

The Construction of Innovative "Optical Fiber and Cable" Teaching Team

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Abstract. In order to solve the problem of good course teaching quality, the basic connotation and characteristics, construction goals, course characteristics and establishment of teaching quality evaluation system of teaching team on optical fiber and cable course were discussed.

Introduction

Since July 2011, "the opinion on implementing the undergraduate teaching quality and teaching reform project in the 12th Five-Year Plan" by the Ministry of education and the Ministry of Finance jointly issued, colleges and universities begin to implement the "undergraduate teaching project"[1]. "Undergraduate teaching project" is the continuation and development of "quality project" during the 11th Five-Year Plan, construction of five aspects are focused: quality standard construction, professional and comprehensive reform, sharing and construction of national quality open course, the cultivation of innovative ability in practice and the enhancement of teachers' teaching ability. To achieve the five goals of construction, promote professional curriculum construction and improve quality of talent cultivation, teaching team is essential. The teaching team construction of excellent innovative course is one of the important content of the "undergraduate teaching project"(professional and comprehensive reform). Organizing teaching team of excellent innovative course is very significant to improve undergraduate teaching and quality of talent cultivation, and plays a important guiding role to professional teachers' personal development and life planning[2-5]. The teaching team construction of excellent innovative course can be a effective form to overcome defects the current teaching grass-roots organization management system, integrate teaching resources and promote teaching reform in Colleges and universities in China[6-10].

The Connotation and Characteristics of Innovative Teaching Team on "Optical Fiber and Cable"Section Headings.

The team is a formal group that composed of cooperating individuals with a certain number of and complementary skills, who is willing to work for the common goals. In order to pursue collective success, its main characteristics are task-oriented, having a common behavioral objectives, standards of behavior, communicating and cooperating effectively, reflecting its autonomic, democratic and efficient principles and interdependence, influencing mutually and cooperating actively among members. The teaching team emphasizes each member's characteristic development on the premise of team characteristics in the development of optical fiber and cable. In order to adapt the major characteristics of optical fiber and cable and promote the harmonious development of the whole team and individual, the teaching team is composed of a professional leader and

numbers of teachers. The leader is the core and soul of the team, is guide, organizer and promoter, is an important foundation to ensure the team to achieve the common goal.

The leader need have the position of professor, undertake undergraduate teaching task and main course in the direction of optical fiber and cable. Certainly the leader must have rich experience in teaching, excelent teaching effect and style of study, high science level, rigorous scholarship, bold innovation and enough ability to organize and manage and coordinate, he/she also has the ability to guide the young teachers, and is familiar with professional development of frontier, related trend of the course reform, strong sense of reform and clear thinking and goal of teaching reform and course construction. As a leader, he should have a strong enterprise and responsibility, enough sense of innovation, burning organizational skills and affinity, be good at mobilizing enthusiasm and initiative of the members, communicating with members and mediating internal conflict to create a harmonious and democratic atmosphere and a teamwork of mutual support and trust.

The team is mainly composed of four backbone teachers (elite teachers of school) and theory teachers of "double structure", two outstanding experimental class teachers and two related enterprises specialists. Members should have excellent ethics, solid professional theories, rich experience and engineering skills in teaching and reasonable degree, title configuration , age and structure. The team is a group with common goals and interests based on long-term research and teaching cooperation, a common purpose about teaching quality will be improved by deepening education reform, high quality teaching resources and teaching experiences ultimately. But the key of improving the quality of teaching is a good teacher team, which should be based on young teachers. The cultivation of the young teachers should be started from teaching work by careful and strict requirements to help them establish a good professionalism, teach them basic skills and form good teaching quality and habit.

Construction Goals of Innovative Teaching Team on " Optical Fiber and Cable"

Construction principle of innovative teaching team on " optical fiber and cable" is the materials science as basis, the undergraduate basic courses of inorganic nonmetal materials major and the main courses of "optical fiber and cable" as the main line to form the teaching team. Its goal is organizing a teaching team that formed by the olds, mid adult and young with powerful charisma, cohesive force and centripetal force. The team will hold undergraduate teaching activities by breeding a vigorous passion and innovative vitality to improve the undergraduate teaching quality, which is the common goal and value orientation. Construction mode has its own characteristics, its target location must meet the request of engineering design about personnel quality in the industry of optical fiber and cable, must adapt with the mode reform and requirements of innovative talent training. Course group construction of "optical fiber and cable" as the platform of Cooperation of colleges and enterprises and combination of work and study, the overall goals of professional development and course construction are formulated according to the needs of industry and society. The goals of major courses construction of the team are made according to total professional development goals of school and foundation and advantages of their profession, which has been expanded, promoted and integrated that based on foundation of teaching reform.

Taking effective measures to improve the teaching quality of related courses of optical fiber and cable by organizing and coordinating teaching theory and practice tasks that teachers bear in the team; Writing high quality research papers actively according to the leading role of planning and organizing the reform of teaching research, contents, methods and course system; Organizing Teaching Materials Writing of related courses on optical fiber and cable, guiding construction of related teaching laboratory and reform of experimental teaching actively; Paying attention to cultivate young teachers, guiding young teachers to make teaching growth plans, supervise and inspect the implementation of the plan; Constructing a provincial

excellent video course and cultivating a provincial teacher possibly;Organizing a scientific research of high level actively to make it influential in domestic field of optical fiber and cable;Accepting further study.

