



**ASIIN Seal**

# **Accreditation Report**

**Bachelor Degree program**  
***Materials Chemistry (MC)***

**Offered by**

**Anhui University**

Version: 27/03/2026

# Table of Content

|                                                                                  |           |
|----------------------------------------------------------------------------------|-----------|
| <b>A. About the Evaluation Process .....</b>                                     | <b>4</b>  |
| <b>Accreditation Status .....</b>                                                | <b>5</b>  |
| Result Overview .....                                                            | 5         |
| Fulfilment of the Accreditation Criteria .....                                   | 5         |
| Requirements.....                                                                | 6         |
| Accreditation History .....                                                      | 7         |
| <b>B. Context of the Degree Program .....</b>                                    | <b>8</b>  |
| B-1. Numbers and facts .....                                                     | 8         |
| B-2. Characteristics and features .....                                          | 8         |
| <b>C. Assessment of the Expert Panel .....</b>                                   | <b>10</b> |
| C-1. Objectives and learning outcomes of the degree program [ASIIN 1.1] ...      | 10        |
| C-2. Name of the degree program [ASIIN 1.2] .....                                | 13        |
| C-3. Curriculum [ASIIN 1.3] .....                                                | 15        |
| C-4. Admission requirements [ASIIN 1.4].....                                     | 20        |
| C-5. Workload and credits [ASIIN 1.5] .....                                      | 22        |
| C-6. Didactics and teaching methodology [ASIIN 1.6] .....                        | 24        |
| C-7. Exams: System, concept and organisation [ASIIN 2] .....                     | 26        |
| C-8. Resources [ASIIN 3] .....                                                   | 29        |
| C-9. Quality management: Quality assurance and development [ASIIN 5] .....       | 34        |
| C-10. Transparency and documentation [ASIIN 4].....                              | 37        |
| <b>D. Additionally requested documents.....</b>                                  | <b>41</b> |
| <b>E. Comment of the Higher Education Institution (08.12.2025) .....</b>         | <b>42</b> |
| <b>F. Summary: Expert recommendations (24.12.2025) .....</b>                     | <b>54</b> |
| <b>G. Comment of the Technical Committees .....</b>                              | <b>56</b> |
| Technical Committee 05 – Materials Science, Physical Technologies (12.03.2026) . | 56        |
| Technical Committee 09 – Chemistry, Pharmacy (16.03.2026).....                   | 56        |

|                                                                       |           |
|-----------------------------------------------------------------------|-----------|
| <b>I. Decision of the Accreditation Commission (27.03.2026) .....</b> | <b>57</b> |
| <b>Appendix: Learning Outcomes and curricula.....</b>                 | <b>59</b> |

## A. About the Evaluation Process

| Name of the degree programme (in original language)                                                                                                                                                                                                        | (Official) English translation of the name | Labels applied for | Previous accreditation (issuing agency, validity) | Involved Technical Committees (TC) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------|---------------------------------------------------|------------------------------------|
| 材料化学                                                                                                                                                                                                                                                       | Materials Chemistry (MC)                   | ASIIN              | /                                                 | 05,09                              |
| <b>Date of the contract:</b> 09.10.2024<br><b>Submission of the final version of the SAR:</b> 05.08.2025<br><b>Date of the onsite visit:</b> 29.-30.09.2025<br><b>at:</b> Anhui University, Hefei, China                                                   |                                            |                    |                                                   |                                    |
| <b>Expert panel:</b><br>Prof. Dr. Norbert Sewald, Bielefeld University<br>Andrea Koch, HAWK University of Applied Sciences and Arts Göttingen<br>Dr. Shengjie Wang, BASF Chemical Co.,LTD<br>Chengkai Hong, Master Student at Shanghai Jiaotong University |                                            |                    |                                                   |                                    |
| <b>Representatives of the ASIIN headquarter:</b> Yangzemiao Song, Consultant, ASIIN Consult GmbH                                                                                                                                                           |                                            |                    |                                                   |                                    |
| <b>Criteria used:</b><br>European Standards and Guidelines as of May 15, 2015<br>ASIIN General Criteria as of March 28, 2023<br>Subject-Specific Criteria of Technical Committee 05 – Materials Science, Physical Technologies as of September 25, 2025    |                                            |                    |                                                   |                                    |

## Accreditation Status

### Result Overview

The most recent decision for the ASIIN Seal was made by the ASIIN Accreditation Commission on 27.03.2026.

| Degree Programmes      | ASIIN Seal/ Accredited by German Engineers | Validity                |
|------------------------|--------------------------------------------|-------------------------|
| Ba Materials Chemistry | Accredited with requirements               | 27.03.2026 – 22.04.2027 |

### Fulfilment of the Accreditation Criteria

| ASIIN General Criteria / Subject-Specific Criteria                           | Ba Materials Science and Engineering              |
|------------------------------------------------------------------------------|---------------------------------------------------|
| <b>1 Degree programme: Concept, Content &amp; Implementation</b>             |                                                   |
| <i>1.1 Objectives and learning outcomes (intended qualification profile)</i> | Fulfilled                                         |
| <i>1.2 Title of the degree programme</i>                                     | Fulfilled                                         |
| <i>1.3 Curriculum</i>                                                        | Fulfilled                                         |
| <i>1.4 Admission requirements</i>                                            | <b>Not fulfilled</b><br>Requirement <b>A1, A2</b> |
| <i>1.5 Workload and credits</i>                                              | <b>Not fulfilled</b><br>Requirement <b>A3</b>     |
| <i>1.6 Didactics and teaching methodology</i>                                | Fulfilled                                         |
| <b>2 Exams: System, Concept and Organisation</b>                             |                                                   |
| <i>2 Exams: System, Concept and Organisation</i>                             | <b>Not fulfilled</b><br>Requirement <b>A4, A5</b> |

| <b>ASIIN General Criteria / Subject-Specific Criteria</b>       | <b>Ba Materials Science and Engineering</b> |
|-----------------------------------------------------------------|---------------------------------------------|
| <b>3 Resources</b>                                              |                                             |
| <i>3.1 Staff and staff development</i>                          | Fulfilled                                   |
| <i>3.2 Student support and student services</i>                 | Fulfilled                                   |
| <i>3.3 Funds and equipment</i>                                  | Fulfilled                                   |
| <b>4 Transparency and Documentation</b>                         |                                             |
| <i>4.1 Module descriptions</i>                                  | Fulfilled                                   |
| <i>4.2 Diploma and Diploma Supplement</i>                       | Fulfilled                                   |
| <i>4.3 Relevant rules</i>                                       | Fulfilled                                   |
| <b>5 Quality Management: Quality Assessment and Development</b> |                                             |
| <i>5 Quality Management: Quality Assessment and Development</i> | Fulfilled                                   |

## Requirements

### Requirements

- A 1. [ASIIN 1.4] It is required to implement rules for the recognition of acquired knowledge, skills or competences from other Higher Education Institution.
- A 2. [ASIIN 1.4] The admission procedures must ensure equal access. Ensure that color blind students can enroll in the programme.
- A 3. [ASIIN 1.5] It is required to establish and implement a transparent mechanism for systematically evaluating and validating the actual student workload.
- A 4. [ASIIN 2] It is required to enhance the quality of bachelor theses by ensuring that the scope of experimental work and the depth of scientific analysis fully reflect the intended learning outcomes of the degree program.
- A 5. [ASIIN 2] It is required that the university enforce consistent adherence to recognized academic writing conventions, including proper citation, referencing, and the use of standardized formatting templates.

## **Accreditation History**

The programme has not been previously accredited by ASIIN.

## B. Context of the Degree Program

### B-1. Numbers and facts

| a) Name                | Final degree<br>(original/English translation) | b) Areas of<br>Specialization | c) Corresponding<br>level of<br>the EQF <sup>1</sup> | d) Mode<br>of<br>Study | e) Double/Joint<br>Degree | f) Duration | g) Credit<br>points/unit | h) Intake<br>rhythm &<br>First time of<br>offer     |
|------------------------|------------------------------------------------|-------------------------------|------------------------------------------------------|------------------------|---------------------------|-------------|--------------------------|-----------------------------------------------------|
| Materials<br>Chemistry | Bachelor degree                                |                               | 6                                                    | Full<br>time           |                           | 8 Semester  | 208 ECTS                 | Annually (fall semester)/first intake Sep. 01, 2002 |

### B-2. Characteristics and features

**Anhui University (AHU)** is jointly established by the Anhui Provincial People's Government and the Ministry of Education. The SAR states that it is included in the "Project 211" initiative. Project 211 is a Chinese government initiative launched to strengthen about 100 key universities by increasing investment in research capacity, academic quality, and institutional development. Ten disciplines at AHU—Materials Science, Chemistry, Engineering, Computer Science, Mathematics, Environment/Ecology, Physics, Biology and Biochemistry, General Social Sciences, and Clinical Medicine—are ranked in the top 1% of the ESI global rankings.

**The School of Materials Science and Engineering** was established in May 2021. According to SAR, it implements national educational policies and emphasizes discipline construction aligned with national strategies. The school aims to engage in regional development initiatives and integrates into broader development frameworks in the Yangtze River Delta. The school currently enrolls more than 1,700 students across undergraduate and graduate programs. Its academic structure includes multiple degree-awarding points and research platforms in materials science and engineering. The school also maintains collaborative programs with industry and provincial laboratories to support practical training, research, and student skill development.

The **Materials Chemistry program** in the School of Materials Science was established in 2002 and classified under engineering disciplines in 2013. It is part of the **School of Materials Science and Engineering**, which operates a postdoctoral research station and degree-

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<sup>1</sup> EQF = The European Qualifications Framework for lifelong learning

awarding points for **doctoral** and **master** programs. The SAR indicates that the program maintains provincial-level platforms, including the Anhui Key Laboratories for Magnetic Functional Materials and Devices, Information Materials and Devices, Optoelectronic Conversion Energy Materials and Devices, and the Anhui Provincial Engineering Technology Research Center for Magnetic Materials.

Reportedly, graduates are prepared for roles in research, design, production, operation, and management across fields such as functional materials, new energy materials, and chemical engineering. Enterprise collaboration is integrated through off-campus practical training bases with national companies such as Hefei Sunrise Aluminum Pigments Co., Ltd., Hefei JA Solar Technology Co., Ltd., and Hefei Visionox Technology Co., Ltd.

The program employs **16 full-time faculty members**, including 6 professors and 6 associate professors, all holding doctoral degrees. Over five years, the faculty conducted 49 research projects totaling ~RMB 32 million, published over 140 papers (130 SCI/EI), and obtained 56 patents and 12 technology awards.

The program offers more than 40 specialized courses and has implemented 25 teaching reform projects. Six laboratories support 13 experimental courses, with the Materials Chemistry lab covering 480 m<sup>2</sup>, equipped with instruments valued over RMB 6 million and established management and maintenance systems. The tuition fee is RMB 6480/year.

The current ASIIN accreditation procedure includes comprehensive documentation review, on-site evaluations, and stakeholder interviews to thoroughly assess the program's compliance with international accreditation standards. The detailed evaluation based on ASIIN criteria is provided in the subsequent sections of this report.

## C. Assessment of the Expert Panel

This accreditation report is based on the preliminary evaluation report for the degree programme(s) under review. As the evaluation report strictly adheres to the relevant general and subject-specific accreditation criteria, no changes have been made to the evaluative chapters. The expert panel considered the statement and additional information of the HEI for its concluding remarks and recommended resolution.

The following sections of the report are based on the audit discussions the expert panel had with relevant stakeholder groups: representatives of the rectorate's office, program coordinators, representatives of the Quality Management Department and the International Office, teaching and lab staff, students, partners from industry and the private sector, and alumni.

The focus of this stage of the evaluation lies on an assessment of the study program under review according to the criteria stipulated in the ASIIN General Criteria and the Subject-Specific Criteria (SSC) of the ASIIN Technical Committee Materials Science, Physical Technologies (see Chapter A).

In addition to the audit meetings, the expert panel relies on the documentation about the program and the regulatory framework that AHU has provided before, during and after the audit.

### C-1. Objectives and learning outcomes of the degree program [ASIIN 1.1]

#### Description of the current status:

Based on the statement in the Self-Assessment Report (SAR) and relevant appendices, the training objectives of the bachelor program *Materials Chemistry (MC)* follow the Anhui University's talent development mechanism. It aims to combine theoretical knowledge with practical application. It trains graduates to analyze and solve complex problems and acquire new knowledge creatively. Students gain fundamental skills for research and technological development in this field, preparing them for careers in production, research, teaching, and management. The overall training objectives are as follows:

**Objective 1:** Master the foundational knowledge of mathematics, natural sciences, information technology, and other related fields, establishing a solid basis for future coursework, and applying this knowledge to solve complex engineering problems.

**Objective 2:** Acquire a broad range of basic engineering and specialized knowledge, building a solid foundation for future professional courses.

**Objective 3:** Gain professional expertise in addressing complex engineering challenges within the field of materials chemistry. Be capable of conducting innovative research in molecular design based on scientific principles and methods. Be equipped to investigate, design, and analyze complex engineering issues within related fields, and propose effective solutions to meet the specific needs of materials chemistry problems.

**Objective 4:** Master the cutting-edge, advanced professional knowledge and skills in materials chemistry, staying informed about the evolving trends in the field, and furthering self-development to remain at the forefront of industry advancements.

**Objective 5:** Develop cross-cultural communication and international collaboration skills that are essential for adapting to social and global changes.

**Objective 6:** Understand China's contemporary social models and norms, demonstrating strong social behavior, team spirit, and a commitment to humanistic values. Achieve well-rounded development in moral, intellectual, physical, and psychological dimensions.

In accordance with the training objectives, the expected learning outcomes of the programme are as follows:

(1) Acquire a broad and solid foundation in mathematics and science to comprehend the complex phenomena specific to materials chemistry.

