

Exploration and Practice of Electronic Information Professional Degree Graduate Training: A Case Study of CUIT

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Abstract: This article analyzes the status of electronic information professional degree graduate training in Chengdu University of Information Technology (CUIT) and finds that there are problems and challenges in the aspects of curriculum system, course teaching, tutor guidance, subject research, and quality supervision. A strategy has been proposed to construct electronic information professional degree graduate training system in CUIT, guided by the Results-oriented education (OBE) concept and through industry-university-research joint training.

1. Introduction

Prior to 2009, the major name of professional degree graduate in the field of electronic information was electronic and communication engineering. In 2018, the categories of engineering degrees were adjusted, and the degrees in electronic and communication engineering and other related fields were uniformly classified as electronic information professional degrees. Electronic information major belongs to the category of engineering, involving electronic science, communication technology, computer technology and other disciplines, and covers many fields, is a typical multi-disciplinary interdisciplinary major. In recent years, with China's economic and social development and industrial transformation and upgrading, the demand for high-level applied talents is more vigorous, and the training of graduate students in electronic information professional master degree has attracted much attention from the society ^[1].

2. Training Status of Electronic Information Professional Master Degree Education

China's professional master degree graduate education was originated in the late 1980s and, early 1990s. Entering the 21st century, professional degree education has been highly valued by the government, society, and training institutions. The development of professional master degree graduate education in China has a short history, which is different from the gradual development in accordance with the requirement for American economic and social development. In China, the establishment of professional degree began with the proposal of universities to establish pilot, and then gradually developed under the guidance of policies, which has a certain passivity. Due to the influence of the training mode of academic degree graduates and the constraints of local colleges and universities, the training has not been able to keep up with the pace of social and economic development, making the education of professional degree graduates far behind the needs of social and economic development. The practical application ability of the graduates is low, and they cannot be directly used by the employers ^[2-3].

At present, the training of professional master degree graduates in China is still in active exploration, the distinction between professional degree and academic degree is clearer, the training mode tends to be diversified, and more attention is paid to the cultivation of professional talents' practical ability and professional ability. However, there are still some problems such as unclear

training goals, imperfect curriculum system and inadequate implementation of practical links.

In the new era, under the background of new engineering, the demand of the society (market, enterprises and scientific research institutes) for high-quality applied innovative talents leads the educational reform of the training of graduate students of electronic information professional master degree. To adjust the original talent training mode, it is necessary to train professionals with rich theoretical knowledge and strong practical application ability.

Through investigation and analysis of the education and training mode of electronic information professional degree graduate students in many local colleges and universities in China, there are the following deficiencies: insufficient attention to ideological and political education, the isolation between theory and practice, formalization of practical activities in engineering, and insufficient training of innovation capability^[4-5].

3. The Basic Situation in College of Optoelectronics Engineering of CUIT

Before 2020, the college of optoelectronics engineering of Chengdu University of Information Technology (CUIT) recruited professional degrees graduate students of electronic and communication engineering professional degrees, and then graduate students majoring in electronic information from 2020 to now. The research directions of electronic information are wide, and the scale has increased several times compared with the initial enrollment, resulting in new problems and challenges.

(1) Curriculum system. In the early stage of the formation of the graduate talent training program in the field of "electronic information", through the investigation of peer universities and local information enterprises, the relevant courses were set up. However, theoretical curriculum systems are usually constructed in view of curriculum and teaching perspectives of the classic academic curriculum, with a greater emphasis on systematicity and scientific, but few independent and systematic programming is carried out from the perspective of engineering requirements.

(2) Course teaching. There is still a lack of understanding of the design philosophy for professional degrees, and the teaching, mentoring and management processes are not sufficiently differentiated compared to academic degrees. For example, although the training program clearly stipulates the teaching objectives and content requirements of professional degree courses, many courses still follow traditional teaching methods in the actual teaching process, which is seriously homogenized with the curriculum system of academic graduate students and cannot reflect the practical characteristics and industry needs of professional degree graduate training.

(3) Tutor guidance. In addition to on-campus tutors, we employ senior technical personnel from enterprises as off-campus tutors for professional master's degrees. Implementing the "double tutorial system" between universities and enterprises, which largely solves the weak point of incomplete knowledge structure in the training process. However, in the actual training process, on-campus and off-campus tutors didn't make a lot of communication, and off-campus tutors didn't effectively participate in the training process, the training mode of "double tutorial system" is merely a formality to a certain extent.

(4) Subject research. Professional master degree in the field of "electronic information" of our college focuses on project practical ability training. However, the on-campus tutors in the field of "electronic information" of our college mainly have work experience in school and lack of engineering practical experience. Although some tutors have many scientific research projects, they lack engineering practical experience. Moreover, the assessment of tutors is mainly based on scientific research projects and scientific research papers. Therefore, some tutors have trained engineering masters and academic masters equally, so that engineering masters lack practical experience. And topic selection of dissertation and direction of research are concentrated in the theoretical perspective and are not highly relevant to the application in a real enterprise.

(5) Quality supervision. In our college, the cultivation of academic masters will to some extent influence the cultivation of engineering masters in the electronic information field, which makes the training quality difficult to be guaranteed. It is mainly because of the unsound training quality evaluation system for professional degree graduate. It is more necessary to focus on the evaluation

criteria and continuous improvement mechanism for the professional ability.

4. Exploring Electronic Information Professional Degree Graduate Training System

4.1. Reforming of the Whole Training Process Based on OBE Concept

Results-oriented education (OBE) is an internationally popular advanced education concept. The Washington Agreement, considered to be the most common international agreement, has fully integrates the OBE concept in its professional certification of engineering education. Since 2006, China has gradually carried out the work of engineering education professional certification. It is committed to building a new model of engineering education with internationally compatible in line with international standards and training high-quality engineering and technical talents for accelerating the construction of intelligent and innovative industrial country. "Engineering education professional certification" is an internationally accepted evaluation system, which can guarantee the quality of engineering education. Based on the positioning of the school and the needs of social and economic development, the reasonable training objectives are determined, and the measurable technical and non-technical 12 graduation requirements are formulated accordingly. Through a reasonable curriculum system to support the various points of 12 graduation requirements, curriculum teaching with results-oriented approach is implemented. At present, integrating OBE into the whole training process has become the key direction of the reform of professional degree graduate education, including training objectives, training programs, teaching staff and evaluation system [6].

4.2. Promoting Talent-Cultivation and Social Demands Combining Through the Integration of Production and Education

With the continuous improvement of the requirements of the economic and social development in the new era for talent training in higher institutes, the educational concept of the integration of production and education came into being, which is an effective way to cultivate applied talents. The training of professional degree graduates pays more attention to practice and application, and the advantages of industry-university-research joint training are prominent, including (a) integrate the superior resources of universities and enterprises; (b) improve the practical innovation ability; (c) keep up with cutting-edge technology and (d) improve their employability. The industry-university-research joint training mode requires the cooperation of the school, the enterprise, and the students to continuously improve and perfect the shortcomings in the practice process, strengthen the practice link of the enterprise, highlight the training of engineering practical ability [7-9].

5. Conclusion

For electronic information professional degree postgraduates in college of optoelectronics engineering of CUIT, the research directions are wide, and the scale of training is gradually expanding. To solve the new problems and challenges, under the guidance of OBE concept and through industry-university-research joint training, the electronic information professional degree graduate training system in our college is constructed.

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