Exploration and Practice of Teaching Mode for Optoelectronic Information Science and Engineering

Zheng Zhu, Maosen Chen, Yuxin Liu, Linhui Cai, Zhijian Yan, Li Cheng, Shuyan Chen, Ting Meng*

College of Physics and Optoelectronic Engineering, Harbin Engineering University, Harbin 150001, China

2022 ICEICT

Motivation

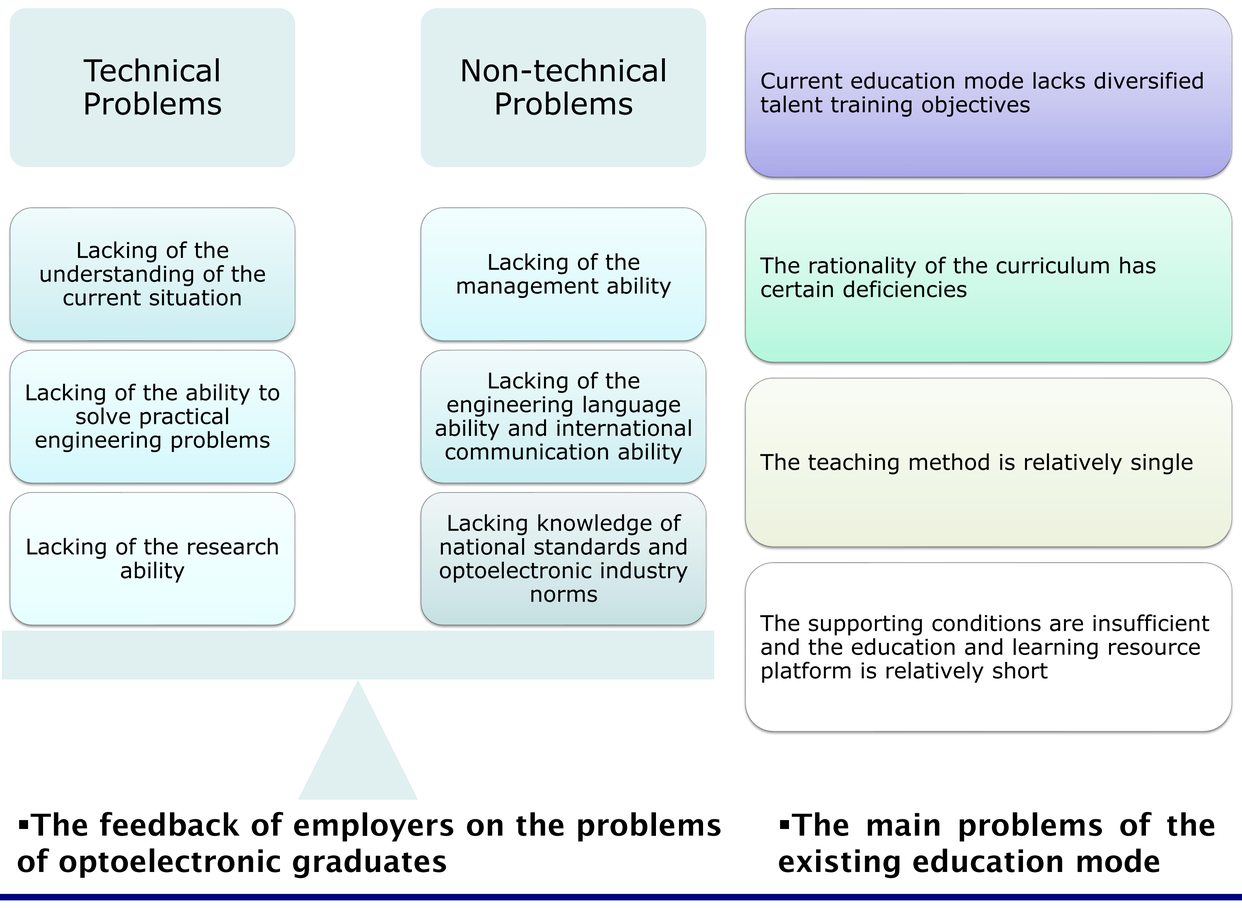
With the rapid development of optoelectronic technology and related industries, the demands for optoelectronic professionals have increased in optoelectronic enterprises and research institutes. However, according to the difficulties encountered by graduates in job hunting and the feedback of employers on the inability of optoelectronic graduates, some problems of the existing education mode of optoelectronic specialty are reflected.

Keynotes

We proposed the teaching mode of "course-competition-research" formed after years of exploration and summary in view of the problems existing in the traditional teaching mode, and its results in teaching practice. In order to better achieve the goal of cultivating optoelectronic innovative talents, we also adjusted the professional curriculum and implemented the system of professors and academic mentors, which enables students to better acquire the knowledge and ability required by optoelectronic innovative talents in the course study.