(2) Develop the ability to analyze fundamental engineering and professional concepts.

(3) Apply professional knowledge to develop new products and technologies in the field of Materials Chemistry.

(4) Expand professional knowledge by tracking trends in materials chemistry and related fields, while acquiring relevant knowledge reserves for further in-depth study.

(5) Be able to read professional literature in English and effectively communicate in English to discuss specialized topics.

(6) Cultivate comprehensive abilities, including teamwork, management, and international communication skills.

In the SAR, AHU moreover provides a matrix that relates the training objectives to learning outcomes. The learning outcomes are broken down into knowledge, skills, and competences. This is accompanied by the Objective-Module Matrix (appendix 07) which takes into consideration the subject specific criteria for the Technical Committee 05 (Materials Science, Physical Technologies) and outlines, which subject specific criteria relate to which

learning outcomes and to which course this applies. Moreover, the module descriptions (appendix 09) list the learning outcomes for each individual course.

These Learning outcomes are mapped throughout the curriculum framework and integrated into course content and assessment designs. Students are also expected to develop essential soft skills such as teamwork, communication, critical thinking, and innovation.

The SAR states that the university conducts regular reviews and updates of the learning objectives in consultation with industry stakeholders and academic experts to ensure continued relevance. Major revisions of the study program and therefore the training objectives are undertaken every four years; minor revisions can be done every two years. The most recent major revision took place in 2022, and a minor one in 2024.

#### **Analysis and assessment of the expert panel:**

The expert panel notes that the MC program aligns with local industry needs and national development priorities, particularly in sectors such as new energy batteries and semiconductors. The program objectives correspond to the Subject-Specific Criteria (SSC) of ASIIN Technical Committee 05 (Materials Science, Physical Technologies). They clearly define the intended qualification level of a bachelor's degree at EQF level 6 and provide a foundation for graduates' employability in industry as well as for further studies at the master's level.

Based on onsite interviews with students, faculty, and industry representatives, the panel recognizes the program's high graduate employment rate and the university's focus on student-centered learning and internationalization. The program integrates developments in inorganic non-metallic functional materials into its curriculum, maintaining relevance to evolving scientific and industrial contexts.

Overall, the expert panel considers that the study objectives and learning outcomes are appropriate and adequately support graduates in pursuing employment or further academic study in Materials Chemistry. The panel also notes that the study objectives and learning outcomes are only accessible via internal channels to the teachers and students. They are not yet publicly available on the website in Chinese language (<https://mse.ahu.edu.cn/19463/list.htm>) and therefore recommends that the university make this information accessible to all stakeholders to enhance transparency, particularly prospective students who intend to apply for admission to the program.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 1.1***

The expert panel welcomes that the university is committed to transparency and to making all relevant information accessible to its stakeholders. The learning objectives are publicly available, and the current training plan (2025) was published on the official website on 14 December 2025. The experts therefore consider this requirement to be fulfilled.

Generally, the experts assess the criterion as fulfilled.

## **C-2. Name of the degree program [ASIIN 1.2]**

### **Description of the current status:**

The Bachelor's degree program is officially titled " **Materials Chemistry** " (in Chinese: 材料化学) which is used uniformly across all institutional documentation and communication channels. The program is classified under the Chinese Ministry of Education's standardized program code 080403 within the general academic discipline of Materials.

The name is consistently used across all official university documents, including:

- The Self-Assessment Report (SAR)
- Admission materials and recruitment brochures
- Course syllabi and module descriptions
- Student transcripts and diploma certificates
- Internal quality assurance and academic planning documents

To support international transparency, the program title is also translated into English in all relevant documentation. The English version— "Bachelor of Materials Chemistry"— which is an adequate translation of the original Chinese title and follows international academic naming conventions.

The program title reflects its intended learning outcomes and graduate profile. Students receive comprehensive training in both the scientific foundations of materials chemistry and the engineering principles required to design, manage, and innovate in the development and application of advanced materials across various industrial and research contexts.

According to the SAR and confirmation during the on-site visit, it is a regulated program title under the national higher education system in China, which prescribes standard naming conventions for all officially approved degree programs. However, the module set-up

focuses on non-organic chemistry, while the **organic chemistry** part is not visible in the study plan.

### **Analysis and assessment of the expert panel**

The expert panel considers the program title “Materials Chemistry” to be appropriate, consistent, and in compliance with national regulations. The title reflects the academic orientation and content of the program. The panel notes that, within the context of international accreditation, the naming conventions mandated by the Ministry of Education of China limit institutional autonomy in selecting or modifying program titles. Nevertheless, the title “Materials Chemistry” is nationally recognized and generally aligns with the intended learning outcomes and occupational fields of the program.

However, the panel observes that, despite the title explicitly referencing “Chemistry,” organic chemistry content is not clearly represented in the curriculum. During the on-site interview, program coordinators stated that organic chemistry is addressed within the module “College Chemistry” in the first semester and introduced by the lecturers in the course “Polymer Chemistry” in the fifth semester. Upon review of the module descriptions (Appendix 09 p-96), the expert panel did not find explicit coverage or guidance on organic chemistry within these courses at all.

To ensure consistency between the program title and the curriculum, and to strengthen alignment with the intended learning outcomes, the expert panel recommends that dedicated content on basic organic chemistry be explicitly included in the study plan and module descriptions. This adjustment would provide a clearer foundation for the program title and support the qualification profile expected of graduates.

### ***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 1.2***

In response to the feedback of incorporating organic chemistry content into the curriculum, the university has revised the content of College Chemistry and Polymer Chemistry courses and incorporated essential organic chemistry principles relevant to materials design. The respective chapters of module descriptions are also revised and the ECTS credits of both courses are increased, while the Chinese credit allocation remains the same.

After examining the provided documents, the experts consider the criterion to be fulfilled.

### C-3. Curriculum [ASIIN 1.3]

#### Description of the current status:

##### Content and structure

The curriculum of the MC program at AHU is structured into **nine main modules**, integrating theoretical knowledge, practical training, and research experience over eight semesters. Each module is composed of specific courses designed to achieve the corresponding learning objectives. The total workload is structured over **eight semesters** and comprises **167 Chinese credit points**, which are converted into **192 ECTS credits**.

- **Basic Mathematics and Science (35 ECTS):** Courses include Advanced Mathematics, Linear Algebra, Probability and Statistics, College Physics, College Chemistry, and Physical Chemistry.
- **Basic Information Technology (6 ECTS):** Covers Office Software, Programming Fundamentals, and Materials Informatics.
- **Basic Engineering (12 ECTS):** Includes Engineering Drawing and CAD, Mechanical Design, Electrical and Electronic Technology, Engineering Mechanics, Materials Engineering Fundamentals, and Engineering Economics Management.
- **Engineering Application (30 ECTS):** Courses such as Introduction to Materials Chemistry, Fundamentals of Materials Science, Modern Analytical Methods, Semiconductor Physics, and Polymer Chemistry provide applied knowledge and link theory to practical engineering contexts.
- **Professional Electives (10 ECTS):** Courses include Frontier Lectures, Professional English, Nanomaterials Science, and Ceramic Materials, allowing students to broaden knowledge in specialized topics.
- **Foreign Language (8 ECTS):** College English I–IV, supporting communication skills.
- **General Education (38 ECTS):** Ideology and Morality, Physical Education, and Career Planning courses.
- **Practical Training (37 ECTS):** Includes Military Training, Chemistry and Physics Experiments, Materials Science Experiments, and Comprehensive Training
- **Bachelor's Thesis (16 ECTS):** Graduation project applying knowledge and skills acquired during the program.

The curriculum progressively shifts from foundational modules in the early semesters to professional, elective, and practical modules in later semesters, providing structured development of knowledge and competencies. An **Objective-Module Matrix** and a detailed **module handbook** clarify how each course contributes to the program's intended learning outcomes.

During the on-site discussions, the expert panel inquired about how the curriculum addresses foundational knowledge in **organic chemistry**. The program coordinator explained that these topics are integrated into courses such as College Chemistry and Polymer Chemistry. However, as noted in Chapter C-2, a review of the module descriptions (Appendix 09) did not reveal explicit coverage or guidance on organic chemistry within these courses.

Additionally, feedback from alumni, industry representatives and teaching staff has suggested potential curriculum enhancements. Alumni recommended adding a course on **Computational Materials Science** to address emerging challenges related to artificial intelligence. Faculty members suggested that the second-semester course on **Engineering Drawing and CAD** could be improved by integrating virtual simulation tools, which would help students better understand the projection principles of three-dimensional (3D) space.

#### Student Mobility

The SAR states that AHU provides opportunities for both domestic and international student mobility. Internally, students may change programs at the beginning of the third semester under the “Regulations on the Management of Registration Status for Undergraduate Students” and “Provisional Measures for the Adjustment of Majors for Undergraduate Students.” The transfer process includes submission of a transfer plan to the Academic Affairs Office, eligibility review, candidate interviews, publication of the admission list, office approval, and registration of admitted students with transfer of academic records. Previously earned credits are recognized if they meet the requirements of the new program and contribute to graduation. Transfers are possible within the same school or across different schools.

For international mobility, the university facilitates study-abroad and internship opportunities through the Office of International Exchanges and Cooperation, with partner institutions including Stony Brook University (USA), Université de la Comté (France), and University of Hannover (Germany). Since 2021, around 700 students have participated in study-abroad programs and over 230 students completed internships with more than 50 international organizations. Regulations are documented in the Student Handbook and related appendices.

Specific for the program Materials Chemistry, AHU provides the following numbers on student mobility (app. 10):

### ***Materials Chemistry<sup>1</sup>***

#### **Summary of Student Mobility**

| <b>Year<sup>2</sup></b> | <b>Incoming Students (Total)</b> | <b>Outgoing Students (Total)</b> |
|-------------------------|----------------------------------|----------------------------------|
| 2019                    | 55                               | 4                                |
| 2020                    | 53                               | 7                                |
| 2021                    | 45                               | 5                                |
| 2022                    | 59                               | 0                                |
| 2023                    | 64                               | 1                                |

At the on-site discussion with student representatives, the expert panel learned of a student who could not join the summer camp exchange program at the National University of Singapore, as their military training created a scheduling conflict.

Moreover, while the official English website was set up to support ASIIN Accreditation, it offers only limited English content on training plans. It also lacks adequate general information, including admission requirements, application procedures, and program curricula.

### **Periodic Review of the Curriculum**

The SAR states that the curriculum of the MC program is reviewed and updated periodically to ensure alignment with educational standards, industry needs, and national policies. The curriculum is revised regularly, with major updates every four years and minor adjustments every two years. The most recent major revision took place in 2022, and a minor one in 2024.

The review process is stakeholder-driven and incorporates feedback from teaching staff, students, alumni, and industry partners. Adjustments are made to update course content, introduce new technologies, address evolving labor market demands, and align the curriculum with national qualification frameworks. Input from enterprises and graduates informs the adjustment of course content, credit distribution, and practical training components. All revisions are documented in updated training plans and module descriptions.

Reviews are coordinated by the academic leadership of the School of Materials Science and supported by internal quality assurance structures. Changes are discussed in faculty meetings and approved through internal governance bodies.

Recent updates have included adjustments to the number of practical course hours, optimization of engineering application courses, and modifications to semester schedules and course credit allocations.

### **Analysis and assessment of the expert panel**

The expert panel acknowledges that the curriculum of the MC program at AHU is comprehensive, logically sequenced, and tailored to ensure graduates are industry-ready and aligned with educational goals.

### Content and Structure

5 The expert panel examined the curriculum of the MC program and found it provides a coherent framework linking foundational knowledge in chemistry and materials science with applied engineering courses. The curriculum includes modules in inorganic non-metallic functional materials, polymer chemistry, materials characterization, and laboratory practice, aiming to develop students' theoretical knowledge and practical competencies. Practical components, including laboratory exercises and industry-based internships, account for a significant portion of the total workload.

15 While the curriculum reflects the interdisciplinary nature of materials science and chemistry, the panel observed that there is no dedicated course emphasizing fundamental knowledge on organic chemistry. To better align the curriculum with the program title, the panel recommends strengthening organic chemistry content by adjusting credit allocations, reducing credits for less central courses, and increasing the credit weight for organic chemistry modules.

The panel also notes opportunities to expand elective courses with topics such as sustainability and material recycling.

### Student Mobility

20 The program supports student mobility through existing institutional policies, international partnerships, and exchange programs. However, opportunities for outbound study are limited, and no formalized framework exists for integrating international mobility into this program. The primary mobility pathway for graduates remains pursuing master's studies abroad. Existing partnerships, such as the Sino-French College's 3+1 program, do not currently refer to the Ba materials chemistry degree program. The inadequacy of limited information about this program in English may undermine the university's international profile and make it less accessible to prospective students and other stakeholders. The panel recommends regularly updating and maintaining an English-language website to enhance international visibility and facilitate student mobility.

### Periodic Review of the Curriculum

The curriculum undergoes regular review, incorporating input from faculty, industry representatives, and alumni, with minor updates made annually. This review process ensures alignment with national standards and regional industry requirements. The panel confirms

that a formal mechanism exists to systematically update course syllabi, prescribed literature, and module content, maintaining the curriculum's responsiveness to technological and industrial developments, including artificial intelligence applications and emerging fields such as new energy materials.

Overall, the expert panel concludes that the curriculum provides a coherent structure integrating theory and practice. To fully reflect the program title and evolving professional standards, enhancements in organic chemistry content, elective offerings, computational and virtual simulation courses, and internationalization measures are recommended.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 1.3:***

As mentioned in C-2, the expert panel acknowledges the university's efforts to make the organic chemistry-related content within the module more transparent and to reallocate ECTS credit points for the respective courses. The experts consider this requirement to be fulfilled.

Regarding of introducing knowledge related to Sustainability and Recycling, the expert panel learned in the university's statement that the suggested topics are embedded in several core courses. The experts consider this recommendation to be fulfilled.

