

Evaluation and Benchmarking of the Diploma in Mechatronics Technology from Hebei Chemical and Pharmaceutical College

Context and scope

Hebei Chemical and Pharmaceutical College commissioned Ecctis for an independent evaluation and benchmarking of its Diploma in Mechatronics Technology, which was completed in September 2024.

The Diploma in Mechatronics Technology is one of 57 programmes currently offered by the College across subjects such as chemistry, medicine, IT, intelligent manufacturing, and e-commerce logistics. It aims to prepare students for roles in the mechatronics and equipment manufacturing industries.

The main aims of the benchmarking were to:

- Establish comparability in the context of the UK through reference to the Regulated Qualifications Framework (RQF), and by extension, the European Qualifications Framework (EQF)¹
- Assess the extent to which the College's underpinning quality assurance meets a set of international standards.

Key findings

The Diploma in Mechatronics Technology seeks to develop students' knowledge in areas such as motor and electrical control, engineering materials, and Computer Numerical Control (CNC) Technology. In line with national requirements, the Diploma also encompasses "public basic courses" which include topics from arts, social sciences and science domains.

The general entry requirement for the programme is the National College Entrance Examination (NCEE, popularly known as the *gaokao* 高考) – comparable to GCE A Level / RQF Level 3 in the UK – or suitable marks in one of the College's own tests.

The Diploma is a three-year full-time programme equating to approximately 2642 hours' guided learning time. Reflecting its vocational focus, the Diploma combines classroom-based study with practical-based simulated learning and a final year internship in which students develop their skills and knowledge in a real-world workplace.

¹ To date, a total of 36 countries have now referenced their national education systems to the EQF.

Upon completion, many students enter the workforce²; however, some students will be eligible to apply for top-up Benke (本科) / Bachelor degree programmes. These require a minimum of two years of further study, which shows that the Diploma has similar academic progression routes to that of HNDs, Diplomas of Higher Education and other UK Level 5 awards.

The study revealed several strengths of the Diploma in Mechatronics Technology, namely it demonstrated that:

- Individuals such as veterans, enterprise employees, laid-off workers, low-income workers, and grassroots agricultural technicians can enter the Diploma by sitting the College's vocational skills assessment alongside a written test. This allows individuals to have fair access to education whilst improving social mobility for underprivileged groups.
- Students experience far more contact time with tutors than is seen within similarly focused UK programmes, arguably leading to more instruction and feedback.
- Students can tailor their learning by selecting modules in specialist areas such as CNC technology, 3-D Modelling, and Industrial Network Communication Technology. Therefore, students can study relevant content in areas that they find engaging.
- The College engages with industry, enterprise experts, and graduates to review the Diploma's content and overall relevance to the mechatronics industry. A third-party independent assessment of teaching and learning is also carried out. These are good examples of proactive engagement with key stakeholders for the enhancement of the Diploma.
- New teachers are effectively supported, tracked, and assessed during their training period. Teachers are provided with a personalised training plan that is tailored to the specific strengths and weaknesses of individual teachers.
- The College ensures that at least 50% of the teaching staff are 'double-qualified'. This ensures that a sizeable proportion of the Diploma's teachers have both academic and professional experience or qualifications.

In terms of international comparability, the Diploma in Mechatronics Technology has been found comparable to Level 5 of the RQF and EQF. It has also met international quality standards in the following five areas:

- **Admission**
There is a pre-defined and published admissions policy ensuring transparency in the admissions policy and supporting consistency in admissions decisions
- **Programme development, approval, monitoring and review**
There is a clear, process in place for the design, approval and monitoring of programmes

² The employment rate of graduates is typically 98%.

- **Teaching and learning**
There is a formalised process for monitoring the quality and effectiveness of delivery, relevant to the modes of study employed
- **Assessment**
Assessment provides a sufficiently fair, valid and reliable evaluation of the intended knowledge, skills and competencies
- **Information**
The information available to prospective students, current students and other interested stakeholders is accurate, transparent and clear for the intended audience.

Engagement

Hebei Chemical and Pharmaceutical College has committed to further development and engagement encompassing:

- Revision of learning outcomes across all programme modules, to ensure they are specific, measurable and feasible, and form a firmer basis for assessment design and marking
- Review of the overall assessment framework, including module assessments and their weighting to better understand how individual course elements are assessed
- Review of assessment strategies across modules to ensure they link appropriately to module learning outcomes and that assessment tasks better test higher cognitive skills expected at RQF Level 4 and 5
- Maintaining and ensuring adoption by all staff of the unified quality assurance handbook.

Ecctis is a gold-standard provider of services in international education, training, and skills, and in the development and recognition of globally portable qualifications. We are an internationally trusted and respected reference point for qualifications and skills standards.

We are UK-based and operate worldwide, with a global network and client base spanning 62 countries and 5 continents. We have a 20-year track record in international consultancy and development.

Ecctis provides official UK national agency services on behalf of the UK Government in qualifications, skills, and migration – including UK ENIC, formerly UK NARIC.

UK ENIC is the UK National Information Centre for global qualifications and skills. Following the UK's leaving the EU, the former UK NARIC recognition agency function changes from a NARIC (which is an EU-only title) to an ENIC (the wider European title for national recognition agencies) in order to meet the UK's continuing treaty obligations under the [Lisbon Recognition Convention](#).

Since 2019, through our China representatives and Beijing office Nalike, we have conducted qualification benchmarking in China and fostered educational links between China and other countries, to support the internationalisation efforts of China's higher vocational colleges.