					0.5	16											
	Physical Education IV			L	C							0.5	16									
	Competitive Sports			P	C															1	1w	
	Outward Training			P	C													1	1w			
	Military Theory and Training			L&P	C	1	1w															
Administrative Capacity	Human Resource Management			L	C					1	32											
	Financial Management			L	C							1	32									
	Marketing			L	C									1	32							
	Management Science	1	32	L	E											1	32					
	Organizational Behavior	1	32	L	E																	
	Enterprise Investment and Financing Management	1	32	L	E																	
	Contemporary Advertising	1	32	L	E																	
Intercultural	College English I			L&P	C	2.5	40															
	College English II			L&P	C			2.	40													

0 Appendix: Programme Learning Outcomes and Curricula

Mechanical Design & Manufacturing and Automation Program																				
Module Name	Course Name			S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	Attri-bute	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
Communication Ability (English)						5														
	College English III	L&P	C					2.5	40											
	College English IV	L&P	C							2.5	40									
	Professional English	L	E													4	64			
Mathematical Basis	Higher Mathematics(A) Part I	L	C	8	128															
	C Language Programming	L&P	C			6	96													
	Higher Mathematics (A) Part II	L	C			7	112													
	College Physics(B)	L	C			6	96													
	Linear Algebra	L	C					4	64											
	Physics Experiment(B)	P	C					2	32											
	Probability and Statistics	L	C							6	96									
	大学数学A进阶(选修)	L	E							4	64									
Mechanical Part Mapping	Mechanical Drawing and Computer Plot Part I	L	C	6	96															
	Mechanical Drawing and Computer Plot Part II	P	C			2	32													
	Elementary Technology of Exchangeability Measurement	L&P	C					4	64											
	Curriculum design of Mechanical Drawing and Computer Plot Par	P	C					4	2w											
Mechanical Design Foundation	Theoretical Mechanics	L	C					6	96											
	Mechanics of Materials	L&P	C							7	112									
	Mechanisms	L&P	C							7	112									
	Machine Design	L&P	C									7	112							
	Modern Design Method	L	E									4	64							
	Curriculum design of Machine Design	P	C									4	2w							
Manufacturin	Metal material and thermal processing	L&P	C									5	80							
	Fundamentals of Mechanical	L&P	C									6	96							

Mechanical Design & Manufacturing and Automation Program																				
Module Name	Course Name			S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	Attri-bute	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
Technology Foundation	Manufacturing Technology																			
	MachineryTechnology	L&P	E									4	64							
	Manufacturing Practice	P	C									2	2w							
Advanced Manufacturing Technology	Non-traditional Machining	L	E													4	64			
	NC Practic	P	C											2	2w					
	Numerical control technology	L&P	C											4	64					
	Manufacturing Technique	L&P	C													4	64			
	Finite Element Analysis	P	E													2	32			
Control Technology Foundation	Electrician and Electron Technology	L&P	C					4	64											
	Introduction to Mechanical and Electrical Integration	L	E							2	32									
	Hydraulic and Pneumatic Transmission	L&P	C											4	64					
	Basic Mechanic Engineering Control	P	E											2	32					
	Intelligent Control of Mono-Chip Computers	L&P	E											4	64					
	Principle and application of programmable controlle	P	E											2	32					
	Integrated Design Industrial Automation	p	E											2	32					
	Measurement of Mechanical Engineering	L&P	C											4	64					
	Technology of Robot	L&P	E													4	64			
Intelligent Control	MATLAB in Intelligent Control Applications	L&P	E											4	64					
	Intelligent Control of Embedded System	P	E													4	64			
	Artificial Intelligence	L	C											4	64					

Mechanical Design & Manufacturing and Automation Program																				
Module Name	Course Name			S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	Attri-bute	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
Technology	Technology																			
	Technology of the Internet of Things	L	C													4	64			
	Cloud Computing and big data Technology	P	E													4	64			
Professional Cognition and Practice	Freshman Seminars	L	E	1	32															
	Practice of Mechanical engineering and automation	P	C									2	2w							
	Graduation Practice	P	C															8	8w	
Graduation Project	Graduation Thesis (Project)	P	C															12	12w	SUM
CP/Semester				26.5		30.5		33		30		33		33		29		26		241
Remarks: the total 5,6,7 term of professional elective courses is four selected three.																				

According to SAR, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Network Engineering:

2.3 Professional Learning Outcomes (Knowledge, Ability and Literacy)

1. Humanities and Innovation

- Have good humanistic literacy and a healthy personality;
- Understand the basic knowledge of innovation and entrepreneurship, have entrepreneurial awareness, and have the ability to innovate.

2. Basic Scientific Literacy and Engineering Skills

- Familiar with the basics of mathematics and natural sciences and apply them to solve engineering problems;
- Understand and participate in the production and management processes of general manufacturing/IT companies to understand potential positions and technical requirements;
- Understand the main directions and prospects of modern technology development and application, such as the intelligentization of technological products and the effective use of resources / the effective use of wireless network resources.

3. English and International Communication Skills

- Be equipped with a certain English writing and expression ability, and the knowledge of cross-cultural communication
- Have a certain level of professional English knowledge, and be able to read and understand English references.