Regarding the recommendation of a new course on Computational Materials Science, the university committed the plan, which is yet to be implemented; therefore, the experts maintain their recommendation (see section F, E1).

Regarding the use of virtual simulation tools, the university explained that relevant software instruction has already been integrated into our Engineering drawing and CAD course. The experts consider this minor recommendation to be fulfilled.

Regarding the increase of the internship duration and to establish a dedicated internship module within the curriculum. The university committed to optimise the internship design. While the experts welcome this, changes are yet to be implemented; therefore, they maintain their recommendation (see section F, E2).

Regarding the English proficiency of both students and teaching staff, the expert panel welcomes the university's plan to offer bilingual English taught courses in the future. Until those changes are implemented, the experts maintain their recommendation (see section, E3).

The University states that they will improve the mobility opportunities according to the university's unified arrangement. While the experts acknowledge this intention, concrete

measures have not yet been implemented; therefore, the recommendation is maintained. (see section F, E4).

With regard to the English website, although the university has created an English webpage for the ASIIN accreditation process, there is currently no official English website providing information beyond accreditation purposes. Therefore, the experts maintain their recommendation to establish general and program-specific English websites to support the internationalization of both the program and the university. (see section F, E5).

After examining the provided documents, the experts consider the criterion to be substantially fulfilled.

#### C-4. Admission requirements [ASIIN 1.4]

##### Description of the current status:

Admission to the **Materials Chemistry program** at Anhui University is based on standardized national and provincial procedures. Applicants must participate in the **National University Entrance Examination (Gaokao)** or the unified provincial/city entrance examination, hold a high school diploma or equivalent, meet the requirements of Chinese law, and satisfy health standards. For this program, candidates are required to have taken **Chemistry and Physics** in the Gaokao. Due to the laboratory-intensive nature of the discipline, applicants must not have complete color blindness, though students with other disabilities are normally admitted, and all classrooms and laboratories are equipped with accessible pathways for students with disabilities.

Admissions are managed according to provincial batch systems, with the program generally classified under the first batch of eligible programs. The university evaluates applicants on multiple dimensions, including academic performance, intellectual abilities, moral character, and physical fitness.

The admission process involves several steps, including submission of application materials, file review, pre-admission, verification of admission qualifications, and issuance of admission letters. Upon enrollment, students are required to submit their admission letters and identification documents, complete tuition payment, and receive academic materials before beginning their studies.

AHU presents the following admission statistics (app. 12):

**Materials Chemistry<sup>1</sup>**

| Year <sup>2</sup> | Applicants | Available Seats | Admitted Students | Admission Rate (%) <sup>3</sup> |
|-------------------|------------|-----------------|-------------------|---------------------------------|
| 2019              | 55         | 55              | 55                | 100%                            |
| 2020              | 53         | 55              | 53                | 96%                             |
| 2021              | 45         | 55              | 45                | 82%                             |
| 2022              | 59         | 60              | 59                | 98%                             |
| 2023              | 64         | 70              | 64                | 91%                             |

Students are allowed to transfer into or out of the Materials Chemistry program within the university. Internal transfers can be requested at the beginning of the third semester in accordance with the Regulations on the Management of Registration Status for Undergraduate Students and the Provisional Measures for the Adjustment of Majors for Undergraduate Students. Approval of the transfer and recognition of previously earned credits are subject to review and authorization by the Academic Affairs Office.

Reportedly, the university implements principles of openness, impartiality, and accountability throughout the admission process. Oversight is provided by the Admissions Committee and relevant disciplinary inspection departments, and information on enrollment policies, program details, and appeal channels is published on official university platforms. Since 2020, enrollment scores for the program have consistently exceeded first-class national benchmarks, and the leading enrollment group monitors the process.

**Analysis and assessment of the expert panel**

The expert panel recognizes that the admission system ensures transparency and fairness through standardized examination procedures. The documents provided confirm that admission is well-regulated and consistently applied. They ensure that students possess the foundational knowledge and competencies necessary to undertake and complete the Materials Chemistry program.

The Materials Chemistry program at AHU provides rules for recognizing external acquired academic qualifications (Appendix 13). Recognition is guided by clearly defined regulations. Procedures ensure that credits or competencies achieved externally can be assessed and, where appropriate, counted toward the degree program. Processes include verification of qualifications, assessment of equivalency, and formal approval. The panel notes that the current regulations primarily cover internal course substitutions within the university. Procedures for recognizing full courses or degrees obtained at other domestic or international higher education institutions are not explicitly described.

According to ASIIN Criterion 1.4, “Rules for the recognition of qualifications achieved externally [...] are clearly defined. They facilitate the transition between higher education institutions and with non-university places of learning without jeopardising the achievement of learning outcomes at the desired level.” While the experts acknowledge that national regulators set the admission criteria, the AHU needs to develop and publishes transparent rules and procedures for recognizing externally obtained academic qualifications, including international degrees and prior learning, ensuring alignment with ASIIN Criterion 1.4. This should include credit transfer mechanisms, evaluation criteria, and documentation processes accessible to students and staff.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 1.4***

The experts acknowledge that the university is working on relevant regulations regarding admission. Until implemented, the experts maintain its requirement to that the university establish and implement rules for the recognition of acquired knowledge, skills or competences from outside the Higher Education Institution for up to half of the credits (see section F, A1).

Overall, the experts assess the criterion as partially fulfilled.

## **C-5. Workload and credits [ASIIN 1.5]**

### **Description of the current status:**

The curriculum spans eight semesters, totaling **167 Chinese credit points**, which are approximately equivalent to **192 ECTS** credits based on an established conversion rationale. At AHU, in theoretical courses, 18 contact hours are equivalent to one Chinese credit. In laboratory courses, 24 contact hours correspond to one Chinese credit. In practical training courses, 36 contact hours correspond to one Chinese credit. Appendix 15 lists the contact hours and self-study hours with corresponding ECTS for each course. In the conversion from Chinese credits to ECTS, 30 hours (contact hours plus self-study hours) are generally considered equivalent to one ECTS. When converting Chinese credits to ECTS, an average academic year is equivalent to 48 ECTS credits or 1,440 study hours (workload).

Regarding the workload, courses are distributed relatively evenly across semesters as can be deducted from appendix 15. According to the SAR, the actual workload for students is assessed by tutors and academic supervisors.

The current method of estimating **student workload** is based on the sum of contact hours and self-study hours. Below is the table of student workload per module group overview in detail.

|                                       | Contact Hours | Self-study Hours | Total Study Hours | ECTS numbers |
|---------------------------------------|---------------|------------------|-------------------|--------------|
| Basic Mathematics and Science Courses | 630           | 420              | 1050              | 35           |
| Foreign Language Courses              | 144           | 96               | 240               | 8            |
| Basic Information Technology Courses  | 102           | 78               | 180               | 6            |
| Basic Engineering Courses             | 222           | 138              | 360               | 12           |
| Engineering Application Courses       | 540           | 360              | 900               | 30           |
| Professional Elective Courses         | 180           | 120              | 300               | 10           |
| General Education Courses             | 674           | 466              | 1140              | 38           |
| Practical Training Courses            | 840           | 270              | 1110              | 37           |
| Bachelor Thesis                       | 216           | 264              | 480               | 16           |
| <b>Total Study Hours</b>              | <b>3548</b>   | <b>2212</b>      | <b>5760</b>       | <b>192</b>   |

The workload is also categorized by 8 modules. Each module specifies the number of contact hours and estimated individual learning time. The overall workload corresponds to the expectations for a full-time program and is intended to distribute learning evenly across semesters. The allocation of ECTS per semester is presented as follows:

| Semester   | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|------------|----|----|----|----|----|----|----|----|
| Total ECTS | 31 | 27 | 29 | 26 | 20 | 22 | 21 | 16 |

During the on-site interview with student representatives, it was confirmed that students are informed about the workload distribution through the module handbook and course syllabi. The program coordinators clarified that the **ECTS credit calculation reflects the minimum workload** required for students, rather than the actual average workload. Consequently, the **192 ECTS credits** indicate the estimated minimal workload and do not represent the typical total time, in particular self-study hours, which students spend on course activities.

### Analysis and assessment of the expert panel

The expert panel found that the workload and credit system of the Materials Chemistry program is based on the national framework for Chinese higher education, where credits are calculated from contact hours only.

The panel recognizes that the distribution of workload across semesters is largely balanced, with the heaviest concentration of courses in the second and third years and a lighter load in the final year to accommodate internships, the bachelor's thesis, and preparation for postgraduate entrance examinations. Students confirmed that the workload is generally manageable and allows sufficient time for self-study and extracurricular activities.

However, the panel noted some inconsistencies in the conversion between Chinese credits and ECTS and in the relative weighting of different course types. In particular, the current credit allocation for internships and bachelor thesis does not fully reflect the actual time investment of students.

While tutors and supervisors monitor the workload informally, there is no systematic mechanism in place to collect and evaluate quantitative data on students' actual time investment per module. The panel therefore strongly recommends establishing a structured workload monitoring process that regularly evaluates the correspondence between estimated and actual workload and adjusts credit allocations accordingly.

Overall, the panel concludes that the workload and credit system is coherent and consistent with national regulations, but transparency and precision in workload evaluation and credit conversion should be further improved to ensure alignment with international standards.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 1.5***

While AHU states that student workload is evaluated and validated through a combination of class attendance time, homework and assignment records, experimental and practice records, and estimated preview and review time determined by academic staff, the experts still see a need to establish a documented system for regularly monitoring and validating workload and for reflecting any changes in ECTS. Therefore, the experts maintain their requirement (see section F, A2).

Overall, the experts assess the criterion as partially fulfilled.

## **C-6. Didactics and teaching methodology [ASIIN 1.6]**

### **Description of the current status:**

According to SAR, the MC program employs a combination of **theoretical lectures, practical laboratory exercises, project-based learning, problem-based learning, flipped classroom, and online/blended learning**. General education, mathematics, and science courses are delivered by relevant teaching centers in large classes of approximately 120 students, while engineering and core professional courses are taught in **smaller, program-specific classes of around 50 students**. Certain courses integrate theory with in-class experiments conducted in smaller batches or groups. Elective courses are offered based on students' interests and developmental needs.

**Examples of teaching methods include:** in the Principles of Materials Engineering course, students work in groups on engineering design projects and participate in peer and teacher assessments; in **laboratory training**, students work in teams to operate advanced large-scale instruments. **Online platforms** are used for interactive learning and concept mapping; the Flipped Classroom method engages students in discussion prior to formal instruction.

One concrete example can be verified in the University Physics course. The instructor integrates online and offline exercises via the Chaoxing platform, complemented by AI-assisted homework assignments. Beyond coursework, students engage in **innovation and entrepreneurship projects**: they form interdisciplinary teams, develop project proposals, and collaborate closely with instructors to refine their ideas.

Practical training is carried out in university and provincial experimental teaching centers and in over 20 off-campus internship bases with well-known national companies such as Hefei Sunrise Aluminum Pigments Co., Ltd., Hefei JA Solar Technology Co., Ltd., and Hefei Visionox Technology Co., Ltd. Students complete laboratory exercises, innovation projects, internships, and the bachelor's thesis, with structured supervision and continuous feedback from instructors to align with learning outcomes.

During the on-site discussions, teaching staff confirmed that they regularly participate in training sessions and workshops to enhance their didactical skills. Student representatives also confirmed that semesterly evaluations are conducted to assess teaching effectiveness.

#### **Analysis and assessment of the expert panel**

The expert panel finds that the MC program engages a diverse set of teaching and learning methods that support the achievement of the intended learning outcomes. Students reported that team-based projects, presentations, and case studies are routinely used. In addition, competitions and innovation projects are integrated into the curriculum, providing opportunities for practical problem-solving, creativity, and teamwork.

Digital learning platforms are utilized to deliver course materials and facilitate self-directed study. Instructors systematically incorporate structured problem-solving approaches and collaborative work into their teaching activities. Practical components, including laboratory exercises and project work, are integrated into the curriculum and aligned with the program's intended learning outcomes. The cooperation with local industry as well as competitions and innovation projects provide students with exposure to real-world engineering environments.

During the discussion with industry representatives, the expert panel received the wishes to increase university–industry collaboration so that students can directly access relevant

information from companies. Currently, faculty assign students theoretical research topics that are not directly aligned with the practical needs of enterprises. As the nation places increasing emphasis on fundamental materials research, it is recommended to design research projects based on specific problems faced by companies. While enterprises often require long-term efforts for basic research, universities can serve as an effective resource and channel to support such foundational studies.

Overall, the expert panel considers the teaching and learning methods appropriate and effective. Nevertheless, the experts recommend incorporating industry feedback by designing research projects that address concrete real-life challenges faced by companies. While enterprises often require long-term efforts in basic research, universities can serve as an effective resource and partner to support such foundational work.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 1.6***

In response to the suggestion to incorporate industry feedback through research project design, the university has presented several industry-sponsored collaborative projects, as documented in Appendix 20. Therefore, the experts consider it as fulfilled.

Generally, the experts assess the criterion as fulfilled.

## **C-7. Exams: System, concept and organisation [ASIIN 2]**

### **Description of the current status:**

The SAR states that the Materials Chemistry program implements its examinations and assessments according to the “Course Assessment Regulations for Undergraduate Programs” and the “Undergraduate Course Assessment Management Measures.” Assessments are categorized into examinations and other forms of evaluation, aligned with course objectives and syllabi. Examination types include **written exams** (closed- and open-book), **computer-assisted tests**, **oral exams**, **research papers**, **design work** and **skill tests**. Written exams typically last 120 minutes, with grading based on a combination of midterm, final, and ongoing assessments such as tests, and practical exercises. Practical and project-based courses may be graded using a five-level or pass/fail system. Grade conversions follow a standardized percentage-to-grade point mapping. Faculty submit exam results to the academic system within one week, and analysis of results is conducted to evaluate course objectives and inform continuous improvements in teaching methods and curriculum content. Make-up exams are available for students unable to attend the scheduled exam due to valid reasons, with policies defined by the Academic Affairs Office.

