

Exploration and Practice of the Reform of the Pilot College: Take Wuhan University of Technology Advanced Manufacturing and Information Internationalization Pilot College as an Example

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Abstract: As a major comprehensive reform project in the field of higher education, the reform of pilot colleges has become the "experimental field" of the comprehensive reform of higher education. Taking the advanced manufacturing and information internationalization pilot college of Wuhan University of Technology as an example, this paper explores and analyzes the reform of the pilot college in terms of enrollment and selection mode, talent training mode, teacher selection and evaluation system, internal governance system, etc.

Introduction

At present, China's higher education reform has entered a critical period of overcoming difficulties. In the field of higher education, only promoting single reform can not solve many problems of its own development and external needs. We must solve many problems encountered in the process of entering the "deep water area" by the way of thinking and promoting "comprehensive reform". The establishment of the reform project of the pilot college conforms to the requirements of the situation and is a landmark project to promote and deepen the comprehensive reform in the field of higher education. The reform of the pilot college is to set up a "special experimental area of education and teaching reform" in colleges and universities, to promote the comprehensive reform with the reform of talent training system as the core, the coordinated development of the college and social innovation resources as the path, and the college as the basic implementation unit. Universities should take the lead in recruiting and selecting students, innovating personnel training system, reforming teacher management mechanism, and exploring the establishment of modern university system.

Based on the national innovation driven development strategy, the "Made in China 2025" program of action and the "new engineering" construction concept, Wuhan University of Technology aims to meet the major needs of building materials, automobile and transportation industries, build the "advanced manufacturing and information internationalization pilot college" and set up the "Intelligent Manufacturing Engineering Specialty" in combination with the construction requirements of first-class disciplines and first-class undergraduate courses, aiming at the front of international science and technology. Along the way, highlighting the characteristics of the industry and giving full play to the advantages of international school running will help to build a new comprehensive platform for introducing talents of Wuhan University of technology, provide useful experience for the international comprehensive reform, and explore new ways for the reform and development of Wuhan University of technology in management system, talent training, scientific research, service guarantee, etc.

Reform Objectives

Aiming at the first-class in the world, highlighting the characteristics of the industry, aiming at cultivating top-notch innovation and leading outstanding talents in the industry, we will build a training system for innovative talents. Relying on the advantages of interdisciplinary integration and

industry background, build an international training base. Optimize the structure of international high-level talents, improve the governance structure of the college, and comprehensively improve the quality of education and teaching.

With the cultivation of top-notch innovation and industry leading talents with outstanding pursuit and ability as the core, we will build an international first-class scientific research and talent cultivation high-end platform for intelligent manufacturing with multi-disciplinary integration, play a leading and exemplary role in the field of international intelligent manufacturing, play a supporting role in science and technology and talents in the industry of building materials, automobile and transportation, and strive to be satisfied with the people. It is an international talent training and knowledge innovation base admired by the world.

Reform the Way of Admission. We will establish a multi-level enrollment and admission mechanism for undergraduate, undergraduate and postgraduate programs, and undergraduate and postgraduate programs. We will reform the way of enrollment, recruit outstanding students, optimize the structure of student resources, adjust the scale of enrollment, and expand international exchanges.

Form an International Talent Training Model. Guided by the concept of "new engineering" and its connotation and characteristics, this paper puts forward the training objectives of intelligent manufacturing engineering talents, constructs an international training system of intelligent manufacturing engineering talents, forms a multi-disciplinary cooperative education mechanism, and further promotes the coordination of politics, industry, education, science and international cooperation, so as to cultivate a number of international leaders with influence in academia and industry.

Building a Team of International Famous Chemists. In the way of combination of training and introduction, we will build an international teaching staff composed of famous scientific research scholars and famous teachers, emerge a number of research achievements with international influence, serve the major strategic needs of the country and the major innovation and innovation of transformation and upgrading of the three industries, and lead the development of disciplines and industries.

Establish a Model Governance System in Line with International Standards. Establish a college operation management, talent introduction, assessment and evaluation, salary performance and service support system with the characteristics of Wuhan University of technology and in line with international standards, so as to provide demonstration experience for the construction and development of other engineering colleges.

Reform the Way of Enrollment and Selection

Set up the Mechanism of Enrollment Work Moving Forward. With the assistance of the Enrollment Office of the University, a docking system between the college and the excellent high school is established. Well-known professors carry out professional lectures in the middle school and hold open Week activities for the society. With the assistance of the academic affairs office, a pre course system should be established to encourage students to enter the learning stage in advance so as to attract high-quality students.

