



# **ASIIN Seal & EUR-ACE<sup>®</sup>-Label**

## **Accreditation Report**

**Bachelor's Degree Programmes**  
***Mechanical Design manufacture and Automation,***  
***Mechatronic Engineering***

Provided by  
**Shanghai University of Electric Power**

Version: 23 June 2023

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## A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for <sup>1</sup>	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) <sup>2</sup>
机械电子工程	Bachelor Mechatronic Engineering	ASIIN, EUR-ACE® Label	--	TC 01
机械设计制造及其自动化	Bachelor Mechanical Design manufacture and Automation	ASIIN, EUR-ACE® Label	--	TC 01
<b>Date of the contract:</b> 28-09-2021 <b>Submission of the final version of the self-assessment report:</b> 28.04.2022 <b>Date of the onsite visit:</b> 20.04.2023 <b>At:</b> online				
<b>Peer panel:</b> Prof. Dr. Hanfried Hesselbarth, Zurich University of Applied Sciences Dr. Dirk Joswig, Coveris Prof. Dr. Jens Schuster, University of Applied Sciences Kaiserslautern The student peer had to cancel his participation due to illness.				
<b>Representative of the ASIIN headquarter:</b> Dr. Michael Meyer				

<sup>1</sup> ASIIN Seal for degree programmes; EUR-ACE® Label: European Label for Engineering Programmes

<sup>2</sup> TC: Technical Committee for the following subject areas: TC 01 - Mechanical Engineering/Process Engineering; TC 02 - Electrical Engineering/Information Technology; TC 03 - Civil Engineering, Geodesy and Architecture; TC 04 - Informatics/Computer Science; TC 05 - Materials Science, Physical Technologies; TC 06 - Engineering and Management, Economics; TC 07 - Business Informatics/Information Systems; TC 08 - Agriculture, Forestry, Food Sciences, and Landscape Architecture; TC 09 - Chemistry; TC 10 - Life Sciences; TC 11 - Geosciences; TC 12 - Mathematics; TC 13 – Physics; TC 14 - Medicine.

<b>Responsible decision-making committee:</b> Accreditation Commission for Degree Programmes	
<b>Criteria used:</b>  European Standards and Guidelines as of May 15, 2015  ASIIN General Criteria, as of December 10, 2015  Subject-Specific Criteria of Technical Committee 01 – Mechanical Engineering/Process Engineering as of March 21, 2021.	

## B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF <sup>3</sup>	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
机械设计制造及其自动化	B.Eng. Mechanical Design, Manufacture and Automation		Level 6	Full time		8 Semester	240 ECTS	Fall Semester, 1 September 2004
机械电子工程	B.Eng. Mechatronic Engineering		Level 6	Full time		8 Semester	240 ECTS	Fall Semester, 1 September 2004

Shanghai University of Electric Power was founded in 1951. The university is one of three universities in China specialised in Electric Power and the only one in East China. Currently some 12000 students are enrolled at the university. The 13 colleges of the university offer in 38 bachelor and 32 master programmes. The study programmes under review are offered by the college of Energy and Mechanical Engineering with some 1300 students.

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

The programme Mechanical Design, Manufacture and Automation aims to develop high-level applied technology talents with strong social sense of responsibility and good social adaptability, robust personality, good health status, solid basic theories and professional knowledge, strong engineering practice capabilities and innovation awareness, and good teamwork spirit and communication ability, good learning ability and broad international vision, able to take the jobs of equipment research and development, design, manufacture, operation, maintenance and management in mechanical industry, energy and electric power equipment manufacture and operation enterprises, meeting the requirements for international recognized engineer qualification and engineer professional qualification, and to lay a solid foundation for international mutually recognized engineer qualifications.

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<sup>3</sup> EQF = The European Qualifications Framework for lifelong learning

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

The programme Mechatronic Engineering aims to develop senior applied talents with strong sense of responsibility, good social adaptability, sound personality, good health status, engineering practice capabilities, and having solid basic theories and professional knowledge, strong engineering practice capabilities and innovation awareness, good teamwork spirit, communication ability, strong learning ability and broad international vision, able to engage in the research and development, design and manufacture, control automation, operation, maintenance and management of equipment in mechatronic industry and power equipment manufacture and operation enterprises, meeting the requirements for international recognized engineer qualification and engineer professional qualification, and to lay a solid foundation for international mutually recognized engineer qualifications.

As overall learning outcomes for both programmes SUEP defines the following:

### Knowledge

#### General knowledge:

- Master the basic knowledge of mathematics, physics, chemistry, etc.
- Master the basic knowledge of English, etc.
- Possess humanistic and social knowledge, and the cognition on international and national situation
- Possess the general knowledge of physical education, military

#### Engineering knowledge:

- Master the basic knowledge of computer programming
- Master the basic knowledge of engineering project management
- Master the basic knowledge of mechanics& materials
- Master the basic knowledge of mechanics
- Master the basic knowledge of electrical and automation

#### Professional knowledge:

- Master the knowledge of design, manufacture, control and automation, etc. of the equipment or main components of mechanical and electric power industries
- Master the safety knowledge of mechanical and electric power industries

- Understand the frontier development and hot issues of mechanical industry

### Engineering Abilities

#### Analytical ability:

- Possess the ability to effectively obtain and use information utilizing computer software and Internet
- Possess the basic ability to process and analyze experimental and practical data
- Able to effectively obtain and analyze various data in the process of mechanical production, and possess the ability to perform initial analysis and diagnosis
- Possess the ability to understand contemporary social and technological hotspot issues from the perspective of mechanical enterprises

#### Design ability:

- Possess the ability to design and implement basic experiments and professional experiments of mechanics
- Possess the ability to perform computer-aided design, engineering analysis and manufacture of the main equipment, systems and components of mechanical industry

#### Operation ability:

- Possess basic engineering operation skills and professional experimental skills
- Able to perform basic operations of mechanical equipment or systems
- Possess the ability to assemble, disassemble, inspect and repair mechanical equipment

### Personal Abilities

#### Teamwork and management ability

- Have healthy mentality and personality
- Have good sense of law and social responsibility
- Have good communication skills, coordination skills, and teamwork spirit.