The **grading system** is based on a 100-point scale, with thresholds defined for passing and excellence. The system combines regular performance, mid-exam and final exam scores depending on course type and level.

Examinations are scheduled and organized centrally by the Academic Affairs Office. Clear procedures are in place for examination conditions, including provisions for illness, make-up exams, and accommodations for students with disabilities or special circumstances, as well as student rights, including opportunities for review and appeal.

The **bachelor's thesis** is completed in the eighth semester over at least 12 weeks, with students conducting independent research under supervision. The thesis is assessed through both a written review by the supervisor and an external evaluator, and a defense conducted by a panel. For thesis evaluation, supervisors also consider laboratory performance and feedback from enterprise mentors as part of the assessment.

The **bachelor thesis evaluation** process follows a structured system involving multiple evaluators and quality assurance measures. **Plagiarism detection** mechanisms are in place, with a general similarity threshold set at 20%.

The **scoring breakdown** is as follows:

- **60%** from the **supervisor**,
- **20%** from a **second reviewer** or external evaluator,
- **20%** from the **oral defense**, which is conducted by a panel of three evaluators, occasionally including industry professionals.

During the on-site inspection of bachelor thesis samples, the expert panel observed that the formatting of the graduation thesis has not yet been fully standardized, especially in the literature citation section. Furthermore, some theses consisted solely of **literature reviews** without experimental work. This approach was adopted in response to exceptional circumstances: during the COVID-19 pandemic, students were unable to access laboratories, and in cases where students completed internships at enterprises, companies sometimes restricted the use of proprietary data.

The panel also noted that some experimental theses included material characterization but lacked performance testing. The program coordinators explained that this is caused by extended synthesis periods and limited time in the eighth semester. The university intends to adjust future thesis topics and increase laboratory time to ensure students have sufficient time for full experimental work.

### **Analysis and assessment of the expert panel**

The expert panel reviewed samples of examination papers and final theses. An examination system is in place, incorporating transparent examination regulations and accommodations for students with specific needs. Student representatives confirmed familiarity with the examination requirements and reported that grading criteria are clearly communicated in each course syllabus. Make-up examinations and repeat procedures are regulated transparently, and there is a formal appeals process for grade disputes. Moreover, the expert panel received the suggestion of student representatives to adopt an open-book exam format for the course "Material Analysis Methods".

However, the quality of bachelor theses does not fully meet ASIIN requirements, which expect students to demonstrate the ability to work independently at the intended degree level. Therefore, it is necessary to improve the quality of bachelor theses, particularly regarding experimental work and depth of scientific analysis. The expert panel recommends considering blind peer review by external institutions. Additionally, it is of importance to standardize academic writing formats—with particular attention to reference citation—to further enhance the quality of scientific writing.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 2***

In response to the feedback regarding thesis quality, the university has outlined both the measures implemented in the past and planned actions aimed at further improvement. While the experts acknowledge the university's intention, the proposed changes have not yet been implemented and corresponding improvements cannot be evidenced at this stage. Therefore, the experts maintain their requirement (see section F, A3).

In response to the feedback regarding academic writing conventions, the university has outlined both previously implemented guidelines (Appendix 2, Parts XVII and XXI; Appendix 28: Implementation Measures for Checking Duplication of Graduation Theses [Design/Creation] at Anhui University) as well as planned measures aimed at quality control. While the experts acknowledge the university's intentions, the proposed measures have not yet been fully implemented, and corresponding improvements cannot be evidenced at this stage. Therefore, the experts maintain their requirement (see section, A4).

In response to the suggestion of an open-book examination format for the course "Material Analysis Methods" which is proposed by students, the university has provided very convincing argumentation to maintain the closed-book format. The experts raised no objections in this regard.

Overall, the experts assess the criterion as partially fulfilled.

## C-8. Resources [ASIIN 3]

### Description of the current status:

#### *Staff and Staff Development [ASIIN 3.1]*

5 The SAR provides quantitative data regarding teaching staff, including 16 full-time faculty members, including 6 professors, 6 associate professors, and 4 lecturers. **100%** of faculty members hold **doctoral degrees** and some of them obtained a doctoral degree abroad or held postdoctoral positions overseas. 75% of them are under the age of 45. Faculty expertise spans materials science, polymer chemistry, inorganic chemistry, analytical chemistry, and related engineering disciplines. In addition, **part-time instructors** from industry, research institutes, and partner institutions support teaching activities, laboratory supervision, internships, and bachelor thesis guidance.

10 Over the past five years, faculty members have participated in 49 research projects, including national, provincial, and industry-funded projects, with total funding of approximately RMB 32 million. They have published over 140 research papers, including more than 130 indexed in SCI and EI, and hold 56 patents.

15 Reportedly, faculty development is organized through the University Teaching Development Center, which provides **training workshops**, **teaching exchange programs**, and **mentoring**. Pre-service training is offered for new faculty, while early-career staff under 35 are required to participate in **teaching observations**. Teachers who apply for promotions, particularly under age 45, engage in targeted research and engineering skill development. Professional development programs, and opportunities for **international study** or **industry practice** are also available.

20 AHU has established a comprehensive support system for faculty development. Its Teaching Development Center offers a range of resources, including specialized training programs, teaching exchange initiatives, and **one-on-one mentoring** for new instructors. All new faculty members are required to complete mandatory pre-service training and pass a rigorous teaching qualification evaluation prior to assuming teaching responsibilities. Junior faculty members further benefit from structured mentorship by senior colleagues and are expected to participate in classroom observations to refine their instructional skills.

25 Additionally, the university organizes **teaching competitions** and **excellence awards**.

#### *Student support and student services [ASIIN 3.2]*

30 According to SAR on-site interviews, support mechanisms include counselling, academic mentoring, and access to learning resources. Students can transfer between programs

within the universities according to formal regulations. AHU maintains more than 20 off-campus internship bases and organizes international exchange and cooperation programs.

Academic guidance includes freshman orientation, theoretical course supervision, practical/laboratory course support, internship and course design guidance, and bachelor thesis supervision.

**Academic Guidance and Advising:** Students receive structured academic guidance through orientation sessions, assigned academic advisors, course-level support, and continuous supervision of the graduation thesis.

**Practical Training Support:** Practical learning is supported through well-organized laboratory courses, internships, course design projects, and off-campus training bases with systematic preparation, supervision, and evaluation.

**Monitoring and Evaluation:** Student learning progress and teaching quality are monitored through expert reviews, supervision activities, performance tracking, and regular feedback from students and faculty.

**Additional Services:** Comprehensive student support services, including counseling, career guidance, financial aid, extracurricular activities, and access to online learning platforms, are provided by the Student Affairs Office.

The SAR states that student progress is monitored through assignments, exams, lab reports, and project evaluations. Dedicated supervision groups and expert panels observe teaching, monitor learning, and provide feedback. During the on-site visits, the student representatives expressed their satisfaction with the student services provided.

#### *Funds and equipment [ASIIN 3.3]*

Based on the information provided in the SAR, an overview of teaching fund income and expenditures for the past three years is presented. The primary sources of income include government allocations and research funding, supplemented by tuition fees and third-party contributions. The tuition fee for the program is 6,480 RMB per year, accounting for approximately 15% of the total income.

Over the past five years, the program invested RMB 1.2 million in curriculum development RMB 4.4 million in laboratory construction, and RMB 360,000 in undergraduate innovation and practice projects. Additional funds are allocated annually for equipment updates, laboratory and teaching-related infrastructure. Over 20 off-campus internship bases provide practical training, industrial exposure, and participation in faculty-led research projects, complementing on-campus laboratory resources.

The following information and statistics are derived from the SAR and the appendices.

**Laboratories:** The MC program has access to six teaching laboratories and several provincial-level experimental centers, including the Basic Physics Experimental Teaching Center, Electrical and Electronic Experimental Teaching Center, Chemical and Chemical National Experimental Teaching Demonstration Center, Engineering Training Center, and the Materials Science and Engineering Experimental Teaching Center. The Materials Chemistry laboratory spans approximately 480 m<sup>2</sup> and is equipped with synthesis, testing, and processing instruments valued at over RMB 6 million. These facilities support 13 experimental courses covering foundational, core professional, and applied engineering topics. Laboratory management includes operational protocols, maintenance procedures, and a tracking system.

**Library and Learning Resources:** The university library consists of Yifu Library and Wendian Pavilion, covering over 64,000 m<sup>2</sup> with 5,400+ seats and 260 electronic reading stations. It holds 4.15 million printed books, 2.81 million volumes of e-journals, 13.47 million dissertations, and 1.72 million full-text e-books across 140 databases. The library also provides access to specialized databases, multimedia content, and institutional repositories.

**Teaching Spaces and IT Infrastructure:** The university has 237 classrooms equipped with multimedia facilities. In 2019, 54 smart classrooms were added, including multi-screen seminar rooms. Specialized spaces include language labs, computer labs, cartography rooms, multifunctional lecture halls. All rooms are accessible for teaching and self-study.

IT infrastructure comprises the Computer and Network Application Experimental Teaching Center, the Network Information Center, and the Data Center. There are ten computer labs with over 800 computers, 100+ servers, and network switches across 3,700 square meters. Over the past five years, RMB 5.5 million has been invested in equipment updates.

**Practical Training and Internship Facilities:** The Mc program provides practical training through six on-campus laboratories and over 20 off-campus enterprise internship bases. On-campus labs cover 13 experimental courses across chemistry, materials science, physics, and engineering, with the Materials Chemistry lab spanning 480 m<sup>2</sup> and equipment valued over RMB 6 million. Off-campus bases offer industry exposure and innovation projects. On-campus experimental centers deliver approximately 31,200 teaching hours annually, supporting undergraduate and graduate practical education.

### **Analysis and assessment of the expert panel**

#### *Staff and Staff Development [ASIIN 3.1]*

The expert panel recognizes the faculty's solid academic credentials and dedication to both teaching and research endeavors. The teaching team features a well-balanced mix of professors, associate professors, and lecturers, with every member holding a doctoral degree—underscoring the program's academic rigor. The panel also appreciates the involvement of external lecturers from the industry. This enhances the program's practical relevance and industry linkage.

During interviews, the expert panel learned that the university requires a minimum of 252 credit hours annually, which can include both teaching and research activities. Different assessment standards may apply if a faculty member changes their type of category (teaching-oriented or research-oriented). Research contributions are evaluated based on project funding, publications, and patents, with a minimum of 26 hours allocated for research. Faculty members generally consider the workload manageable within normal working hours. Many teachers expressed that they find enjoyment in teaching and mentoring students, viewing it as a rewarding part of their professional work. The expert panel acknowledges AHU's emphasis on faculty's engagement in applied research and the transformation of scientific research achievements into patents.

Overall, the panel concludes that faculty qualifications and engagement are suitable for successful program delivery. AHU's staff development system is functional. Expanding international activities will further boost faculty professional growth and academic excellence, solidifying the program's quality. To further enhance the program's international profile, the experts recommend expanding English-taught course offerings and increasing opportunities. Continued efforts to advance teaching innovation, faculty development, and English language proficiency are encouraged.

#### *Student Support and Student Services [ASIIN 3.2]*

The expert panel notes that AHU offers comprehensive, well-structured student support services encompassing academic guidance, psychological counseling, and career assistance. These resources are accessible through multiple channels, including the Student Career Guidance Center, academic advisors, and thesis supervisors. A dedicated academic mentor is assigned to each student to provide personalized guidance on study planning, academic performance, and career development.

Feedback from students confirms that these support services are easily accessible, and they expressed full satisfaction with the assistance provided by faculty and the university. The

panel concludes that the student support and advisory framework is not only well-organized and effective in practice but also aligns with student expectations, contributing to their academic success and overall well-being.

*Funds and Equipment [ASIIN 3.3]*

5 The expert panel confirms the Materials Chemistry program boasts a stable, sustainably managed financial foundation. Funding comes from diverse sources—national/provincial government allocations, tuition fees, and industry partners' third-party contributions—with the program receiving university financial priority due to its strategic importance.

10 The program is also supported by modern, well-maintained teaching and research infrastructure: up-to-date equipment in laboratories, workshops and training centers, industry-joint labs enhancing practical learning, and comprehensive digital resources.

Both faculty members and students expressed satisfaction with these facilities. The panel concludes that sufficient financial and material resources effectively underpin high-quality teaching and continuous program improvement.

15 ***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 3***

*Staff and Staff Development [ASIIN 3.1]*

20 As stated above in section C-3, regarding the English proficiency of both students and teaching staff, the expert panel welcomes the university's plan to offer bilingual English taught courses in the future. Until those changes are implemented, the experts maintain their recommendation (see section F, E3).

Generally, the experts assess the criterion as substantially fulfilled.

## C-9. Quality management: Quality assurance and development [ASIIN 5]

### Description of the current status:

5 The MC program at AHU operates under a multi-tiered Quality Assurance (QA) system. The following information is derived from the SAR and the appendices.

#### *Organizational Structure and Responsibilities*

10 Quality management of the MC program is structured through multiple levels. The School of Materials Science and Engineering oversees the program, with the program director responsible for implementation and coordination. The Academic Committee and Teaching Steering Committee provide guidance on curriculum design, teaching, and assessment. Faculty members, including part-time industry professionals, participate in lectures, internships supervision, and thesis guidance. Responsibilities for monitoring, evaluation, and curriculum revisions are assigned to the associate dean and academic offices. Policies and procedures for quality management are documented in the Quality Management Handbook and related regulations (Appendix 02), providing a formal framework for decision-making and accountability.