Reform the Way of Students' Admission and Selection. We will establish an undergraduate recruitment and selection system that combines "independent enrollment, unified college entrance examination, internal selection, and internal retirement compensation". Within the scope permitted by the national enrollment policy, we should improve the authority of independent enrollment, expand the proportion of independent enrollment, and respect the opinions of professors on the enrollment and selection of students.

Forming International Exchange and Enrollment Mechanism. We will improve the level of international education, improve the system of international class selection, refund and supplement, expand international joint training channels, establish a talent training cooperation model between the college and internationally renowned universities, and increase the proportion of students in international exchanges. We will strengthen international enrollment publicity through multiple

channels, and expand the proportion of international students coming to study in accordance with the international enrollment model.

Reform the Talent Training Mode

Form the Goal of Training Excellent Talents in Intelligent Manufacturing Engineering with International Competitiveness. Focusing on the cutting-edge of international intelligent manufacturing technology and the major strategic needs of the country, facing the main battlefield of the national economy, especially for the three major industries of building materials, automobile and transportation, this paper analyzes the talent demand and future development direction of the development of international intelligent manufacturing industry. Through the interdisciplinary integration of engineering education professional certification standards and 2030 oriented core quality standards of engineers, we have formed the training objectives and graduation requirements of intelligent manufacturing engineering talents in our university.

Establish the International Training Mode of Intelligent Manufacturing Engineering Talents for Students' Personality Development. Facing the individualized training of students, we will select the best students to form the master's class, master's class, international class, etc., and form the international training mode of intelligent manufacturing engineering talents, which includes the joint training of international universities, the joint guidance of international tutors, small class teaching, "inquiry, discussion, participation" teaching, full English and bilingual teaching. To realize the mutual selection of courses in different disciplines, to establish the credit mutual recognition system of "in school", "inter school" and "international", and to explore a new international class training mode. Through the tutorial system to promote the personalized development of students, with scientific research activities, innovation training, subject competition as the carrier, cultivate top innovative talents.

Build an International Curriculum System of Intelligent Manufacturing Engineering Talents Training for the International Industry Front. Focusing on the cutting-edge of international intelligent manufacturing technology, based on the OBE concept, combined with the cooperation of politics, industry, education, science and international cooperation, we will build an international curriculum system for the cultivation of intelligent manufacturing engineering talents, strengthen the national feelings, global vision, legal awareness and ecological awareness of intelligent manufacturing engineering talents, and cultivate design thinking, engineering thinking, critical thinking and digital thinking. We should change our thinking, improve our ability of innovation and entrepreneurship, interdisciplinary integration, independent lifelong learning, communication and consultation, and engineering leadership. Guided by the construction of first-class undergraduate course and first-class specialty, the University introduces a series of international courses, forms standardized documents such as teaching syllabus, introduces the latest development of international intelligent manufacturing industry technology and the latest requirements of intelligent manufacturing industry for talent cultivation into the teaching process, and integrates innovation and entrepreneurship education into the whole process of intelligent manufacturing engineering talents cultivation.

Form a Student-centered International Teaching Method of Intelligent Manufacturing Engineering Talents Training. We will fully implement the international advanced education concept of student-centered education, transform the research results of teachers into teaching contents, and adopt CDIO methods to build comprehensive courses, problem-based courses, interdisciplinary discussion courses, so as to improve curriculum interest and academic challenges. We will establish an online open curriculum construction mechanism that integrates information technology with education and teaching, and promote the reform of teaching methods and assessment methods such as "flipped classroom". Form the integration of theory and practice, the integration of in class and out of class, the integration of in school and out of school, and the integration mechanism of domestic and foreign, and promote the reform of "creativity innovation entrepreneurship" training mode of intelligent manufacturing engineering talents.

Build an Intelligent Manufacturing Engineering Excellent Personnel Training Organization System Based on Multiple Coordination. Based on the concept of openness, collaboration and sharing, an organization guarantee system of intelligent manufacturing engineering talents training is established, which is interdisciplinary, interdisciplinary, interdisciplinary and interdisciplinary. Based on the advantages of industrial enterprises, scientific research institutes, foreign universities and other resources, this paper summarizes the construction experience of existing pilot classes, promotes the coordination of politics, industry, education, science and international cooperation, and forms an organizational mechanism of the coordination of politics, industry, education and research, guided by the international scientific and technological frontier, national strategic needs and industrial development needs.