#### International communication ability

- Have adequate English professional knowledge and good foreign language ability
- Competent in professional international exchanges

## **B Characteristics of the Degree Programmes**

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- Have adequate cross-cultural knowledge, able to work in and cooperate with foreign or multinational companies

### Career development ability

- Have the ability of scientific research, relearning and further study
- Have good understanding on the professional responsibilities and professional ethics of mechanical industry and electric power industry



## C Peer Report for the ASIIN Seal<sup>4</sup>

### 1. The Degree Programme: Concept, content & implementation

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

#### **Evidence:**

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Webpage of all study programmes
- Discussions during the audit

#### **Preliminary assessment and analysis of the peers:**

The auditors base their assessment of the learning outcomes as provided on the websites and in the Self-Assessment Reports of the three Bachelor's degree programmes under review. They refer to the Subject-Specific Criteria (SSC) of the respective Technical Committee for Mechanical Engineering.

The peers come to the following conclusions:

Graduates of both programmes should gain extensive technical knowledge as to engineering, mathematics and natural science with a view to mechanical engineering and an understanding of the multi-disciplinary context of Engineering Sciences. In the formulated objectives of the university, the peers recognise that graduates should be qualified to identify, formulate and solve problems peculiar to mechanical mechatronic engineering, to analyse and assess products, processes and methods used in their discipline and to choose suitable methods of analysing, modelling, simulating and optimising and apply them. Additionally,

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<sup>4</sup> This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

the peers recognise that graduates should have the ability to conceive designs for machinery, devices, EDP programmes or processes and to develop them according corresponding to the status of their knowledge. Regarding transferable skills graduates should be able to work in teams, to communicate effectively and to be aware of the health, safety, legal issues and responsibilities of engineering practice and of the impact of engineering solutions in a social and environmental context.

The auditors hold the view that the objectives and intended learning outcomes of both degree programmes under review are reasonable and well founded. They learn that various stakeholders (alumni, industrial and governmental representatives) are involved in the constant review and development of the curricula. For example, industrial representatives are regularly invited to give suggestions on the skills and expertise graduates must possess.

In summary, the auditors are convinced that the intended qualification profiles of both programmes under review allow students to take up an occupation, which corresponds to their qualification. This impression is confirmed by the alumni surveys. 80% of the alumni got jobs directly after graduation in the fields of their studies and over 90% of the alumni are satisfied with their education regarding the requirements in their jobs.

The experts conclude that the objectives and intended learning outcomes of the degree programmes adequately reflect the intended level of academic qualification and correspond sufficiently with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 01 – Mechanical Engineering

<b>Criterion 1.2 Name of the degree programme</b>
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**Evidence:**

- Self-Assessment Report
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

The auditors confirm that the English translation and the original Chinese names of the degree programmes under review correspond with the intended aims and learning outcomes as well as the main course language (Chinese). Nevertheless they find alternative titles in some documents which seems to be even more accurate (“Modern design method, advanced manufacturing method, safety of power machinery” instead of MDA and “robotics, advanced transmission technology” instead of ME). But as the current titles are well established and accepted in the labour market the peers do not see any reasons to change the names of the programmes.

<b>Criterion 1.3 Curriculum</b>
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**Evidence:**

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Webpages of all study programmes
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

The curriculum of both programmes includes 54,5 ECTS-Points of so called general required courses including moral education and introduction in law, Chinese modern history, introduction into Mao Zedong's theories, Marxism, modern Politics, Sport (including military trainings), entrepreneurship, language courses (English) and an introduction into energy power. Additionally, public base courses (32 ECTS-Points) are common in both programmes and includes advanced mathematics, linear algebra, probability and statistics, physics, chemistry, computational methods and electrotechnics and electronics technologies. Furthermore, students of both programmes get experiences in engineering practice in drawing, machine theory, machine design, mechanical design and entrepreneurship. Additionally, these courses include practical training in mechanical manufacturing, manufacturing technology and a short internship with 7.5 ECTS-Points.

Building up on these common courses the bachelor's degree programme in Mechanical Design, Manufacture and Automation includes so called professional basic courses as description geometric & mechanical drawing 1 and 2, theoretical mechanics, strength of materials, engineering materials and microcomputer theory & interface technics. In these courses with in total 17 ECTS-Points programme specific fundamentals are taught. The application of the fundamental knowledge take place in the subject core courses with 40 ECTS (mechanism and machine theory, mechanical design, hydrodynamics and thermal foundation, mechanical manufacturing technics, hydraulic transmission, numerical control technology and introduction of electromechanical integration). Furthermore, the students choose subject specific elective course (28 ECTS) out of a defined catalogue. Depending on the selected courses students can specialise in modern design methods, advanced manufacturing methods or in power machinery safety. A graduation practice with 10 ECTS-Points is placed before the thesis with 25 ECTS-Points.

In the bachelor's degree programme of mechatronic engineering the professional basic courses include mechanical drawing 1 and 2 and like in the other bachelor programme theoretical mechanics, strength of materials, engineering materials and microcomputer theory

& interface technics. The subject core courses (38 ECTS) include mechanism and machine theory, mechanical design, Single Chip Microcomputer System Design, automatic control principles, mechanical engineering testing technology, fundamentals of mechanical manufacturing and mechatronics systems design. In the subject elective courses (30 ECTS) the students can specialise in robotics or advanced transmission technology. A graduation practice with 10 ECTS-Points is placed before the thesis with 25 ECTS-Points.

From the point of view of the peers both programmes are structured very well and the curricula implement all the defined study aims and learning outcomes. Out of the discussion with representatives of the industry the peers get the impression that graduates of the programmes are very well prepared for the national labour market regarding their field specific competences. Therefore, the peers comprehend that the university does not plan to change core contents of the study programmes but only makes adjustments to current developments at the course level. This overall positive impression is confirmed by experiences of those students doing their master degree abroad at German Technical Universities who were enrolled without any restrictions or the requirement to take additional courses.