#### *Standards and Monitoring*

20 The program adheres to internal regulations, such as the *Interim Measures for the Management of Undergraduate Talent Training Programmes*, to ensure curriculum compliance and achievement of learning outcomes. Monitoring mechanisms include classroom observations, student surveys, exam result analyses, and thesis evaluations (Appendices 02 Part XII, 22 Part IV-V). Centralized databases track performance indicators, and semesterly reports summarize course objectives and student achievement. Evaluations cover teaching quality, resource adequacy, and alignment with educational objectives.

25 Student feedback is collected through semester-based surveys, evaluating teaching effectiveness, workload balance, and resource adequacy. Faculty members and academic committees review these results to inform teaching improvements. However, student representatives reported during the on-site interview that while their feedback is collected, they are not consistently informed about the respective survey results.

#### *Continuous Improvement*

30 Improvement is driven by **internal evaluations**, including analysis of teaching outcomes and periodic reviews of course structure. Comprehensive revisions are conducted every four years, supported by feedback from students, employers, and academic audits. The

program also implements **external quality evaluations**, such as alumni and employer surveys, and undergoes national teaching reviews organized by the Ministry of Education of the People’s Republic of China.

The program shows strong outcomes: over three years, **graduation rates exceed 90%**, and the **average employment rate is 94.5%**. In average, 56% graduates pursue further studies in China and abroad.

| Last 3 Years                 | 2022   | 2023   | 2024   |
|------------------------------|--------|--------|--------|
| Number of students           | 41     | 51     | 45     |
| Number of graduates          | 37     | 50     | 42     |
| Proportion of graduates      | 90.24% | 98.00% | 93.33% |
| Employment rate of graduates | 91.89% | 94.00% | 97.62% |

The School of Materials Science also conducted an internal quality evaluation using SWOT analysis to identify strategic measures for continuous improvement, which can be summarized as follows:

**Strengths:** The program integrates multiple disciplines, including materials science, chemistry, and physics. It benefits from national “Double First-Class” initiative support, providing funding, faculty recruitment, and laboratory resources. The curriculum is structured across general education, disciplinary foundations, professional courses, and practical training, with access to provincial and ministerial key laboratories.

**Weaknesses:** The program lacks distinctive characteristics compared with other universities. Professional textbooks are limited, and theoretical instruction is incomplete. The practical teaching system is not fully comprehensive, restricting opportunities for experimental innovation and enterprise-based experience.

**Opportunities:** National and regional policies support the new materials industry. There is increasing demand for specialized talent in sectors such as new energy, semiconductors, and optoelectronic materials, providing avenues for curriculum and program development.

**Threats:** The professional image of Materials Chemistry requires further enhancement among students and society. The curriculum does not fully reflect rapid technological advancements and industry requirements.

**Measures Conducted:** The School of Materials Science applied the SWOT analysis to guide strategic development, adopting SO, ST, WO, and WT strategies. These include leveraging interdisciplinary strengths to cultivate high-quality and innovative talent, strengthening industry-university-research collaboration, updating curricula according to industry trends, developing professional textbooks, and optimizing practical training.

### **Analysis and assessment of the expert panel**

In the context of the SWOT analysis, the expert panel does not classify the limited availability of specialized textbooks as a weakness. On the contrary, this situation provides the faculty with the flexibility to curate knowledge from diverse academic and industry sources, enabling the development of a tailored textbook that is more aligned with the program's specific learning objectives and practical application needs—consistent with ASIIN's emphasis on competency-oriented education.

Regarding the identified threat that “the curriculum does not fully reflect rapid technological advancements and industry requirements,” the panel recommends that program coordinators and faculty proactively define and articulate the program's unique selling proposition (USP) as a distinct competency profile. The strength of research on inorganic non-metallic functional materials is one example. This USP should explicitly integrate cutting-edge technological developments and industry-relevant competencies, ensuring the program maintains its competitiveness.

The expert panel considers that the program operates with a functioning quality assurance system that meets the core expectations of the ASIIN standards. The system fosters a sustainable quality culture focused on reflection and continuous improvement.

Internal assurance operates across university, faculty, and departmental levels, including teaching assessments, classroom observations, peer reviews, and course inspections. Students complete mandatory semesterly online evaluations, with results shared via the Teaching Management System. External validation includes employer/alumni surveys, faculty-student forums, and Ministry of Education reviews, enabling data-driven curriculum adjustments. Faculty members use evaluation reports to refine teaching methods, and students note tangible course improvements from their feedback.

However, the expert panel identifies a gap: the communication of evaluation outcomes to students, currently facilitated primarily through volunteer student representatives, lacks a systematic and standardized framework. To fully close the feedback loop—consistent with ASIIN's emphasis on transparency, stakeholder engagement, and continuous quality improvement—the panel recommends formalizing the dissemination process. This includes

establishing clear, documented procedures for sharing evaluation results and subsequent improvement measures with students, ensuring transparency in how student feedback drives curricular or teaching adjustments.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 5***

In response to the feedback regarding the closed feedback loop, the university states that a systematic quality assurance feedback mechanism has been established to collect, analyse and publicly discloses evaluation data.

The expert panel acknowledges the establishment of a closed-loop communication process involving all stakeholders, aimed at enhancing transparency and supporting continuous improvement. However, as the full implementation of these newly introduced quality assurance measures will require time, the panel therefore issues a recommendation in this regard (see section F, E6).

Overall, the experts assess the criterion as substantially fulfilled.

## **C-10. Transparency and documentation [ASIIN 4]**

### **Description of the current status:**

#### *Module Descriptions [ASIIN 4.1]*

The MC program provides regularly updated module descriptions covering all essential elements required by accreditation standards. Each module specifies the title, code, aims, learning outcomes, teaching and assessment methods, prerequisites, credits, and duration. Information about recommended readings, teaching support, and assessment weightings is also included.

The descriptions are compiled in *Appendix 09 Module Descriptions* and undergo continuous review to align with current academic and industry requirements. Module information is accessible through multiple platforms: the university's internal platforms, Learning Management System (LMS), and printed student handbooks. Updates or modifications are communicated through university channels such as email or newsletters to ensure all students have timely access to accurate information.

*Diploma and Diploma Supplement [ASIIN 4.2]*

Sample **diplomas and diploma supplements** are included in the SAR appendices (*Appendix 21*).

5 The university maintains a standardized process for issuing graduation certificates and Diploma Supplements. After confirming students' eligibility upon completion of coursework, exams, and internships, documents are generated using an automated system to ensure accuracy.

10 The **Diploma Supplement**, issued in both **Chinese and English** for each graduate, details academic performance, course structure, grading system, and the university's accreditation status. This supports graduates seeking further education or employment internationally. Student feedback regarding documentation accuracy is collected and addressed promptly through the administrative office. The university conducts internal audits and graduate surveys to ensure continuous improvement in document issuance and data integrity.

15 *Relevant Rules [ASIIN 4.3]*

20 The university's academic policies and procedures are regulated through a series of official documents that define rights and responsibilities of both students and faculty members (such as Appendix 01, *Student Handbook*; Appendix 02, *Quality Management Handbook*; Appendix 17, *Examination Regulation*). These include rules on course registration, examination and grading, degree conferment, and appeals procedures. Quality management and documentation processes are further governed by the *Undergraduate Education Quality Management System* (Appendix 02), ensuring that course delivery, examinations, and student performance are systematically monitored.

25 All relevant rules and regulations are published on the university's official website and are accessible in the Chinese language. The "Quality Management Handbook" provides the regulatory foundation for curriculum design, revision, and approval (Appendix 02, Part I-V). Additionally, the *Student Handbook* outlines disciplinary requirements, ethical codes, and procedures for academic appeals.

30 Students are informed about these rules during orientation and can access them throughout their studies. Collectively, these frameworks ensure that not only the students but all stakeholders—students, faculty, and administrators—have transparent access to program information, module content, assessment regulations, and quality assurance mechanisms.

### ***Analysis and assessment of the expert panel***

#### ***Module descriptions***

5 The expert panel acknowledges that the Materials Chemistry program maintains formally structured and accessible module and course descriptions, consolidated into a unified handbook. Each module description provides key academic information, including the module title, semester placement, credit value, contact hours, learning outcomes, prerequisites, teaching and assessment methods, and workload distribution.

10 However, after a detailed inspection of the provided documentation, the expert panel identified several inconsistencies and inaccuracies. Specifically, the intended learning content related to organic chemistry within the module Polymer Chemistry is not reflected in the corresponding module description. Additionally, during the on-site interview with program coordinators, the panel pointed out that certain descriptions contain repetitive information and that the module Inorganic Material Synthesis does not accurately represent the actual course content. These issues reduce the overall clarity, consistency of the documentation and therefore do not fully meet the expectations set out in the ASIIN standards for module descriptions.

#### ***Diploma and Diploma Supplement***

20 The expert panel examined the samples of the Diploma and Diploma Supplement in Chinese and English and considers them to be clear, complete, and in alignment with international standards. Information on statistical data for assessing individual student performance as well as on credit conversion is included.

#### ***Relevant rules***

25 The expert panel acknowledges that academic and regulatory information is available in Chinese and students confirmed they had access to all the documents via intranet and internal online platform.

30 The expert panel confirms that AHU has established a comprehensive set of regulations covering teaching, examinations, and evaluation processes. These rules are readily accessible to both students and faculty through the university's online Information Portal and Teaching Management System. During orientation sessions, new students receive guidance on these regulations, and feedback from current students indicates they can easily locate relevant information via online platforms.

While the internal dissemination of these rules operates smoothly, the panel notes room for improvement in making this regulatory information accessible to external stakeholders—particularly prospective students. In summary, the panel concludes that the university’s internal documentation of regulations is clear, and its regulatory framework is effectively implemented, with only minor adjustments needed to enhance external accessibility.

***Final assessment of the experts after the statement of the Higher Education Institution regarding criterion 4***

*Module Descriptions [ASIIN 4.1]*

In response to the request to update the module descriptions in line with the revised ECTS allocation, the university has submitted updated module descriptions. After careful examination, the experts consider the content to be complete and accurately reflect the revised ECTS allocation.

Generally, the experts assess the criterion as fulfilled.

## D. Additionally requested documents

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

- 5           • A revised ECTS overview with conversion guidelines has been provided. It includes a clear explanation of the methodology for converting Chinese credits into ECTS and specifies how self-study workload, particularly for the internship and bachelor thesis, is measured, evaluated, and monitored in practice. A framework should be designed to ensure a balanced workload for both students and teaching staff.
- 10          • Revision of module descriptions reflecting current curriculum and revised workload in ECTS

## E. Comment of the Higher Education Institution (08.12.2025)

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

- Revised Appendix 09: Module Descriptions
- Revised Appendix 15: Conversion from Credit Points to ECTS Credits
- Revised Appendix 02 Quality Management Handbook
- Revised Appendix 21 Graduation Certificates
- Appendix 26 Notice on Issuing the Administrative Measures for Overseas Exchange Programs
- Appendix 27 Implementation measures for checking duplicate of graduation thesis (design, creation) of Anhui University (trial implementation)
- Appendix 28 Undergraduate thesis quality management system and blind peer review process

The following quotes the comment of the institution:

Major recommendations

R1. [ASIIN 1.1, 5] It is strongly recommended to make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.

Response: Thank you for your valuable recommendation. We fully endorse the significance of making qualification objectives accessible to all relevant stakeholders. In fact, we have publicly shared clear qualification objectives with all stakeholders and facilitated their accessibility for reference via diverse channels—including course syllabi (where the objectives are explicitly outlined), the program's official website <https://mse.ahu.edu.cn/2022/0308/c19499a281013/page.htm>; <https://mse.ahu.edu.cn/ASIINrz/list.htm>), academic handbooks, and promotional materials. This multi-channel approach ensures easy access for prospective students, faculty members, accreditation bodies, industry partners, and other relevant parties.

Through stakeholder engagement sessions—including teacher-student meetings and industry feedback forums—we will proactively gather feedback on qualification objectives, address stakeholders' pertinent concerns, and ensure the objectives stay aligned with academic standards, industry expectations, and the evolving needs of students and partners.

In doing so, we aim to enhance transparency, align stakeholder expectations, and ensure all parties gain a clear grasp of the program's core goals.

Please rest assured that we are fully committed to implementing these practices to foster deeper stakeholder engagement and drive continuous enhancement of the program.

5 R2. [ASIIN 1.2, 1.3] It is strongly recommended that the professional curriculum be strengthened by explicitly incorporating organic chemistry content to align with the program title, "Materials Chemistry." This could be achieved by adjusting the credit allocation, reducing credits for courses that are less directly related to the program's core objectives, and increasing the credit weight for courses covering organic chemistry. Such an adjustment would ensure that the curriculum adequately reflects the knowledge base implied by  
10 the program title and supports the intended learning outcomes.

Response: Thank you for your insightful suggestion. We fully recognize the importance of aligning the curriculum with the program title "Materials Chemistry," and agree that incorporating more organic chemistry content would strengthen the program. Organic Chemistry is crucial for materials science, especially in the areas of organic materials, polymers,  
15 and nanomaterials, which are central to modern materials chemistry.

In response to your recommendation, we have already undertaken a review of our curriculum. We have made significant revisions to the content of our College Chemistry and Polymer Chemistry courses, incorporating essential organic chemistry principles relevant to  
20 materials design. These adjustments are intended to ensure that students gain a deeper understanding of organic chemistry's role in materials development and its applications in cutting-edge technologies.

For further details, please refer to the attached documents outlining the updated course syllabi, which now include enhanced organic chemistry content (Please refer to the revised  
25 Appendix 09 Module Descriptions). We have also explored the possibility of redistributing course credits by reducing the emphasis on areas less directly related to the core objectives of materials chemistry and increasing the credit allocation for courses focusing on organic chemistry and its applications in materials science.

We believe these revisions will better align the curriculum with the program's title and ensure that students are equipped with the necessary knowledge and skills to meet the evolving  
30 demands of the field.

Thank you once again for your valuable feedback. We are committed to continuously improving the curriculum to meet both academic and industry standards.