Establish an Experimental and Practical Teaching Platform to Meet the Requirements of Intelligent Manufacturing Engineering Talents Training. Based on the advanced experimental practice teaching concept and teaching system of foreign universities, and in close combination with the characteristics and advantages of our university's disciplines, an experimental system conducive to the cultivation of outstanding talents in intelligent manufacturing engineering is established, and an interdisciplinary practical teaching platform with intensive functions, optimized resources, full opening and efficient operation is constructed. Based on the national engineering practice education center and the practice training base of college students in Hubei Province, a practice training platform is established, which combines basic experiment and quality training, professional experiment and professional training, professional skill training and practical experience, forming a long-term development mechanism of the practice base. To explore the way for students to carry out practical training in foreign companies, and establish an overseas practice training platform.

Forming the International Evaluation and Incentive Mechanism of the Quality of Intelligent Manufacturing Engineering Talents Training Based on the Goal Orientation. Guided by the training objectives, graduation requirements and the achievement of course teaching of intelligent manufacturing engineering talents, and based on the relevant specialties of high-level universities at home and abroad, the international evaluation standards and methods of intelligent manufacturing engineering talents training quality are formulated. The management mechanism of "open teaching task competitive course key selection evaluation and tracking" is implemented. We should implement the system of "separation of examination and teaching" and establish a scientific curriculum evaluation program. We will encourage reform and innovation in teaching, and improve the system of employment assessment and annual assessment and incentive.

Reform the System of Teacher Selection, Assessment and Evaluation

According to the principle of "target management, college subject, school supervision and scientific development", promote the comprehensive reform of personnel management system. The college plans human resources as a whole, expands the independent rights of post setting, talent introduction, job evaluation, assessment and evaluation, salary distribution, and attracts famous scholars and teachers at home and abroad to devote themselves to the cultivation of intelligent manufacturing engineering talents.

Establish team building assessment system. To ensure the teaching content and quality, we should implement the responsibility Professor responsibility system for the teaching team of subject platform courses and professional courses. We will implement the responsibility system of scientists in scientific research teams, improve the quality of scientific research, and strengthen team building and assessment.

Teachers are paid on an annual basis. Drawing on the experience of foreign universities and domestic first-class universities, while improving the treatment of teachers, we should stabilize the fixed salary of teachers at a higher level, and gradually reach the salary standard comparable to that of world-class universities, so as to ensure that teachers devote themselves to teaching and scientific research.

Carry out the reform of employment system. Gradually establish the system of lifelong positions, preparatory lifelong positions and temporary positions. New teachers adopt the tenure track system,

recruit young teachers from all over the world, strengthen the target assessment, and implement the principle of "go without hiring, go without promotion". Strengthen the evaluation of the employment period of the existing staff, implement the "ability to go up and down, non employment transfer", and implement the international evaluation of the title evaluation.

Improve the Internal Governance System of the Pilot College

Under the leadership of the school of mechanical and electrical engineering, the school of information engineering, the school of automotive engineering, the school of logistics engineering, the school of computer science and technology, the school of automation, etc. jointly participate in the unified management of disciplines, personnel, teaching, titles, assets, etc.

The pilot college established the board of directors and the leading team of the party and government to provide guidance and consultation for the development and construction of the college, formulated the articles of association of the pilot college, and strengthened the system of joint meetings of the party and government. Set up a discipline integration working group to build an organization and coordination platform for training talents across disciplines and departments. A professor committee, an academic committee, a degree committee, a teaching steering committee, a professional title Committee and a State-owned Assets Allocation Committee shall be established, and the working systems of each committee shall be formulated. Establish a construction evaluation committee to evaluate the construction effect of the pilot college.

Summary

In view of the major social concerns in the development of higher education, such as the way of recruiting and selecting students, the construction and exploration of the teaching staff and the establishment of a modern university system, the university has carried out bold exploration and practice in the reform of the pilot college with the secondary college as the unit, formed a new mode of personnel training, cultivated new advantages in disciplines and specialties, stimulated new vitality in the reform and development of the University, and built a large university. The new mechanism of coordinated development of learning and society has promoted the connotative development of higher education.

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