Regarding to further optimising the programmes the auditors learn that employers would appreciate increased team working abilities of the graduates. As group work is implemented only in a few courses of the programmes the peers recommend to further improve the teamwork skills of the students.

Although there are several modules about English language implemented in the curricula, after the discussion with the students the peers get the impression that their English skills could be increased, for example by teaching technical courses in English as well.

In computer labs students get familiar with the application of specific modern software which is updated regularly. But out of the course descriptions the auditors do not see that students also get extensive experience in programming. Therefore, they understand the wish of the students to increase training in this field. As programming abilities would be of use also for those students doing their master studies abroad the auditors recommend to offer students more opportunities to increase their programming skills.

Another field for optimising the programmes seems to be the practical experiences of students. Comparing to European study programmes there are only few experiments done by the students in laboratories implemented in the programmes. In view of this, the auditors understand the students' desire for more laboratory activities and recommend expanding corresponding offers.

With these remarks about detailed field for optimising the programmes the peers come to the conclusion that the curricula of both programmes implement the intended learning

outcomes in a very good manner. From their point of view the curricula are linked to the actual field specific research discussions and students are well prepared for the mentioned activities in the labour market.

#### **Criterion 1.4 Admission requirements**

##### **Evidence:**

- Self-Assessment Report
- Admission Results over years
- Discussions during the audit

##### **Preliminary assessment and analysis of the peers:**

The peers understand that the admission to undergraduate degree programmes in China is centrally regulated by the government. All applicants must take part in the National College Entrance Examination (Gaokao) or the College Entrance Examination organized in their province or city. The applicants must meet the following conditions: Comply with the constitution and laws, have the diploma of senior high school or polytechnic school or equivalent education level, meet relevant physical requirements.

Based on the results of the entrance examination, students may choose subjects at universities distinguished in three levels (Level 1 are some 70 universities directly under the Ministry of Education. Level 2 are around 100 provincial- and ministerial-level jointly built universities and provincial key universities. Level 3 in which SUEP is classified are all other regular universities. Students apply with their examination results to those universities open to them and afterwards follow the university admission procedure.

The enrolment at SUEP follows the principle “score has highest priority”, which means that the students will be distributed to the study programmes based on their desire and their entrance examination score. Those achieving higher score have higher priority to be distributed to the programme they applied for.

The auditors learn that "physical requirements" are intended to exclude contagious diseases and that there are no restrictions for handicapped applicants.

50-70 Students will be enrolled in each programme per year. Up to now the university do not undertake any marketing activities as the demand for the programmes is high and probably will even increase due to the demand of the labour market.

In summary, they find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

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

As the university refrains from commenting the report the auditors confirm their preliminary assessment.

## **2. The degree programme: Structures, methods and implementation**

### **Criterion 2.1 Structure and modules**

**Evidence:**

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Discussions with programme coordinators, teaching staff and students

**Preliminary assessment and analysis of the peers:**

The structure of the programmes under review is clearly outlined on the subject specific website for each study programme. The programmes consist of courses/modules, which comprise a sum of teaching and learning. Based on the analysis of the sequence of modules and the respective module descriptions the peers concluded that the structure of both programmes ensures that the learning outcomes can be reached.

The programmes also offer elective courses, which allows students to define an individual focus. The number of elective courses allows students sufficient choices but to underline the interdisciplinary character of the programmes the auditors understand the wish of the students to be allowed to select courses from other colleges as well. As, according to the programme coordinators, the faculty already decided to integrate courses from other colleges, the students should be informed about these opportunities. As on the other side the elective courses of the programmes under review are open to students from other colleges as well, the doubts of the peers are dispelled, whether all elective courses can be conducted regularly with the minimum number of nine students due to the relatively low number of total students in the programmes.

Based on the analysis of the curriculum and the module descriptions the peers confirmed that the objectives of the modules and their respective content help to reach both the qualification level and the overall intended learning outcomes.

Regarding student mobility, international exchange is supported both by the university and the faculty. The office for international affairs of the university concludes cooperation agreements with universities abroad at the university level and offers exchange programs for university students as part of the cooperation. Usually there is an agreement between the partner universities on the recognition of courses and accumulated credit points. For students who attend exchange programs for one semester at a partner university, the SUEP offers online courses so that the compulsory courses can still be taken by the students during their exchange program and the students can complete their studies on time.

With some partner universities the concluded recognition agreements. If students go to other universities, the recognition is done individually.

The peers find a high demand of students to study abroad but only a relatively low number seems to be able to do so. Out of the discussion with the students they learn that the students felt not well informed about the opportunities to study abroad. Additionally, the number of students at partner universities is limited and it seems to be difficult for them to organize visits at universities without exchange programmes. Therefore, the auditors recommend to further extend the student exchange programmes and to inform students more intensively about foreign exchange programmes.

## **Criterion 2.2 Work load and credits**

### **Evidence:**

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

### **Preliminary assessment and analysis of the peers:**

The Chinese national credit point system is based only on contact hours and do not count self-studies of the students. At SUEP students get one Chinese credit point (CP) for 16 class hours in a theoretical course (except the general education courses) or for 20 class hours in a practice course. To transfer Chinese CP into ECTS-Points the university calculates a ratio of 1.5 for theoretical courses and for practice courses a ratio of 2. For the transfer the university calculates 30 hours of student workload per ECTS-Point. In average the university award 30 ECTS-Points per semester with a range between 27 and 33 ECTS-Points.

During the online visit the peers discuss with programme coordinators and students about the current workload in both programmes. Out of these discussions no systematic problems were identified. This confirms the impression of the peers that the workload defined

for the single modules seems to be realistic comparing it with the objectives and the content of the courses.

Nevertheless, the auditors recommend to evaluate the workload within the student evaluation of the courses what is not done yet.

### **Criterion 2.3 Teaching methodology**

#### **Evidence:**

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Discussions during the audit

#### **Preliminary assessment and analysis of the peers:**

Various teaching and learning methods (including lectures, computer training and classroom and lab exercises, individual and group assignments, seminars and projects, etc.) have been implemented. Structured activities include tutorials, homework, assignments (reading or problem exercises) and practical activities. The most common method of learning is class session, with several courses having integrated laboratory practices.