R3. [ASIIN 1.4] It is strongly recommended that Anhui University implements rules for the recognition of acquired knowledge, skills or competences from outside the Higher Education Institution for up to half of the credit.

Response: Thank you for your thoughtful recommendation. We fully understand the value of recognizing prior learning and experiences gained outside the formal academic environment. Such an approach not only acknowledges the diverse background of our students but also enhances the flexibility and inclusivity of our program. In response to your suggestion, we are actively considering the implementation of a formal recognition system for acquired knowledge, skills, and competences from external sources.

At Anhui University, we already have some mechanisms in place to acknowledge prior learning, such as recognizing relevant professional experience or certifications, measures for Overseas Exchange Programs (another Documents we attached and named as Appendix 26) and so on. However, we agree that establishing more formal and structured rules for the recognition of such external credits would provide a clearer pathway for students, particularly those who may have gained valuable experience in industry or research settings.

In the coming months, we plan to develop and implement a set of guidelines for the recognition of prior learning (RPL) that would allow students to earn up to half of their program credits from recognized non-academic sources. These guidelines will be based on clear criteria and will involve a thorough evaluation process to ensure that the acquired knowledge aligns with the learning outcomes of the Materials Chemistry program.

We are committed to ensuring that the process is transparent, fair, and academically rigorous, while also allowing students to maximize their prior learning in a way that supports their academic and professional development.

We appreciate your recommendation and will continue to work on refining this process to better serve our students and align with best practices in higher education.

R4. [ASIIN 1.5] It is strongly recommended to establish and implement a transparent mechanism for systematically evaluating and validating the actual student workload. Such a mechanism should enable the identification and correction of discrepancies between the calculated and the actual workload experienced by students. Based on the verified workload data, the ECTS credit conversion and allocation should be reviewed and, where necessary, adjusted to ensure consistency and accuracy.

Response: Thank you for your scientific recommendation. We have established and implemented a transparent mechanism for systematically evaluating and validating the actual student workload. The total workload of each course is composed of the class attendance time, the homework time, and the time for previewing/reviewing and so on. The class

attendance time is determined based on the class schedule in the educational administration system. The homework time is determined according to the assignment submission records, reading records, practice records, and records from the experimental equipment management system and so on. The duration of previewing or reviewing is determined by the school's teaching director, program director, the course committee and relevant teachers. According to these rules, we reviewed actual workload revised the ECTS credit conversion and allocation, seen in the revised Appendix 15, which is attached in the documents of D-3 Request for additional material/documents. We think it is consistency and accuracy now.

R5. [ASIIN 2] It is strongly recommended to enhance the quality of bachelor theses by ensuring that the scope of experimental work and the depth of scientific analysis fully reflect the intended learning outcomes of the degree program. To strengthen objectivity and assessment rigor, the implementation of a blind peer review by external experts or institutions is suggested.

Response: Thank you for your insightful recommendations, which align closely with our ongoing efforts to enhance the quality of undergraduate theses (bachelor theses) and uphold the academic rigor of our degree program.

We fully endorse the importance of ensuring that the scope of experimental work and the depth of scientific analysis in bachelor theses fully reflect the intended learning outcomes (ILOs) of the program. To this end, we have already established a comprehensive quality management system for undergraduate theses, which includes strict topic approval, supervisor guidance standards, and pre-submission review mechanisms. These measures collectively ensure that each thesis meets the required academic standards in terms of experimental design comprehensiveness and scientific analysis depth.

Regarding the suggestion of implementing blind peer review to strengthen objectivity and assessment rigor, we should point out that although a bachelor theses review system excluding supervisors has been in place for years, the blind peer review has not been formally implemented at Anhui University before. In fact, we have established a quality control system for bachelor theses through the two-level supervision (university and school) and a random inspection system from the Ministry of Education. In the future, the school will engage external experts from renowned universities, industry institutions, and other colleges within the university (selected from our established expert pool) to evaluate theses anonymously—with neither reviewers nor students aware of each other's identities. The review focuses on experimental validity, analytical depth, academic innovation, and alignment with the program's ILOs, providing an impartial assessment that complements the supervisor's evaluation.

Detailed information about our undergraduate thesis quality management system is available in another Documents we attached and named as Appendix 27, for your reference.

We remain committed to continuously optimizing these mechanisms based on academic advancements and industry feedback, ensuring that our bachelor theses consistently meet high academic standards and effectively reflect students' comprehensive capabilities.

R6. [ASIIN 2] It is strongly recommended that the university enforce consistent adherence to recognized academic writing conventions, including proper citation, referencing, and the use of standardized formatting templates. This should be supported by clear institutional guidelines and training sessions for both students and supervisors to ensure academic integrity and professional presentation in all thesis work.

Response: We sincerely appreciate the valuable suggestions about the improvement of bachelor theses. Specifically, the following three key documents have been issued and implemented, which are attached as Appendix Materials in this response to provide detailed guidance for both students and supervisors,

Anhui University undergraduate thesis (design, creation) management provisions. (seen in the Appendix 2, Part XVII)

The document comprehensively regulates the overall management of undergraduate theses, including the requirements for academic writing norms, the responsibility of supervisors in guiding writing, and so on, laying a institutional foundation for ensuring the standardization of thesis writing. (seen in the Appendix 2, Part XVII)

Implementation measures for checking duplicate of graduation thesis (design, creation) of Anhui University (trial implementation). (another Documents we attached and named as Appendix 28)

Focusing on safeguarding academic integrity, this measure clarifies the scope, standards, and processes of thesis plagiarism checking, effectively curbing academic misconduct such as improper citation and plagiarism, and providing a strong guarantee for the authenticity and originality of theses.

Anhui University undergraduate thesis (design, creation) writing specifications. (seen in the Appendix 2, Part XXI)

This specification gives detailed and specific requirements on the structure of theses, the format of chapters, citation and referencing standards (including the format of in-text citations and reference lists), and the use of charts and formulas, providing direct and operable guidelines for students to carry out standardized academic writing.

5 In the coming months, the Programme of Materials Chemistry will further promote the in-depth implementation and continuous improvement of these institutional guidelines. We will combine the professional characteristics of materials chemistry to refine the writing norms related to experimental data presentation, literature review, and conclusion discussion, so as to make the guidelines more in line with the actual needs of thesis writing in the discipline and ensure that the academic integrity and professional presentation of our department's bachelor theses are effectively guaranteed.

10 In addition to improving the guidelines, we will take targeted measures to strengthen the guidance and training for students and supervisors. On the one hand, the department will uniformly compile and issue standardized formatting templates for bachelor theses of materials chemistry, which will clearly define the requirements of font, font size, line spacing, margin, and reference format, so that students can have a clear reference in the initial stage of writing. On the other hand, before the official start of the annual bachelor thesis work, we will organize special training sessions for both undergraduate students and thesis supervisors. The training content will cover the key points of the institutional

15 guidelines, the use skills of standardized templates, common problems in academic citation and referencing, and typical cases of academic integrity. We will also set up a Q&A session to solve the practical difficulties encountered by students and supervisors in the process of thesis writing and guidance. These measures are expected to effectively enhance the awareness of academic norms among students and supervisors, and comprehensively improve the standardization level and professional quality of the bachelor theses of Materials Chemistry.

R7. [ASIIN 4.1] It is strongly recommended to update the course descriptions so that they accurately reflect the revised ECTS workload and the correct course content.

25 Response: We sincerely appreciate the valuable suggestion. According to the revised the ECTS credit conversion and allocation guidelines, the course descriptions are updated in the revised Appendix 09, which is attached in the documents of D-3 Request for additional material/documents.

30 R8. [ASIIN 5] It is strongly recommended that AHU enhance the transparency of its quality assurance system by sharing evaluation results with relevant stakeholders, especially students, directly and establish a formal feedback mechanism to systematically collect, analyse, and apply.

35 Response: Thank you for your suggestion. In response to ASIIN certification requirements for transparency and continuous improvement of the quality assurance system, the School of Materials Science and Engineering has established a systematic feedback mechanism by

collecting and analyzing data and publicly disclosing quality evaluation results, thereby optimizing course teaching quality and professional training programs to enhance professional competitiveness (the revised Appendix 02 Part XXVII Teaching Quality Assurance of the School of Materials Science and Engineering Feedback Mechanism, another documents we attached). This mechanism aims to enhance the engagement of stakeholders involved in undergraduate teaching, especially students, forming a closed-loop management process of 'collection–analysis–evaluation–feedback–improvement' to ensure teaching quality meets ASIIN standards.

R9. [ASIIN 1.3] In terms of the curriculum design It is recommended 1) to expand the range of elective courses by incorporating topics related to sustainability and material recycling, 2) to introduce a new course on Computational Materials Science in response to current developments in artificial intelligence, 3) to integrate virtual simulation tools into the curriculum. Such tools can enhance students' understanding of the projection principles of three-dimensional (3D) space and support more effective learning outcomes. 4) to increase the duration of internships and to establish a dedicated internship module within the curriculum. This suggestion is based on feedback from industry representatives.

Response: Thank you very much for your thorough review and valuable recommendations regarding the curriculum design of the Programme of Materials chemistry.

(i) Sustainability and Recycling in Current Curriculum:

Our existing course structure systematically incorporates sustainability and materials recycling through dedicated modules in several core courses, including Introduction of Materials, Introduction to Materials Chemistry, and Polymer Chemistry. These modules cover advanced topics such as hydrogen fuel cells, lithium-ion batteries, photocatalytic water splitting for hydrogen production, and photocatalytic CO<sub>2</sub> reduction, alongside specialized sections on the recycling of waste plastics and spent batteries.

(ii) New Course on Computational Materials Science:

To further enhance students' capabilities in materials modeling and simulation, we plan to introduce a new course, Material calculation and simulation, designed for senior-level students. This course will focus on the practical application of molecular dynamics, first-principles calculations, and machine learning in materials design. The draft syllabus is attached for your review and valuable feedback.

(iii) Integration of Virtual Simulation Tools:

Regarding the use of virtual simulation tools, relevant software instruction has already been integrated into our Engineering drawing and CAD course. This integration aims to

strengthen students' understanding of 3D spatial projection principles and improve their hands-on skills with simulation technologies.

(IV) Internship Enhancement: Duration Extension and Structural Optimization for Maximized Practical Experience:

5 The current internship duration in our program is two weeks. On one hand, we are planning to increase the duration of internships to better prepare students for industry demands. On the other hand, we are committed to optimizing this structure by streamlining introductory sessions and company overviews, which can be supplemented through self-directed learning. This will allow us to significantly increase the time allocated to on-site,  
10 practical, and hands-on experiences, thereby improving the overall effectiveness and learning outcomes of the internship.

R10. [ASIIN 1.3,1.6] It is recommended to enhance the English proficiency of both students and teaching staff by for example introducing additional bilingual or English- taught courses.

15 Response: We sincerely appreciate the valuable suggestions. We will choose some professional courses and require the teachers to conduct bilingual teaching. In addition, some teachers who have obtained degrees abroad are required to offer 2 to 3 English-taught courses. In addition, we also encourage teachers and students to actively seek opportunities for study abroad, enhancing their professional knowledge while improving their English  
20 proficiency.

R11. [ASIIN 1.3] It is recommended to expand opportunities for student mobility, allowing students to study abroad and gain international experience to broaden their academic and professional perspectives.

25 Response: Thank you for your valuable recommendation. We fully agree with the importance of expanding opportunities for student mobility, particularly as international experience plays a significant role in broadening students' academic and professional perspectives in an increasingly globalized academic and career environment. To address this, Anhui University has already taken several measures to promote international exchanges for our students. Please reference to the following web site:  
30 <https://en.ahu.edu.cn/engjhz/>. Anhui University has established a dedicated International Exchange and Cooperation Management Department, responsible for promoting and managing all international exchange programs. This department has forged close partnerships with several world-renowned universities and research institutions, including Stony Brook University (USA), University of Toronto (Canada), University of Göttingen (Germany), and  
35 Kyoto University (Japan). Through these collaborations, students can participate in short-

term exchange programs, joint training programs, dual-degree programs, and other forms of international academic and research exchanges.

In addition, the university has launched a dedicated undergraduate study abroad funding program, which includes various scholarships and funding opportunities at both the university and national levels. These financial supports aim to encourage students to engage in international exchange, academic conferences, and overseas study projects. Such funding significantly reduces the financial burden on students, ensuring that more students can take advantage of international platforms to broaden their academic horizons and career development.

We also promote student international exchanges through various channels, regularly organizing international academic seminars, lectures, and other events to enhance students' cross-cultural understanding and communication skills. These initiatives not only provide students with valuable learning resources but also help them establish a global perspective and improve their competitiveness in the global job market.

We firmly believe that these efforts will lay a solid foundation for our students' academic and professional development, providing them with broader international platforms.

Once again, thank you for your suggestion. We will continue to strengthen these international exchange and cooperation programs and further advance the process of internationalizing our students' education.

R12. [ASIIN 1.3] It is recommended to regularly update and maintain the English-language website to support the international profile of the Materials Chemistry program.

Response: Thank you for your valuable recommendation. We fully agree with the importance of maintaining an up-to-date and comprehensive English-language website (<https://mse.ahu.edu.cn/ASIINrz/list.htm>) to enhance the international profile of the Materials Chemistry program. A well-maintained website is essential for engaging with global stakeholders, including prospective students, academic collaborators, and industry partners, and for showcasing the strengths and achievements of the program.

In response to your suggestion, we have already updated our English-language website to include more detailed and informative content about the Materials Chemistry program. The updated website now provides an in-depth overview of the program's curriculum, faculty, research initiatives, and student achievements, helping to better highlight the strengths of the program and its alignment with international standards.

Additionally, we have emphasized key aspects such as international exchange opportunities, funding programs, and career development pathways, all of which are integral to the

academic experience of our students. We are committed to regularly reviewing and updating the website to ensure that it remains an accurate and comprehensive resource for prospective students, collaborators, and partners.