1. Problems Faced by the Current Education Mode of Optoelectronics Specialty

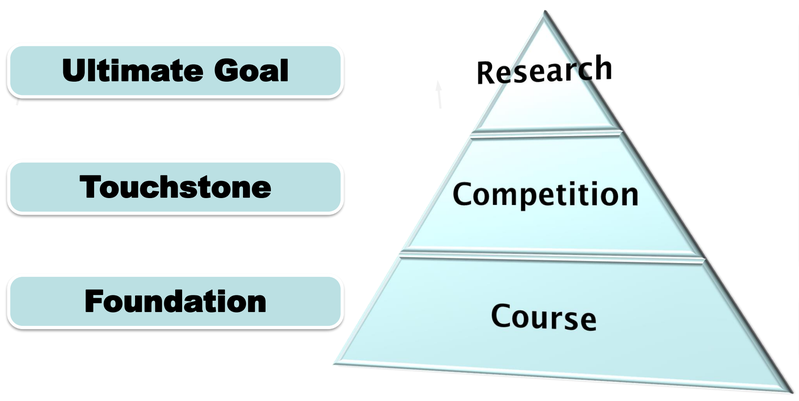
According to the feedback of the employers, the current graduates of Optoelectronics major lack experience in product design and project management, and are unable to systematically use the optoelectronics course knowledge and engineering software in the optoelectronics industry to solve practical problems. The feedback of employers on the problems of optoelectronic graduates can be divided into two aspects: technical and non-technical. Through the analysis of the feedback from the employers and the consideration of the current training mode, it is concluded that the main problems of the existing education mode of Optoelectronics specialty can be summarized as four aspects.



▪The feedback of employers on the problems of optoelectronic graduates

▪The main problems of the existing education mode

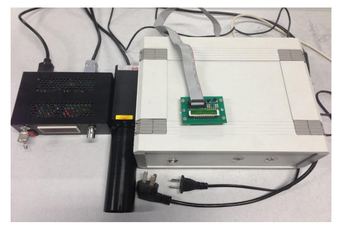
2. Exploring the Teaching Mode of "Course-Competition-Research"

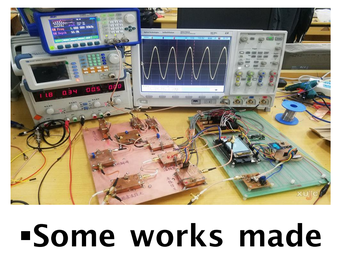


▪The composition of the "Course-Competition-Research".

▪The scientific and technological innovation laboratory to support this mode.

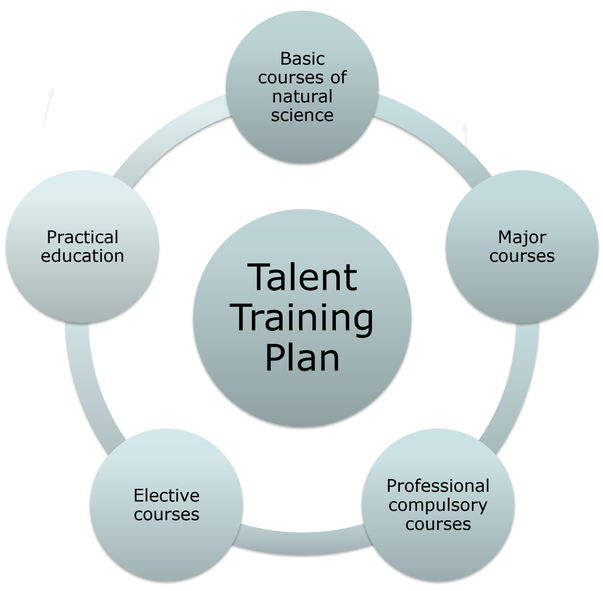
▪Some awards won by the college in recent years.





▪Some works made by students.

3. Other attempts made by the college to improve the quality of student training



▪Focus on matching professional knowledge with engineering ability.

▪Implement the system of Professors' Scholarships and Academic Mentors.

4. Conclusion

The goal of this major is to cultivate graduates with high professional ability and adapt to the development trend of social science and technology. Students are required to have a considerable breadth and depth of understanding of professional knowledge, as well as professional management, foreign language, interpersonal communication and engineering practice ability. After a period of practice, discipline construction has begun to take effect. In the future, we still need to continue to implement the existing policies and measures, and constantly reform and develop the existing measures in the implementation process.

5. Acknowledgment

This work is supported by the Heilongjiang Province Undergraduate Education and Teaching Research Reform Project: Exploration and practice of teaching mode combining innovation and entrepreneurship education with professional practice courses (SJGY20200165).