The auditors appreciate that the university defines different class sizes with up to 100 students in the general fundamental courses and only 60 students in the specific fundamental courses.

In summary, the peer group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes. In addition, they confirm that the study concept of all three undergraduate programmes comprises a variety of teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format.

### **Criterion 2.4 Support and assistance**

#### **Evidence:**

- Self-Assessment Report
- Discussions during the audit (online)

#### **Preliminary assessment and analysis of the peers:**

The peers get a comprehensive impression of the offers related to support and assistance of the students. The students confirm that an open-door policy is practised and that the



students can always approach all teaching and administrative staff. They have several contact persons and resources they can rely on.

According to the university, the Student Office is responsible for “guiding and supporting the ideological and political education and management of the entire school's students, including: formulating and improving various rules and regulations related to student work; comprehensively promoting quality education, improving the overall quality of students, maintaining normal teaching order, and creating good teaching atmosphere; responsible for daily affairs management such as undergraduate student status management, file management, and violation handling; instructing, coordinating and evaluating the student management work of each school; organizing and implementing awards, help, loans, part-time job, subsidies, reductions and other student support work; responsible for students’ career development education and employment guidance process management services; responsible for student dormitory management and student publicity, education, counselling, etc.; organize and carry out student work-related education training and theoretical research.”

Further support can be received through the student counsellor system. Each grade has two fulltime counsellor which help in almost all areas of life (personal, academic, professional). In addition, the head teacher of each class is providing knowledge and assistance for the students. The head teacher helps the students in academic affairs all the way to graduation. Students’ innovative and practical skills are supported by academic and corporate tutors who encourage students to pursue their interests and guide them through academic studies and their internships. Apart from the personal supervision and academic support, the university offers a broad variety of support measures, be it in the form of sports clubs, science clubs, or research teams.

To equalise different pre-qualifications out of the school graduations introduction courses are offered especially for those students with lower grades in the entrance examination. Supervisors additionally look at the examination performance of the students and organise support, if needed.

In the opinion of the peers, there is an open and active student environment, especially since students are usually accommodated on the campus and have easy access to learning, research, and recreational facilities. In summary, the peers agree that the support and assistance measures contribute to the successful completion of the study program under review. They praise the various support measures that students receive during their four years in this study programmes.

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

As the university refrains from commenting the report the auditors confirm their preliminary assessment.

### **3. Exams: System, concept and organisation**

<b>Criterion 3 Exams: System, concept and organisation</b>
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**Evidence:**

- Self-Assessment Report
- Module Descriptions
- Discussions during the audit (online)

**Preliminary assessment and analysis of the peers:**

The peers positively note that all examinations of the degree programmes under review follow the SUEP Regulations and that according to the students all the exams are conducted with principle of fairness, relevance and accountability. There are different types of examination methods in use including written examination, quizzes, laboratory work, assignment (reading, small projects, simulation, report, etc.), presentation, seminar and discussion. The type of assessment or the combination of several methods are used or designed based on the nature and characteristics of each course to evaluate the knowledge, skills and competences of the students properly and are visible in the module descriptions. Each course has a mid-term and final exams.

Students are informed about the time of examination by lecturer in class. Additionally, the complete examination schedule can be seen online in the intranet of the university. According to the statements of the students they feel well informed about the type and duration of the exams.

To repeat failed exams students have to visit the courses again. Students have a certain number of retakes for the complete programme. Therefore, they can repeat a failed course several times but then have less retakes for other courses.

Compensation regulations for handicapped students are defined in general with the opportunity to decide case by case which support would be most helpful for the individual student.

The peers also inspect a sample of examination papers and final theses and are overall satisfied with the general quality of the samples. The requirements in the exams, projects and theses correspond for the auditors with the qualification level of the two programmes.

In summary, the peers conclude that the criteria regarding the examination system, concept and organization are fulfilled, and the examinations are suitable to verify whether the intended learning outcomes are achieved.

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

As the university refrains from commenting the report the auditors confirm their preliminary assessment.

## 4. Resources

### Criterion 4.1 Staff

**Evidence:**

- Self Assessment Report
- Staff handbook
- Discussions with programme coordinators and teaching staff

**Preliminary assessment and analysis of the peers:**

At SUEP, the staff members have different academic positions. There are professors, associate professors and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. Lecturers must have a PhD and undergo three months of teaching training. After five years of teaching experience they can apply as associated professor. A panel assess the performance of the applicants based on defined criteria. The procedure to become full professor is similar.

In addition, the university distinguishes between teaching professors and research professors. While the former teach especially in the basics, the latter concentrate on research activities.

The auditors confirm that the teaching staff covers all core content of mechanical and mechatronic engineering adequately. They are impressed by the extended research activities of the teaching staff. They highlight especially the intensive cooperation with industry and the number of common research projects concentrated on national/regional issues.

The auditors got the impression that the teaching staff and the faculty in total is very well involved in national research activities and academic networks.

#### **Criterion 4.2 Staff development**

**Evidence:**

- Self-Assessment Report
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

SUEP offers centrally various courses and workshops for academic staff to enhance the competence and to support their career development.

The peers discuss with the members of the teaching staff the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification programme, their opportunities to further improve their didactic abilities.

In summary, the auditors confirm that the university offers sufficient support mechanisms and opportunities for members of the teaching staff who wish to further develop their professional and teaching skills.

#### **Criterion 4.3 Funds and equipment**

**Evidence:**

- Self Assessment Report
- online visit of the laboratories, lecture rooms, and the library
- Discussions with representatives of SUEP management, programme coordinators, lecturers, business representatives, students

**Preliminary assessment and analysis of the peers:**

The auditors were explained that financial sources for SUEP originated from government funding and tuition fees. The peers were convinced that the financial means were sufficient and secured for the timeframe of the accreditation.