To ensure the quality and accuracy of the content, we have designated a dedicated team responsible for the ongoing maintenance and updates of the website. This team will work to ensure that the website not only supports our international outreach but also reflects the dynamic growth and global reputation of the Materials Chemistry program.

We believe that these updates will significantly enhance the international visibility of the program and serve as an effective tool for attracting and engaging with the global academic community.

Thank you again for your thoughtful feedback. We are committed to continuously improving our online presence to support the international profile of the Materials Chemistry program.

R13. [ASIIN 1.6] To incorporate industry feedback, it is recommended to design research projects based on specific real-life problems faced by companies.

Response: We highly value industry feedback, as it serves as a critical guide for aligning our academic research and talent training with real-world demands. In fact, our school undertakes a substantial number of industry-sponsored applied research projects each year (some can be seen in the Appendix 20), which serve as the core foundation for providing scientific research training to our students.

Leveraging these collaborative projects, we systematically integrate the actual technical challenges and practical problems encountered by industrial partners into the design of student research initiatives. This approach ensures that our research projects are not only academically rigorous but also directly address the specific real-life needs of companies—effectively translating industry feedback into tangible research objectives and training outcomes.

Through this practice, students gain hands-on experience in solving industry-relevant problems while enhancing their applied research capabilities, which further strengthens the connection between our academic programs and industrial development.

R14. [ASIIN 2] It is recommended to consider student feedback of an open-book examination format for the course “Material Analysis Methods” (The actual course name is “Material Modern Analysis Methods”) to better assess applied knowledge and problem-solving skills.

Response: We sincerely appreciate your valuable suggestions regarding the assessment methods of our course. We fully understand and agree with your intention to reform the assessment methods to guide students towards enhancing their abilities.

5 Actually, at Anhui University, the assessment of each course is consisted of a process-based assessment and a final assessment. The process-based assessment takes various forms and is mostly by open-book format. Most of the final assessments for core courses are closed-book. After consideration in light of our program's cultivation objectives for Materials Chemistry according to the core ideals of engineering education accreditation, we currently tend to maintain the closed-book format in the final assessment process. This decision is  
10 primarily based on the following considerations:

1. "Materials Modern Analysis Methods" is a core foundational course for the program of Materials Chemistry, which contains a large number of core concepts, basic principles that must be mastered proficiently. Closed-book examinations can effectively urge students to consolidate these basic knowledges.

15 2. This course syllabus explicitly sets that the students need to 'memorize, understand, and apply' relevant knowledge points. Closed-book exams are a direct and effective way to evaluate the achievement of basic knowledge objectives. It could provide more accurate information for the continuous improvement of course teaching content and methods.

Taking into account your valuable recommendation, we plan to adopt a comprehensive  
20 assessment scheme combining 'closed-book and open-book examinations' to enhance formative assessment'. In regular course projects, literature discussions, experimental reports, and group assignments, we strongly encourage and promote open-book and inquiry-based learning models. In these components, students are required to consult literature, integrate information, and solve complex engineering problems. We believe that such a  
25 combination can ensure the solidity of basic knowledge while fully exercising and evaluating students' comprehensive abilities and innovative thinking, thereby more comprehensively supporting the graduation requirements of engineering professional accreditation.

#### D-3 Request for additional material/documents (Answer)

30 A revised ECTS overview with conversion guidelines has been provided. It includes a clear explanation of the methodology for converting Chinese credits into ECTS and specifies how self-study workload, particularly for the internship and bachelor thesis, is measured, evaluated, and monitored in practice. A framework should be designed to ensure a balanced workload for both students and teaching staff.

Response: Thank you for your valuable suggestion. We provided a revised ECTS overview with conversion guidelines in the revised Appendix 15, which clearly explained the methodology for converting Chinese credits into ECTS and how self-study workload is specified. And the revised workload in ECTS is also listed.

- 5                    Revision of module descriptions reflecting current curriculum and revised workload in ECTS.

Response: We sincerely appreciate your valuable suggestions. The Revised module descriptions are seen in revised Appendix 09, which is reflected the current curriculum and revised workload in ECTS.

- 10                  In addition, based on the above Recommendations and the issues pointed out during the on-site visit, we have updated the SAR and Appendix, which are also in another documents we attached. We sincerely invite you to review and evaluate it again.

## F. Summary: Expert recommendations (24.12.2025)

Taking into account the additional information and the statement given by Anhui University, the experts summarize their analysis and **final assessment** for the award of the seals as follows:

| Degree Program         | ASIIN Seal                     | Maximum duration of accreditation |
|------------------------|--------------------------------|-----------------------------------|
| Ba Materials Chemistry | With requirements for one year | 31.12.2031                        |

### Requirements

- A 1. [ASIIN 1.4] It is required to implement rules for the recognition of acquired knowledge, skills or competences from outside the Higher Education Institution for up to half of the credits.
- A 2. [ASIIN 1.5] It is required to establish and implement a transparent mechanism for systematically evaluating and validating the actual student workload.
- A 3. [ASIIN 2] It is required to enhance the quality of bachelor theses by ensuring that the scope of experimental work and the depth of scientific analysis fully reflect the intended learning outcomes of the degree program.
- A 4. [ASIIN 2] It is required that the university enforce consistent adherence to recognized academic writing conventions, including proper citation, referencing, and the use of standardized formatting templates.

### Recommendations

- E 1. [ASIIN 1.3] It is recommended to introduce a new course on Computational Materials Science in response to current developments in artificial intelligence.
- E 2. [ASIIN 1.3] It is recommended to increase the duration of internships and to establish a dedicated internship module within the curriculum. This recommendation is based on feedback from industry representatives.
- E 3. [ASIIN 1.3,3.1] It is recommended to enhance the English proficiency of both students and teaching staff.

- E 4. [ASIIN 1.3] It is recommended to expand opportunities for student mobility, allowing students to study abroad and gain international experience to broaden their academic and professional perspectives.
- E 5. [ASIIN 1.3] It is recommended to regularly maintain and update the English-language website to support the international profile of the Materials Chemistry program.
- E 6. [ASIIN 5] It is recommended that the transparency of existing quality assurance mechanisms be systematically improved by directly sharing evaluation results with students.

## G. Comment of the Technical Committees

### Technical Committee 05 – Materials Science, Physical Technologies (12.03.2026)

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

The TC members follow the experts' assessment without changes.

The Technical Committee 05 – Materials Science, Physical Technologies recommends the award of the seals as follows:

| Degree Programme       | ASIIN Seal                     | Accredited by German Engineers | Maximum duration of accreditation |
|------------------------|--------------------------------|--------------------------------|-----------------------------------|
| Ba Materials Chemistry | With requirements for one year | With requirements for one year | 31.12.2031                        |

### Technical Committee 09 – Chemistry, Pharmacy (16.03.2026)

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

The TC members follow the experts' assessment without changes.

The Technical Committee 09 – Chemistry, Pharmacy recommends the award of the seals as follows:

| Degree Programme       | ASIIN Seal                     | Accredited by German Engineers | Maximum duration of accreditation |
|------------------------|--------------------------------|--------------------------------|-----------------------------------|
| Ba Materials Chemistry | With requirements for one year | With requirements for one year | 31.12.2031                        |

## I. Decision of the Accreditation Commission (27.03.2026)

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

The Accreditation Commission discusses the procedure and adopts several amendments. In particular, it revises the content of Requirement A1, observing that the ASIIN Criteria require provisions governing the recognition of knowledge, skills, and competences acquired at other higher education institutions. In addition, as stated in the report, applicants with complete colour blindness are currently not admitted to the programme under review. The Accreditation Commission holds the view that applicants must not be excluded from the degree programme solely on the basis of colour blindness, as this condition does not automatically exclude academic suitability or the ability to complete the programme successfully. It therefore decides to add a new requirement A2.

The Accreditation Commission decides to award the following seals:

| Degree Programme       | ASIIN Seal                     | Accredited by German Engineers | Maximum duration of accreditation |
|------------------------|--------------------------------|--------------------------------|-----------------------------------|
| Ba Materials Chemistry | With requirements for one year | With requirements for one year | 31.12.2031                        |

### Requirements

- A 1. [ASIIN 1.4] It is required to implement rules for the recognition of acquired knowledge, skills or competences from other Higher Education Institution.
- A 2. [ASIIN 1.4] The admission procedures must ensure equal access. Ensure that color blind students can enroll in the programme.
- A 3. [ASIIN 1.5] It is required to establish and implement a transparent mechanism for systematically evaluating and validating the actual student workload.
- A 4. [ASIIN 2] It is required to enhance the quality of bachelor theses by ensuring that the scope of experimental work and the depth of scientific analysis fully reflect the intended learning outcomes of the degree program.

- A 5. [ASIIN 2] It is required that the university enforce consistent adherence to recognized academic writing conventions, including proper citation, referencing, and the use of standardized formatting templates.

### **Recommendations**

- 5 E 1. [ASIIN 1.3] It is recommended to introduce a new course on Computational Materials Science in response to current developments in artificial intelligence.
- E 2. [ASIIN 1.3] It is recommended to increase the duration of internships and to establish a dedicated internship module within the curriculum. This recommendation is based on feedback from industry representatives.
- 10 E 3. [ASIIN 1.3,3.1] It is recommended to enhance the English proficiency of both students and teaching staff.
- E 4. [ASIIN 1.3] It is recommended to expand opportunities for student mobility, allowing students to study abroad and gain international experience to broaden their academic and professional perspectives.
- 15 E 5. [ASIIN 1.3] It is recommended to regularly maintain and update the English-language website to support the international profile of the Materials Chemistry program.
- E 6. [ASIIN 5] It is recommended that the transparency of existing quality assurance mechanisms be systematically improved by directly sharing evaluation results with students.

## Appendix: Learning Outcomes and curricula

Learning outcomes based on SAR Input:

The training objectives of the bachelor program *Materials Chemistry (MC)* at Anhui University (AHU) is based on Anhui University's talent development mechanism. It aims to combine theoretical knowledge with practical application. It trains graduates to analyze and solve complex problems and acquire new knowledge creatively. Students gain fundamental skills for research and technological development in this field, preparing them for careers in production, research, teaching, and management. The overall training objectives are as follows:

**Objective 1:** Master the foundational knowledge of mathematics, natural sciences, information technology, and other related fields, establishing a solid basis for future coursework, and applying this knowledge to solve complex engineering problems.

**Objective 2:** Acquire a broad range of basic engineering and specialized knowledge, building a solid foundation for future professional courses.

**Objective 3:** Gain professional expertise in addressing complex engineering challenges within the field of materials chemistry. Be capable of conducting innovative research in molecular design based on scientific principles and methods. Be equipped to investigate, design, and analyze complex engineering issues within related fields, and propose effective solutions to meet the specific needs of materials chemistry problems.

**Objective 4:** Master the cutting-edge, advanced professional knowledge and skills in materials chemistry, staying informed about the evolving trends in the field, and furthering self-development to remain at the forefront of industry advancements.

**Objective 5:** Develop cross-cultural communication and international collaboration skills that are essential for adapting to social and global changes.

**Objective 6:** Understand China's contemporary social models and norms, demonstrating strong social behavior, team spirit, and a commitment to humanistic values. Achieve well-rounded development in moral, intellectual, physical, and psychological dimensions.

In accordance with the training objectives, the expected learning outcomes of the programme are as follows:

(1) Acquire a broad and solid foundation in mathematics and science to comprehend the complex phenomena specific to materials chemistry.

(2) Develop the ability to analyze fundamental engineering and professional concepts.

(3) Apply professional knowledge to develop new products and technologies in the field of Materials Chemistry.

(4) Expand professional knowledge by tracking trends in materials chemistry and related fields, while acquiring relevant knowledge reserves for further in-depth study.

(5) Be able to read professional literature in English and effectively communicate in English to discuss specialized topics.

(6) Cultivate comprehensive abilities, including teamwork, management, and international communication skills.

