An Optimization Approach and Practice of 3+2 Teaching Model of Alternation between Work and Study

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Abstract
In order to train a line of skilled production needs of qualified enterprises, it is necessary to reform and innovate the traditional training mode of Higher Vocational talents. By taking the talents training of microelectronic technology in Higher Vocational Colleges as an example, this paper probes into the concrete realization methods in the process of personnel training, and analyses the related supporting system, and finally sets up an effective teaching mode of combining work with study. By adopting this model, the cycle of engineering alternation is shortened and the quality of talent training is improved.

Key words: Patterns of Engineering Alternation; Teaching Stage; Course Assessment

1. INTRODUCTION
Microelectronics technology is the core technology of high technology and information industry, and it is the basic industry in the new economic era. It is in the national economic construction, national defense and the modern information society plays an extremely important strategic significance. Nowadays, microelectronics technology has become an important symbol of a national science and technology progress and the comprehensive strength of (LI, 2016; Chen, 2014; Wu, 2013; Song, 2016). China has the electronic information industry as a pillar industry of the national economy. This makes the microelectronics industry has been rapid development. And how to cultivate the talents who are qualified for the production of micro enterprises in China's microelectronics industry need to reform and innovate the traditional personnel training mode of Higher Vocational education. However, it is a kind of very effective talent training mode to train qualified technical talents by means of alternation of work and study (LI, 2016; GUO, 2012; TANG, 2013).

2. THE TEACHING MODE OF WOR STUDY ALTERNATION
The traditional alternation model is the students' classroom learning and organization learning in time span, long cycle alternation, is generally more than and 10 weeks learning theory in students, 3 - 4 weeks into the enterprise centralized training, or even 2 years of learning theory, and then the last year of the enterprises to enter the post the practice, which makes students learned in the classroom, and can not use the enterprise quickly organically, greatly reduces the effect of training the training mode of the combination, in view of this situation, we cooperate with Chongqing Gleneagles photoelectric company, with "3 + 2" teaching mode, the teaching time each week is divided into two that is, the school teaching stage and teaching stage of enterprise(Shi, 2014; AI, 2014).see Fig.1, as follows:

2.1. School Teaching (First three days)
A week before the three day at school, according to "micro electronics practical training equipment factory and enterprise management" principles for the construction of the platform, through the simulation of actual production tasks and project teaching case study and implementation, operation and the actual production line of similar production equipment, to enable students to master the necessary knowledge, with the actual operation equipment skills and teamwork and other basic occupation quality, to enter the actual production line and laid a solid foundation.

2.2. Enterprise teaching stage (after two days)
A week after two days into the Gleneagles photoelectric company actual production line in learning, by technical personnel of enterprises as a student learning guide "master", "master" of each guide 2~3 students, in accordance with the "apprenticeship" management mode, distribution, for students to complete production tasks of the equipment operation skills guidance, learning effect the evaluation work. Let the students contact the real enterprise production line of equipment and technology, understand the enterprise culture and management system, and finally can master the actual occupation skills, produce qualified products.

Through this teaching mode, the knowledge and skills learned in the classroom will be applied to the actual work immediately, and achieve the seamless connection between classroom teaching and practical work. The real realization of engineering and learning.
3. SUPPORTING SYSTEM

3.1. Curriculum evaluation system based on the professional skill appraisal standard

See the course assessment process is shown in Fig. 2, corresponding to the alternation of the "3+2" teaching model, curriculum assessment completed by schools and enterprises, the assessment process is divided into evaluation of teachers, students and students occupation qualification examination engineer three modules, the specific process is as follows:

(1) teacher assessment student module:
School teachers, the process of assessment of teaching according to students' discipline laboratory in the factory compliance, team cooperation consciousness, each teaching case and the completion of the project on student learning, each teaching case and the completion of the project is the key point of teacher evaluation module.

(2) the examination module of enterprise engineer:
The enterprise engineer according to the student to comply with labor discipline, each process equipment operation is skilled, can produce conforms to the requirement of enterprise products in the aspects of the students in the actual production line of the learning process evaluation, which can produce qualified enterprises to seek products as the core module of the assessment of students' test engineer.

(3) vocational skills appraisal module:
The teachers and engineers for students learning evaluation, and decide whether the students have qualified to carry out occupation skill appraisal qualification exam, one of the two core sites before two must pass the examination module. Students only through the vocational skills appraisal examination, access to vocational qualification certificate, the course is the final assessment passed, get credit.
3.2. Apprenticeship

The students in the weekly two days after entering the business after the learning phase, the post into the production line, of course in the production activities of learning. The enterprise arrangement of first-line technical staff as a student of "master", every teacher with 2-3 students, managed in accordance with the "apprenticeship", its operation mechanism, see Fig.3, technical personnel (Master) in the stage of students' learning, responsible for students' production tasks; to explain and guide equipment operation skills according to the curriculum standard; the evaluation of student learning, and this evaluation determines the level of students received compensation level, while businesses and schools for each master guiding allowance, and students in ratio and guidance master production line for production of quality products in the level of bonuses linked. The economic interaction between the apprentice and the master is to improve the enthusiasm of the technical guidance of the master and to promote the enthusiasm of the students.

4. CONCLUSION

The alternation of "3+2" teaching mode greatly shortens the cycle of alternation, improve the training effect of alternation, let the students in the course of the learning process, will be able to learn the theoretical knowledge and practical skills to get the direct occupation enterprise work to test and sublimation, and by teachers and enterprise technical personnel to complete guidance and evaluation of students, will eventually train the students to be in conformity to the requirements of enterprise technical personnel.
REFERENCES