From the point of view of the auditors the equipment of the labs ensures to conduct the education in the programmes in the defined way. Out of the discussion with students they learn that students can use laboratory equipment for their projects and for theses but they complain about the limited accessibility of the laboratories. Due to safety reasons staff members have to be present while students are in the laboratories. That is why the laboratories are accessible for students only during working hours of the staff. The panel appreciates the safety regulations. On the other hand it would be helpful for students if the university would find a way to extend the accessibility of the labs.

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

As the university refrains from commenting the report the auditors confirm their preliminary assessment.

## 5. Transparency and documentation

### Criterion 5.1 Module descriptions

**Evidence:**

- Self-Assessment Report
- Module descriptions

**Preliminary assessment and analysis of the peers:**

The students, as all other stakeholders, have access to the module descriptions via universities homepage.

After studying the module descriptions, the peers confirm that they include all necessary information about the persons responsible for each module, the teaching methods and work load, the awarded credit points, the intended learning outcomes, the content, the applicability, the admission and examination requirements, and the forms of assessment and details explaining how the final grade is calculated.

### Criterion 5.2 Diploma and Diploma Supplement

**Evidence:**

- Self-Assessment Reports
- Sample Diploma for each degree programme
- Sample Diploma Supplement for each degree programme

**Preliminary assessment and analysis of the peers:**

The peers confirm that the students of all degree programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The diploma supplement contains detailed information about the educational objectives, intended learning outcomes as well as about the educational system of Indonesia and statistical data according to the ECTS-Users' guide in addition to the final grade.

### Criterion 5.3 Relevant rules

**Evidence:**

- Self-Assessment Reports
- All relevant regulations as published on the university's webpage

**Preliminary assessment and analysis of the peers:**

The auditors confirm that the rights and duties of both SUEP and the students are clearly defined and binding. All rules and regulations are published on the university's website and hence available to all stakeholders. In addition, the students receive all relevant course material in the language of the degree programme at the beginning of each semester.

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

As the university refrains from commenting the report the auditors confirm their preliminary assessment.

## 6. Quality management: Quality assessment and development

<b>Criterion 6 Quality management: quality assessment and development</b>
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**Evidence:**

- Self-Assessment-Report
- Exam Regulations and Teaching Quality Assurance Process
- Teaching Quality Assessment Form of Course
- Teacher Evaluation Summary
- Student Forms for Evaluation
- Graduate Quality Evaluation Report and Questionnaires
- Audit discussion and presentations

**Preliminary assessment and analysis of the peers:**

At SUEP, a thorough system of quality management has been introduced and is observed in order to ensure the ongoing process of development and programme improvement. All courses are reviewed based on this feedback mechanism and updated if input from the various participating stakeholders requires it. Feedback from industry partners as well as alumni is regularly requested. At the centre of the feedback system are the course evalua-

tions that are done by the students for each course. SUEP names four core areas of evaluation: evaluation mechanism involving teachers and students, student evaluation, alumni evaluation, and employer evaluation.

Every semester, the university conducts initial, mid-term and final teaching inspections which mainly include lesson plan, lesson notes, classroom teaching, student learning effects, examination papers, and bachelor thesis process inspections, etc., in order to find solutions in time to problems that may arise in the management process. If a lecturer is at the bottom 10% for two evaluations, he/she will not be promoted or receive an additional title. Teaching inspection also provides a direct basis for evaluation, appraisal and promotion of teachers. Students can additionally provide feedback by talking to the president of the school (twice a year). In each class, there is also an information collector (who is with the students for four years) and brings their concerns forward.

In order to improve teaching, a professional teaching management system has been established which involves a teaching steering committee in order to study and review major areas of teaching. In addition, a teaching supervision committee was established. In the course of these improvements in the quality management system, the operation methods of information collection, analysis, feedback and rectification have been improved. The types of feedback include supervisory evaluation, leadership evaluation, peer evaluation, student evaluation and student feedback.

The university makes sure that the feedback loop is working properly. The Academic Affairs Office conducts regular teaching evaluations of the basic performance of teachers through the Teaching Evaluation System. This system is connected to the student surveys which are collected and organized by the Examination Committee. This committee submits the results to the Dean of College who formulates improvements and measures which are then communicated to the related course teacher. The teachers then close the feedback loop by being connected to the Academic Affairs Office and by discussing the results with the students. This is confirmed to the peers by the students. In general students are very satisfied with the evaluation as lecturers and professors react seriously to their remarks. They only miss that there is no feedback about measures taken out of the final evaluation in the semester. The peers recommend to inform students about this part of the evaluation loop as well.

In sum, the peers gain the impression that the Quality Assurance system at SUEP and within the faculty is well balanced and involves all relevant stakeholders. The measures ensure that the quality of the study program sees continuous improvement and that the assessment by the students plays an important role in the university's quality management.

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

As the university refrains from commenting the report the auditors confirm their preliminary assessment.



## D Additional Documents

No additional documents needed

## E Comment of the Higher Education Institution

The university refrains from commenting the report.

## F Summary: Peer recommendations

The peers summarise their analysis for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Mechanical Design manufacture and Automation	Without requirements	EUR ACE	30.09.2028
Ma Mechatronic Engineering	Without requirements	EUR ACE	30.09.2028

### Recommendations

#### For all degree programmes

- E 1. (ASIIN 1.3) It is recommended to improve the English competence of students for example by teaching technical courses in English.
- E 2. (ASIIN 1.3) It is recommended to offer students more opportunities to increase their programming skills.
- E 3. (ASIIN 1.3) It is recommended to offer more opportunities for students to increase their practical experiences in laboratories.
- E 4. (ASIIN 1.3) It is recommended to further improve the teamwork skills of the students.
- E 5. (ASIIN 2.1) It is recommended to further extend the student exchange programmes and to inform students more intensively about foreign exchange programmes.
- E 6. (ASIIN 2.1) It is recommended to offer more elective courses from other colleges.

- E 7. (ASIIN 2.2) It is recommended to evaluate and analyse the workload of the modules.
- E 8. (ASIIN 4.2) It is recommended to extend the access to the laboratories for the students.
- E 9. (ASIIN 6) It is recommended to inform students not only about the results of the evaluation but also about measures taken out of the evaluation.