Curricula (based on Appendix 08 Study Plan or Curricular Overview of SAR) list from next page:

Appendix 15 Conversion from Chinese Credit Points to ECTS Credits Points for the Curriculum of the Materials Chemistry Programme

| (Note: CP-Credit Points)           |                                       | Type | Chinese CP | ECTS CP | Work load     |                  | S1  | S2  | S3  | S4  | S5 | S6 | S7 | S8 |
|------------------------------------|---------------------------------------|------|------------|---------|---------------|------------------|-----|-----|-----|-----|----|----|----|----|
| Competence field                   | Module                                |      |            |         | Contact Hours | Self-Study Hours |     |     |     |     |    |    |    |    |
| Foreign Language                   | College English (A) I                 | L    | 2          | 2       | 36            | 24               | 2   |     |     |     |    |    |    |    |
|                                    | College English (A) II                | L    | 2          | 2       | 36            | 24               |     | 2   |     |     |    |    |    |    |
|                                    | College English (A) III               | L    | 2          | 2       | 36            | 24               |     |     | 2   |     |    |    |    |    |
|                                    | College English (A) IV                | L    | 2          | 2       | 36            | 24               |     |     |     | 2   |    |    |    |    |
|                                    |                                       |      | 8          | 8       | 144           | 96               |     |     |     |     |    |    |    |    |
| Mathematics, Physics and Chemistry | Advanced Mathematics A I              | L    | 6          | 7       | 108           | 102              | 7   |     |     |     |    |    |    |    |
|                                    | Advanced Mathematics A II             | L    | 6          | 7       | 108           | 102              |     | 7   |     |     |    |    |    |    |
|                                    | Linear Algebra A                      | L    | 3          | 3.5     | 54            | 51               |     | 3.5 |     |     |    |    |    |    |
|                                    | Probability Theory and Mathematical A | L    | 3          | 3.5     | 54            | 51               |     |     | 3.5 |     |    |    |    |    |
|                                    | College Physics A I                   | L    | 4          | 4.8     | 72            | 72               |     | 4.8 |     |     |    |    |    |    |
|                                    | College Physics A II                  | L    | 4          | 4.8     | 72            | 72               |     |     | 4.8 |     |    |    |    |    |
|                                    | Physical Chemistry I                  | L    | 3          | 3.5     | 54            | 51               |     |     | 3.5 |     |    |    |    |    |
|                                    | Physical Chemistry II                 | L    | 3          | 3.5     | 54            | 51               |     |     |     | 3.5 |    |    |    |    |
|                                    | College Chemistry                     | L    | 3          | 3.4     | 54            | 48               | 3.4 |     |     |     |    |    |    |    |
|                                    |                                       |      | 35         | 41      | 630           | 600              |     |     |     |     |    |    |    |    |
| Informatics                        | Office Applications                   | L&P  | 0          | 2       | 0             | 60               | 2   |     |     |     |    |    |    |    |
|                                    | Fundamentals of Programming           | L&P  | 3          | 3       | 60            | 30               | 3   |     |     |     |    |    |    |    |
|                                    | Materials Informatics                 | L&P  | 2          | 2       | 42            | 18               |     |     |     | 2   |    |    |    |    |
|                                    |                                       |      | 5          | 7       | 102           | 108              |     |     |     |     |    |    |    |    |
| Engineering                        | Engineering Drawing and CAD           | L&P  | 3          | 3       | 60            | 30               |     | 3   |     |     |    |    |    |    |

# Appendix: Learning Outcomes and curricula

|                          |                                                                                     |   |    |      |     |     |     |     |     |     |     |     |   |  |
|--------------------------|-------------------------------------------------------------------------------------|---|----|------|-----|-----|-----|-----|-----|-----|-----|-----|---|--|
| Fundamentals             | Fundamentals of Mechanical Design                                                   | L | 2  | 2    | 36  | 24  |     |     | 2   |     |     |     |   |  |
|                          | Electrical and Electronic Technology                                                | L | 2  | 2    | 36  | 24  |     |     |     | 2   |     |     |   |  |
|                          | Engineering Mechanics                                                               | L | 2  | 2    | 36  | 24  |     |     |     |     | 2   |     |   |  |
|                          | Fundamentals of Materials Engineering                                               | L | 3  | 3    | 54  | 36  |     |     |     |     | 3   |     |   |  |
|                          | Engineering Economics                                                               | L | 1  | 1    | 18  | 12  |     |     |     |     |     | 1   |   |  |
|                          |                                                                                     |   | 13 | 13   | 240 | 150 |     |     |     |     |     |     |   |  |
| Engineering Applications | Introduction to Materials Chemistry (including environmental protection and safety) | L | 2  | 2.5  | 36  | 39  |     |     | 2.5 |     |     |     |   |  |
|                          | Introduction of Materials                                                           | L | 2  | 2.5  | 36  | 39  | 2.5 |     |     |     |     |     |   |  |
|                          | Inorganic Material Synthesis                                                        | L | 2  | 2.5  | 36  | 39  |     | 2.5 |     |     |     |     |   |  |
|                          | Fundamentals of Material Science I                                                  | L | 3  | 3.5  | 54  | 51  |     |     | 3.5 |     |     |     |   |  |
|                          | Fundamentals of Material Science II                                                 | L | 3  | 3.5  | 54  | 51  |     |     |     | 3.5 |     |     |   |  |
|                          | Materials Modern Analysis Methods                                                   | L | 2  | 2.5  | 36  | 39  |     |     | 2.5 |     |     |     |   |  |
|                          | Electrochemistry Principles                                                         | L | 2  | 3    | 36  | 54  |     |     |     | 3   |     |     |   |  |
|                          | Solid State Physics                                                                 | L | 3  | 4.5  | 54  | 81  |     |     |     |     | 4.5 |     |   |  |
|                          | Semiconductor Physics                                                               | L | 3  | 4.5  | 54  | 81  |     |     |     |     | 4.5 |     |   |  |
|                          | Structure and Performances of Inorganic Materials                                   | L | 2  | 2.5  | 36  | 39  |     |     |     |     |     | 2.5 |   |  |
|                          | Materials Chemistry                                                                 | L | 3  | 3.5  | 54  | 51  |     |     |     |     |     | 3.5 |   |  |
|                          | Polymer Chemistry                                                                   | L | 3  | 3.5  | 54  | 51  |     |     |     |     |     | 3.5 |   |  |
|                          |                                                                                     |   | 30 | 38.5 | 540 | 615 |     |     |     |     |     |     |   |  |
|                          |                                                                                     |   |    |      |     |     |     |     |     |     |     |     |   |  |
| Professional Electives   | Frontier Forum of Materials Chemistry                                               | L | 1  | 1    | 18  | 12  |     |     |     |     |     |     | 1 |  |
|                          | Practical Writing in Science and Technology                                         | L | 1  | 1    | 18  | 12  |     |     |     |     | 1   |     |   |  |
|                          | Specialized English                                                                 | L | 2  | 2    | 36  | 24  |     |     |     |     |     |     |   |  |
|                          | Photoelectronic Functional Materials                                                | L | 2  | 2    | 36  | 24  |     |     |     |     |     |     |   |  |

Appendix: Learning Outcomes and curricula

|                 |                                                                                                             |     |    |     |     |     |     |     |     |     |  |  |  |  |
|-----------------|-------------------------------------------------------------------------------------------------------------|-----|----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
|                 | Metal Materials                                                                                             | L   | 2  | 2   | 36  | 24  |     |     |     |     |  |  |  |  |
|                 | Semiconductor Materials                                                                                     | L   | 2  | 2   | 36  | 24  |     |     |     |     |  |  |  |  |
|                 | Ceramic Materials                                                                                           | L   | 2  | 2   | 36  | 24  |     |     |     |     |  |  |  |  |
|                 | Composite Materials                                                                                         | L   | 2  | 2   | 36  | 24  |     |     |     |     |  |  |  |  |
|                 | Principle of Inorganic Materials Processing                                                                 | L   | 2  | 2   | 36  | 24  |     |     |     |     |  |  |  |  |
|                 | Modern Separation Technique                                                                                 | L   | 2  | 2   | 36  | 24  |     |     |     |     |  |  |  |  |
|                 |                                                                                                             |     | 10 | 10  | 180 | 120 |     |     |     |     |  |  |  |  |
| General Courses | An Outline of Modern and Contemporary Chinese History                                                       | L&P | 3  | 2.4 | 54  | 18  | 2.4 |     |     |     |  |  |  |  |
|                 | The Learning of the Histories of the Party, New China, the Reform and Opening-up, and Socialist Development | L&P | 1  | 0.8 | 18  | 6   | 0.8 |     |     |     |  |  |  |  |
|                 | Military Theory                                                                                             | L   | 2  | 1.6 | 36  | 12  | 1.6 |     |     |     |  |  |  |  |
|                 | Mental Health Education for College Students                                                                | L   | 2  | 1.5 | 32  | 13  | 1.5 |     |     |     |  |  |  |  |
|                 | Situation and Policy                                                                                        | L&P | 2  | 3   | 72  | 18  |     |     | 3   |     |  |  |  |  |
|                 | Ideology, Morality and the Rule of Law                                                                      | L&P | 3  | 2.4 | 54  | 18  |     | 2.4 |     |     |  |  |  |  |
|                 | An Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era I             | L   | 2  | 1.6 | 36  | 12  |     | 1.6 |     |     |  |  |  |  |
|                 | Basic Principles of Marxism                                                                                 | L&P | 3  | 2.5 | 54  | 21  |     |     | 2.5 |     |  |  |  |  |
|                 | An Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era II            | P   | 1  | 0.8 | 18  | 6   |     |     | 0.8 |     |  |  |  |  |
|                 | National Security Education                                                                                 | L   | 1  | 0.8 | 18  | 6   |     |     | 0.8 |     |  |  |  |  |
|                 | An Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese                  | L&P | 3  | 2.4 | 54  | 18  |     |     |     | 2.4 |  |  |  |  |

# Appendix: Learning Outcomes and curricula

|                    |                                                     |   |     |     |     |     |     |     |   |     |     |     |     |  |
|--------------------|-----------------------------------------------------|---|-----|-----|-----|-----|-----|-----|---|-----|-----|-----|-----|--|
|                    | Characteristics                                     |   |     |     |     |     |     |     |   |     |     |     |     |  |
|                    | Physical Education (Classroom Teaching)             | P | 2   | 4   | 120 | 0   | 1   | 1   | 1 | 1   |     |     |     |  |
|                    | Physical Education (Self- exercise)                 | P | 1   | 2   | 0   | 60  | 2   |     |   |     |     |     |     |  |
|                    | Physical Education (Fitness Test)                   | P | 1   | 1   | 30  | 0   | 1   |     |   |     |     |     |     |  |
|                    | Career Planning and Entrepreneurship and Innovation | P | 1   | 1.6 | 36  | 12  | 1.6 |     |   |     |     |     |     |  |
|                    | General Electives                                   | L | 4   | 3.6 | 72  | 36  | 3.6 |     |   |     |     |     |     |  |
|                    |                                                     |   | 32  | 32  | 704 | 256 |     |     |   |     |     |     |     |  |
| Practical Training | Military Training                                   | P | 2   | 3   | 72  | 18  | 3   |     |   |     |     |     |     |  |
|                    | Experiments of College Chemistry                    | P | 2   | 3   | 48  | 42  | 3   |     |   |     |     |     |     |  |
|                    | Experiment of College Physics A I                   | P | 1   | 1.5 | 24  | 21  |     | 1.5 |   |     |     |     |     |  |
|                    | Experiment of College Physics A II                  | P | 1   | 1.5 | 24  | 21  |     | 1.5 |   |     |     |     |     |  |
|                    | Basic Experiments of Material Science               | P | 2   | 3   | 48  | 42  |     |     | 3 |     |     |     |     |  |
|                    | Material Modern Analysis Experiments                | P | 2   | 3   | 48  | 42  |     |     |   | 3   |     |     |     |  |
|                    | Experiments of Electrical and Electronic Technology | P | 1   | 1.5 | 24  | 21  |     |     |   | 1.5 |     |     |     |  |
|                    | Professional Experiments for Materials Chemistry    | P | 2.5 | 3.5 | 60  | 45  |     |     |   |     |     | 3.5 |     |  |
|                    | Comprehensive Experiments for Material Science      | P | 2.5 | 3.5 | 60  | 45  |     |     |   |     |     |     | 3.5 |  |
|                    | Noviciate                                           | P | 2   | 3   | 48  | 42  |     |     |   |     |     | 3   |     |  |
|                    | Production Practice                                 | P | 2   | 3   | 48  | 42  |     |     |   |     |     |     | 3   |  |
|                    | Design of Inorganic Material and Device             | P | 2   | 3   | 48  | 42  |     |     |   |     |     |     | 3   |  |
|                    | Engineering Training                                | P | 1   | 1.5 | 24  | 21  |     |     |   |     | 1.5 |     |     |  |
|                    | Metal working Practice                              | P | 2   | 2.5 | 48  | 27  |     |     |   | 2.5 |     |     |     |  |

## Appendix: Learning Outcomes and curricula

|                                  |                                                                         |     |     |      |      |      |      |      |      |      |      |      |      |    |
|----------------------------------|-------------------------------------------------------------------------|-----|-----|------|------|------|------|------|------|------|------|------|------|----|
|                                  | Social Responsibility Education、Labor Education and Aesthetic Education | P   | 1   | 2    | 18   | 42   | 2    |      |      |      |      |      |      |    |
|                                  | Innovation and Entrepreneurship Training Program                        | P   | 2   | 4    | 48   | 72   | 4    |      |      |      |      |      |      |    |
|                                  |                                                                         |     | 28  | 42.5 | 690  | 585  |      |      |      |      |      |      |      |    |
| Bachelor Thesis/Capstone Project | Bachelor Thesis/Capstone Project                                        | L&P | 6   | 16   | 64   | 416  |      |      |      |      |      |      |      | 16 |
| CP/semester                      | Total:                                                                  |     | 167 | 208  | 3294 | 2946 | 33.2 | 30.8 | 32.4 | 26.4 | 21.5 | 23.6 | 20.1 | 20 |

(L-Lecture, P-Practice, W-Week, S-Semester)

\*The total number of Chinese Credit Point (CP) offered is 167 and the ECTS CP offered is 208.

\* The conversion and allocation guidelines on the Chinese CP to ECTS CP.

1) For Foreign Language module courses, Informatics module courses, Engineering Fundamentals module courses, Professional Electives module courses, one Chinese CP is equivalent to one ECTS CP. The ratio of contact hours to self-study hours is approximately 3:2.

2) For Mathematics, Physics and Chemistry module courses, Engineering Applications (Professional) module courses, one Chinese CP is slightly less than one ECTS CP. The self-study hours including a lot of homework, are approximately close to contact hours. But for some challenging Engineering Applications (Professional) courses such as Solid State Physics, Semiconductor Physics et.al. The self-study hours are longer than the contact hours, and one Chinese CP is approximately to 1.5 ECTS CP.

3) For General module courses, 0.8 ECTS CP is approximately to one Chinese CP. The ratio of contact hours to self-study hours is approximately 3:1.

4) For Practical Training module courses, the Experimental, Internship, Curriculum Design courses, one Chinese CP is approximately to 1.5 ECTS CP. The self-study hours including previewing, investigation, survey, data processing and report writing, are approximately close to contact hours. The Social Responsibility Education、Labor Education and Aesthetic Education and the Innovation and Entrepreneurship Training Program, which need more self-study courses, and one Chinese CP is approximately to 2 ECTS CP.

5) For Capstone Project / Bachelor Thesis, eight Chinese CP are equivalent to sixteen ECTS CP, the instructor provides guidance for no less than four contact hours per week, and the rest of the time is for self-study.