4. Information Technological Application Capability

5. Engineering and Professional Practice

- Understand the design and development process of network engineering projects;
- Ability to design and build networks based on user needs;
- Ability to manage network systems using web tools based on professional standards;
- Ability to perform system security maintenance according to professional standards;
- Ability to assess the security of network systems.

6.Communication, Cooperation and Competitiveness

- Have a healthy mind and personality;
- Have a sense of social responsibility;
- Have team spirit;
- Have certain management capabilities;
- Ability to compete in a competitive environment and challenging work.

7.Professional Skills and Abilities

- Ability to work with professional knowledge;
- Ability to do further-education, further-studying and scientific research.

6.Communication, Cooperation and Competitiveness

- Have a healthy mind and personality;
- Have a sense of social responsibility;
- Have team spirit;
- Have certain management capabilities;
- Ability to compete in a competitive environment and challenging work.

7.Professional Skills and Abilities

- Ability to work with professional knowledge;
- Ability to do further-education, further-studying and scientific research.

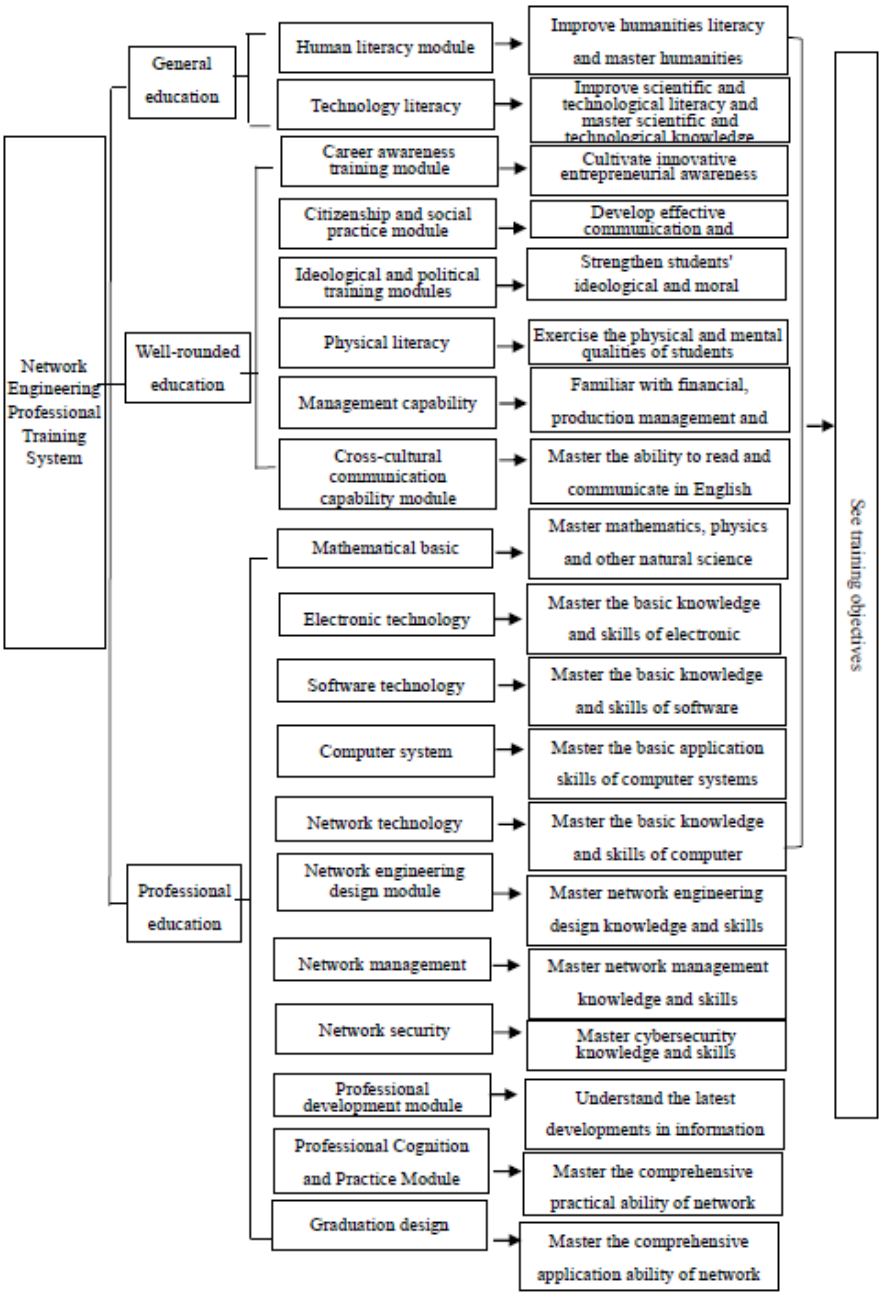

Figure 3-2 Network Engineering Professional Competency

The following **curriculum** is presented:

Network Engineering Program																			
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
Humanistic literacy	Humanistic spirit and life care	L			2	60													
	Communication Expression and Rational Evaluation	L					2	60											
	Art Creation and Aesthetic Experience (including artistic accomplishment and practice)	L&P							3	90									
	Moral Commitment and Value Shaping	L									2	60							
	Social Change and Civilization Dialogue	L											2	60					
	Celebrity Lecture	L													1	30			
Technological literacy	Ethics of Life Science	L			1	30													
	A Brief History of Time	L			1	30													
	Mobile Internet and Technology Progress	L			1	30													
	Information Technology and Society	L											1	30					
Career	Key Career Ability	L											1	30					

Network Engineering Program																			
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
Awareness Training	Generate Your Bussiness	L													0.5	15			
	Start Your Bussiness	L													0.5	15			
	Innovation Achievement	L															1	30	
	Career Development and Guidance	L															1	30	
Civic Awareness and Social Practice	Campus Activities and Social Practice	P															1	30	
	Volunteer Service	P															1	30	
Ideological and moral Cultivation	Moral Education and Basics of Law	L	1.5	45															
	Introduction to Fundamentals Principles of Marxism	L			1.5	45													
	Introduction to Maoism and Theoretical System of Socialism with Chinese Characteristics	L					3	90											
	Outline of Modern Chinese History	L							1	30									
	Situation and Policy	L															1	30	

Network Engineering Program																		
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
Health Iteracy	Physical Education I	L&P	0.5	15															
	Military Theory and Training	L&P	1	30															
	Physical Education II	L&P			0.5	15													
	Physical Education III	L&P					0.5	15											
	Physical Education IV	L&P							0.5	15									
	Outward Training	P													1	30			
	Competitive Sports	P															1	30	
Management Ability	Human Resource Management	L					1	30											
	Financial Management	L							1	30									
	Marketing	L									1	30							
	Management Science	L																	
	Organizational Behavior	L																	
	Enterprise Investment and Financing Management	L											1	30					
	Contemporary Advertising	L																	
Cross-cultural Communicati	College English I	L&P	2.5	75															
	College English II	L&P			2.5	75													
	College English III	L&P					2.5	75											

Network Engineering Program																			
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
on Ability	College English IV	L&P							2.5	75									
	Professional English	L&P													4	120			
Mathematical Foundation	Calculus (A) Part I	L	5	150															
	Calculus (A) Part II	L			6	180													
	Linear Algebra	L			4	120													
	Discrete Mathematics	L			4	120													
	College Physics(B)	L			6	180													
	Probability and Statistics	L					6	180											
	Physics Experiment(B)	P					2	60											
Electronic Technology	Electronic Technology Foundation	L&P	5	150															
	Data Communication Principles	L&P									5	150							
Software Technology	Programming Foundation	L&P	6	180															
	Object Oriented Programming	L&P					6	180											
	Data Structure and Algorithm	L&P					6	180											
	Course Design of Object Oriented Programming	P					4	120											

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Network Engineering Program																		
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8	
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours
	Application Technology Of The Database	L&P							6	180								
	Software Engineering(Elective)	L&P									4	120						
Computer Systems	Fundamentals of Computer Application	L&P	4	120														
	Principles of Computer Organization	L&P									5	150						
	Operating System	L&P											5	150				
	Curriculum Design of Operating System	P											2	60				
Network Technology	Computer Network	L&P							5	150								
	Routing and Switching Technology	L&P							5	150								
	Course Design of Routing and Switching Technology	P							4	120								
	Mobile Communications and Wireless Networks	L&P											5	150				
	The Comprehensive Curriculum Design of Wireless Networks	P											4	120				

Network Engineering Program																		
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8	
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours
Network Engineering	Network Engineering(Elective)	L									4	120						
	Network Engineering Design	P									4	120						
	Network system integrated(Elective)	L									4	120						
	Network system integrated curriculum design	P									4	120						
Network Management	Network Management	L													4	120		
	Network Management Integrated Curriculum Design	P													4	120		
Network Security	Application of Network Information Security(Elective)	L&P											4	120				
	Firewall Technology and Application(Elective)	L&P											4	120				
	Design of network security course	P											4	120				
	Applied Cryptography(Elective)	L&P													4	120		

Network Engineering Program																			
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
	Analysis and Design of Internet Protocol(Elective)	L&P													4	120			
Professional Development	Website Design	P							2	60									
	Multimedia Technology and Application	P									2	60							
	Artificial Intelligence Technology(Elective)	L											4	120					
	Big Data Technology and Application	L													2	60			
	Cloud Computing Technology and Application	L													2	60			
	Networking Application Development	P													2	60			
Professional Knowledge	Cognitive Practice	P	2	60															
	Freshman Seminars	L	1	30															
and Practice	Producing Experience	P													2	60			
	Metalworking Practice	P													2	60			
	Graduation Practice	P															8	240	
Graduation Project	Graduation Thesis (Project)	P															12	360	SUM

Network Engineering Program																			
Module Name	Course		S1		S2		S3		S4		S5		S6		S7		S8		
	Course Name	Type	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	CP	Hours	
CP/Semester			28.5		29.5		33		30		31		33		29		26		240
Comments: Professional elective courses need to choose enough 2/3 at S5、S6andS7																			