## **G Comment of the Technical Committee**

### **Technical Committee 01 – Mechanical Engineering/Process Engineering (05.06.2023)**

The Technical Committee discusses the procedures and follows the assessment of the auditors without any changes.

The Technical Committee deems that the intended learning outcomes of the degree programmes do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 01 – Mechanical Engineering/Process Engineering.

The Technical Committee 01 – Mechanical Engineering/Process Engineering recommends the award of the seals as follows:

<b>Degree Programme</b>	<b>ASIIN-seal</b>	<b>Subject-specific label</b>	<b>Maximum duration of accreditation</b>
Ba Mechanical Design manufacture and Automation	Without requirements	EUR ACE	30.09.2028
Ma Mechatronic Engineering	Without requirements	EUR ACE	30.09.2028

### **Technical Committee 02 – Electrical Engineering/Information Technology (07.06.2023)**

The Technical Committee discusses the procedures and follows the assessment of the auditors without any changes.

The Technical Committee deems that the intended learning outcomes of the degree programmes do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 02 – Electrical Engineering/Information Technology.

The Technical Committee 02 – Electrical Engineering/Information Technology recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Mechanical Design manufacture and Automation	Without requirements	EUR ACE	30.09.2028
Ma Mechanical Engineering	Without requirements	EUR ACE	30.09.2028

## H Decision of the Accreditation Commission

*Assessment and analysis for the award of the ASIIN seal:*

The Accreditation Commission discusses the procedure and follows the assessment of the auditors and the Technical Committee without any changes.

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

The Accreditation Commission deems that the intended learning outcomes of the degree programmes do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committees 1 and 2.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Mechanical Design manufacture and Automation	Without requirements	EUR ACE	30.09.2028
Ma Mechatronic Engineering	Without requirements	EUR ACE	30.09.2028

\* Subject to the approval of the ENAEE Administrative Council

### Recommendations

**For all degree programmes**

- E 1. (ASIIN 1.3) It is recommended to improve the English competence of students for example by teaching technical courses in English.
- E 2. (ASIIN 1.3) It is recommended to offer students more opportunities to increase their programming skills.
- E 3. (ASIIN 1.3) It is recommended to offer more opportunities for students to increase their practical experiences in laboratories.
- E 4. (ASIIN 1.3) It is recommended to further improve the teamwork skills of the students.
- E 5. (ASIIN 2.1) It is recommended to further extend the student exchange programmes and to inform students more intensively about foreign exchange programmes.
- E 6. (ASIIN 2.1) It is recommended to offer more elective courses from other colleges.
- E 7. (ASIIN 2.2) It is recommended to evaluate and analyse the workload of the modules.
- E 8. (ASIIN 4.2) It is recommended to extend the access to the laboratories for the students.
- E 9. (ASIIN 6) It is recommended to inform students not only about the results of the evaluation but also about measures taken out of the evaluation.

# Appendix: Programme Learning Outcomes and Curricula

For the bachelor’s degree programme in mechanical design, manufacture and automation the university submits the following curriculum:

Course Category	Course Model	Course No.	Course Name	Responsible Department	Credits	Total Class Hours	Classroom Instruction Hours	Self-culture Hours	Credits for Each Semester										
									1	2	3	4	5	6	7	8			
General Required Courses (46.5 Chinese credits/46.5 ECTS credits)	Education in Ideology and Politics	6000017	Moral Education and Introduction to Law	School of Marxism	3	90	48	42	3										
		6000184	Essentials of Chinese Modern History	School of Marxism	3	90	48	42		3									
		6000185	Introduction to Mao Zedong's Thoughts and Theoretical System of the Chinese Characteristic	School of Marxism	5	150	80	70			5								
		6000016	Basic Principles of Marxism	School of Marxism	3	90	48	42				3							
		6000020-22	Current Event and Policy(1)(2)(3)	School of Marxism	2	60	32	28		1		0.5		0.5					
	Language and Tools	2900141-42	College English(1)(2)	School of Foreign Languages	8	240	128	112	4	4									
			Please refer to Note 2 for thecourse, which requires 2 credits to be completed (semester arrangement suggestions)	School of Foreign Languages	2	60	32	28			2								
		2900138	English of Energy and Electric Power	School of Foreign Languages	2	60	32	28			2								
	Comprehensive Capabilities	2500087	Basic of Program Design A	School of Computer Science and Technology	5	150	80	70	5										
			requires 7 credits to be completed (semester arrangement suggestions)	Sports Department	7	210	112	98	2	2	2	1							
		2700183	College Entrance Education and Career Planning	School of Economicsand Management	1	30	16	14	1										
		2700160	Mental Health for College Students	School of Economicsand Management	1	30	16	14		1									
	Innovative Entrepreneurship and	8300016-17	Military Theory	Armed Forces	2	60	32	28	2										
			Please refer to Note 2 for thecourse, which requires 1 credits to be completed (semester arrangement suggestions)		1	30	16	14						1					
		2700184	College Employment and Entrepreneurship Practice	School of Economicsand Management	0.5	15	8	7								0.5			
	Featured: Energy Power	6000183	Energy China	School of Marxism															
		2900129	The Light of the Silk Road	School of Foreign Languages	1	30	16	14		1									
		2100053	Introduction to Energy and Power	School of Energy and Mechanical Engineering															
General Elective Course (8 Chinese credits/8 ECTS credits)	Humanities and Social Sciences	Courses are selected from the corresponding categories in the generalelective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Humanities and Arts	2	60	32	28				2							
		Courses are selected from the corresponding categories in the generalelective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Humanities and Arts	2	60	32	28					2						
		Courses are selected from the corresponding categories in the generalelective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Humanities and Arts	2	60	32	28								2			
		Courses are selected from the corresponding categories in the generalelective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Foreign Languages	2	60	32	28				2							
Subject Basic Course (Required) (49 Chinese	Public Basic Course	2800001-2	Advanced Mathematics(1)(2)	School of Mathematics and Physics	11	330	176	154	6	5									
		2800021-22	College Physics(1)(2)	School of Mathematics and Physics	6	180	96	84		3	3								
		2800023-24	Experiments of Physics (1)(2)	School of Mathematics and Physics	3	90	48	42		2	1								
		2800007	Linear Algebra	School of Mathematics and Physics	2	60	32	28					2						
		2800177	Computational Methods	School of Mathematics and Physics	2	60	32	28					2						

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credits/49 ECTS credits)	Professional Basic Course	2200163	General Chemistry	School of Environmental and Chemical Engineering	2	60	32	28			2							
		2800216	Probability and Statistics	School of Mathematics and Physics	2	60	32	28				2						
		2600098-97	Electrotechnics and Electronics Technology(1)(2)	School of Electronics and Information Engineering	4	120	64	56			2	2						
		2100038	Descriptive Geometric & Mechanical Drawing (1)	School of Energy and Mechanical Engineering	4	120	64	56	4									
		2100049	Descriptive Geometric & Mechanical Drawing (2)	School of Energy and Mechanical Engineering	2	60	32	28		2								
		2117002	Theoretical Mechanics	School of Energy and Mechanical Engineering	3	90	48	42		3								
		2117004	Strength of Materials	School of Energy and Mechanical Engineering	3	90	48	42			3							
		2130027	Engineering Materials	School of Energy and Mechanical Engineering	2	60	32	28				2						
		2403286	Microcomputer Theory & Interface Technique	School of Automation Engineering	3	90	48	42				3						

Course Category	Course Model	Course No.	Course Name	Responsible Department	Credits	Total Class Hours	Classroom Instruction Hours	Self-culture Hours	Credits for Each Semester								
									1	2	3	4	5	6	7	8	
Professional Education Course (36 Chinese credits/68 ECTS credits)	Subject Core courses (Required)	2117008	Mechanisms and Machine Theory	School of Energy and Mechanical Engineering	6	180	48	132			6						
		2117081	Mechanical Design	School of Energy and Mechanical Engineering	6	180	48	132			6						
		2117092	Hydrodynamics and Thermal Foundation	School of Energy and Mechanical Engineering	6	180	48	132				6					
		2117018	Mechanical Manufacturing Technique	School of Energy and Mechanical Engineering	4	120	32	88				4					
		2117063	Hydraulic Transmission	School of Energy and Mechanical Engineering	6	180	48	132					6				
		2117064	Numerical Control Technology	School of Energy and Mechanical Engineering	6	180	48	132					6				
		2117088	Introduction of Electromechanical Integrated	School of Energy and Mechanical Engineering	6	180	48	132					6				
	Subject Election Courses	2117024	Mechanical Innovational Design	School of Energy and Mechanical Engineering	4	120	32	88				4					
		2117011	Tolerance and Technical Measurement	School of Energy and Mechanical Engineering	4	120	32	88				4					
		2403222	Automatic Control Principle	School of Automation Engineering	4	120	32	88				4					
		2117098	3D Printing Design and Application	School of Energy and Mechanical Engineering	2	60	16	44				2					
		2117025	CAD & CAM	School of Energy and Mechanical Engineering	4	120	32	88					4				
		2117027	Theories of Modern Design	School of Energy and Mechanical Engineering	4	120	32	88					4				
		2117095	Design of Wind Power Generation	School of Energy and Mechanical Engineering	2	60	16	44					2				
		2117082	Finite Element Method and Application	School of Energy and Mechanical Engineering	4	120	32	88							4		
		2117012	Fundamentals of Material Forming Technology	School of Energy and Mechanical Engineering	4	120	32	88					4				
		2117087	Advanced Manufacturing Technology	School of Energy and Mechanical Engineering	4	120	32	88					4				
		2117083	Non-traditional Processing	School of Energy and Mechanical Engineering	4	120	32	88						4			
		2130050	Electrotechnics System Simulation Technology	School of Energy and Mechanical Engineering	4	120	32	88						4			
		2117022	Professional English	School of Energy and Mechanical Engineering	4	120	32	88								4	
2117093	Mechanical Manufacturing Technology	School of Energy and Mechanical Engineering	4	120	32	88								4			
2117076	Vehicle Manufacturing	School of Energy and Mechanical Engineering	4	120	32	88								4			
2117020	Mechanical Vibration	School of Energy and Mechanical Engineering	4	120	32	88								4			



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credits)	Language and Tools		Please refer to Note 2 for the course, which requires 2 credits to be completed (semester arrangement suggestions)	School of Foreign Languages	2	60	32	28			2								
		2900166	English of Energy and Electric Power	School of Foreign Languages	2	60	32	28			2								
		2500087	Basic of Program Design A	School of Computer Science and Technology	5	150	80	70	5										
	Comprehensive Capabilities		requires 7 credits to be completed (semester arrangement suggestions)	Sports Department	7	210	112	98	2	2	2	1							
		2700183	College Entrance Education and Career Planning	School of Economics and Management	1	30	16	14	1										
		2700160	Mental Health for College Students	School of Economics and Management	1	30	16	14		1									
	Innovative Entrepreneurship and Employment Guidance	830016-17	Military Theory	Armed Forces	2	60	32	28	2										
		2700184	College Employment and Entrepreneurship Practice	School of Economics and Management	0.5	15	8	7									0.5		
			Please refer to Note 2 for the course, which requires 1 credit to be completed (semester arrangement suggestions)		1	30	16	14										1	
	Featured: Energy Power	6000183	Energy China	School of Marxism															
2900129		The Light of the Silk Road	School of Foreign Languages	1	30	16	14		1										
2100053		Introduction to Energy and Power	School of Energy and Mechanical Engineering																
General Elective Course (8 Chinese credits/8 ECTS credits)	Humanities and Social Sciences	Courses are selected from the corresponding categories in the general elective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Humanities and Arts	2	60	32	28											
	Artistic Aesthetic	Courses are selected from the corresponding categories in the general elective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Humanities and Arts	2	60	32	28											
	Science	Courses are selected from the corresponding categories in the general elective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Humanities and Arts	2	60	32	28											
	English Development	Courses are selected from the corresponding categories in the general elective course catalog of the whole school, and 2 credits are required (semester arrangement suggestions)		School of Foreign Languages	2	60	32	28											
Subject Basic Course (Required) (49 Chinese credits/49 ECTS credits)	Public Basic Course	2800001-2	Advanced Mathematics(1)(2)	School of Mathematics and Physics	11	330	176	154	6	5									
		2800021-22	College Physics(1)(2)	School of Mathematics and Physics	6	180	96	84	3	3									
		2800023-24	Experiments of Physics (1)(2)	School of Mathematics and Physics	3	90	48	42	2	1									
		2200163	General Chemistry	School of Environmental and Chemical Engineering	2	60	32	28			2								
		2800007	Linear Algebra	School of Mathematics and Physics	2	60	32	28				2							
		2800177	Computational Methods	School of Mathematics and Physics	2	60	32	28					2						
		2800141	Probability and Statistics	School of Mathematics and Physics	2	60	32	28					2						
	2600098-97	Electrotechnics and Electronics Technology(1)(2)	School of Electronics and Information Engineering	4	120	64	56				2	2							
	Professional Basic Course	2100038	Mechanical Drawing	School of Energy and Mechanical Engineering	4	120	64	56	4										
		2100049	Mechanical Drawing	School of Energy and Mechanical Engineering	2	60	32	28			2								
		2117002	Theoretical Mechanics	School of Energy and Mechanical Engineering	3	90	48	42			3								
		2117004	Strength of Materials	School of Energy and Mechanical Engineering	3	90	48	42				3							
		2130027	Engineering Materials	School of Energy and Mechanical Engineering	2	60	32	28					2						
2403286		Microcomputer Theory and Interface Technology	School of Automation Engineering	3	90	48	42						3						
Professional Education Course (36 Chinese credits/68 ECTS credits)	Subject Core courses (Required)	2117008	Mechanisms and Machine Theory	School of Energy and Mechanical Engineering	6	180	48	132			6								
		2117081	Mechanical Design	School of Energy and Mechanical Engineering	6	180	48	132				6							
		2130034	Single Chip Microcomputer System Design	School of Energy and Mechanical Engineering	6	180	48	132					6						
		2403289	Automatic Control Principle	School of Automation Engineering	4	120	32	88						4					
		2130039	Mechanical Engineering Testing Technology	School of Energy and Mechanical Engineering	6	180	48	132							6				
		2130028	Fundamentals of Mechanical Manufacturing	School of Energy and Mechanical Engineering	4	120	32	88								4			



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Subject Election Courses	2130047	Mechatronics System Design	School of Energy and Mechanical Engineering	6	180	48	132											6	
	2130009	Robotics	School of Energy and Mechanical Engineering	6	180	48	132											6	
	2130044	Mechanical and electronic innovative design	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2130040	Intelligent Robot	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2130048	Electrical Control and PLC Technology	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2611102	Python Programming and Artificial Intelligence	School of Electronics and Information Engineering	4	120	32	88											4	
	2130019	Electromechanical System Simulation Technology	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2130038	Machine Vision	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2700190	Project Management	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2117082	Finite Element Method and Application	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2117025	CAD&CAM	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2130016	Pneumatic Transmission and Control	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2117014	Hydraulic Transmission Technology	School of Energy and Mechanical Engineering	4	120	32	88											4	
	2117016	Electromechanical Transmission and Control	School of Energy and Mechanical Engineering	4	120	32	88											4	
2130004	Professional English	School of Energy and Mechanical Engineering	4	120	32	88											4		

Course Category	Course Model	Course No.	Course Name	Responsible Department	Credits	Total Class Hours	Classroom Instruction Hours	Self-culture Hours	Credits for Each Semester											
									1	2	3	4	5	6	7	8				
		2117072	Fault Diagnosis of Machine	School of Energy and Mechanical Engineering	4	120	32	88											4	
		2117015	Numerical Control Technology	School of Energy and Mechanical Engineering	4	120	32	88											4	
					30	900												14	8	8
Central Practical Courses (Reaired) (30 Chinese credits/68.5 ECTS credits)	Professional Practical Courses	8300018	Military Skills	Armed Forces	2	60	30	30	2											
		2100040	Drawing Mapping	School of Energy and Mechanical Engineering	1	30	15	15		1										
		2130024	Practice of Understanding	School of Energy and Mechanical Engineering	2	60	30	30		2										
		8200013	Practical Training of Mechanical Manufacturing Fundamental	Engineering Training Centre	3	90	45	45			3									
		2117031	Curriculum Design on Machine Theory	School of Energy and Mechanical Engineering	2	60	30	30			2									
		2117097	Curriculum Design on of Machine Design	School of Energy and Mechanical Engineering	4	120	60	60				4								
		2130037	Curriculum Design on Single chip Microcomputer Principle and Interface Technology	School of Energy and Mechanical Engineering	4	120	60	60				4								
		2130049	Comprehensive Curriculum Design on Mechatronic Engineering	School of Energy and Mechanical Engineering	4	120	60	60											4	
		2130052	Training and Practice on the Innovation and Entrepreneurship	School of Energy and Mechanical Engineering	2	60	30	30											2	
2130025	Industrial Practice	School of Energy and Mechanical Engineering	7.5	225	120	105												7.5		

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	2117099	Innovation and Entrepreneurship Practice	School of Energy and Mechanical Engineering	2	60	30	30										2	
		Graduation Practice	School of Energy and Mechanical Engineering	10	300	150	150											10
	2130051	Graduation Designing Project (Thesis)	School of Energy and Mechanical Engineering	25	750	280	470										8	17
<b>Total: robotics, advanced transmission technology, 171.5 Chinese credits.</b>					240	7200			29	30	33	31.5	30	32	27.5	27		

Note: 1. According to the scores of the undergraduate English grading test when the freshmen enter the school, take "College English A", "College English B" and "College English C", respectively.

2. Foundation of Innovation and Entrepreneurship: 2700140 College Students' Entrepreneurship Foundation, 2700141 College Students' Entrepreneurship Advancement, 2700142 College Students' Entrepreneurship Skills Training, 2700143 Innovation and Entrepreneurship Practice and Case Analysis.