To ensure construction of major and team in higher level, scientific measures and methods are formulated to manage total goals, inspecte team, course group and individual goals regularly, correct behavior of deviating from the goals timely. In personal development of teachers, different goals are formulated for different teachers to ensure development of teachers hierarchically through the cultivation of professional leaders(teacher), backbone (elite teachers) and "double structure" teachers. Attention of an excellent teaching team should be paid to accumulation conditions and setting of effective team goals. Talents are employed and harmonious team culture is cultivated with scientific mechanism to create a favorable external environment and establish multidimensional evaluation system.

Course Characteristics of Innovative Teaching Team on "Optical Fiber and Cable"

The premise is improving the quality of teaching and research of members, the core is expanding and enriching teaching contents, developing excellent course construction, the goals are improving teaching efficiency and the quality of personnel training in the team. In course construction ,characteristics are as follows.

Establishment and optimization of course group on optical fiber and cable . The course group is the professional course characteristics of inorganic nonmetal major of Harbin University of Science and Technology, it has existed for 20 years, and become provincial excellent courses in 2009. Itself is a cross course of involving many links, contents, multi domains and multi disciplines. As shown in figure 1, the construction mode of course group is established according to the core of optical fiber and cable manufacturing engineering, which is innovative mode. The main courses like token of communication network, and were strung line from the node of independent course, formed a ring finally. Those who has token have preferential permissions to teach and achieve interoperability and sharing of resources. Optical fiber and cable manufacturing engineering as the core, the related courses and main courses are connected by coordinating teaching content, the key and difficult points seamlessly.

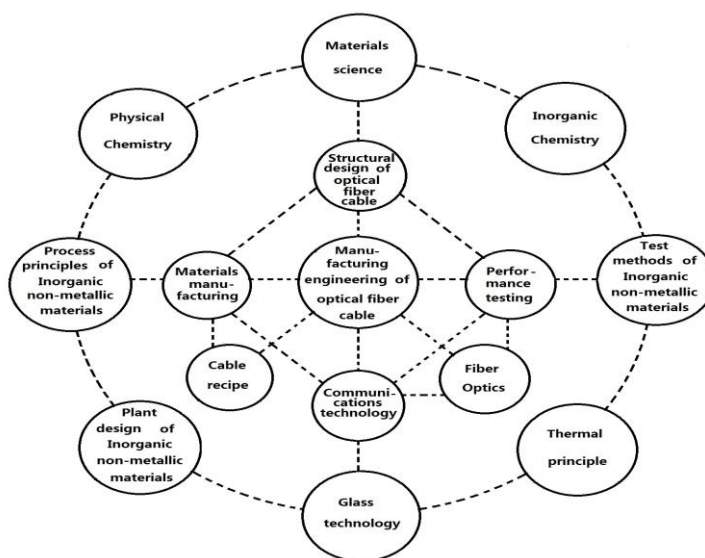


Figure. 1 establishment and optimization of optical fiber and cable courses group of token ring

Construction of Excellent courses and textbook . Enriching and strengthening the professional knowledge of students as the goals, excellent textbooks and handouts of "design principle of optical fiber and cable structure", "the technology of optical fiber and cable" and "testing technology of optical fiber and cable" are compiled, which has cultivated an excellent course "manufacturing technology and materials manufacturing of optical fiber and cable "of Heilongjiang province, an elite teachers of school and three instructors of school.

The construction of practice teaching base . In order to enhance professional practice ability of students, the professional lab of optical fiber and cable is established, test equipment also is purchased, which lays the foundation for implementation of creative and open experiment of college students teaching practice base. some cooperation agreements are signed with many optical fibre and cable enterprises in Suzhou to improve employment rate and quality.

The implementation of network teaching . To promote the sharing, cooperation and expansion of teaching resources, teaching resource library, courseware database and high-quality course website are established. Students can enjoy rich resources with members by network anytime and anywhere. Team members carry out teaching research regularly to make them generate new ideas and concepts continuously. At the same time, each member tries their best to improve their own accomplishment and overall strength of team, and develop new courses.

Establishment of Teaching Quality Evaluation System on "Optical Fiber and Cable"

Scientific and reasonable evaluation system is a effective way to mobilize enthusiasm, inspect achievements, enhance core competitiveness of the team, is an important guarantee for operating team orderly. The teaching team should implemented responsibility system and dynamic management, and are assessed according to the overall plan. Those who are unqualified should be replaced. Teaching evaluation methods should be changed. Construction of sharing course in school, provincial and national level, excellent course group of "optical fiber and cable" and professional brands and characteristics that teachers take part in should be strengthened. The assessment method of three-dimensional dynamic is implemented:

Evaluation of teaching effect = evaluation of classroom teaching(students + supervisor + teacher + expert, in table 1) + participation of teaching reform + improvement of teaching skills, the evaluation of team leader = evaluation of teaching effect + evaluation of management level + leading evaluation of teaching reform, evaluation of overall level = teaching effect of teacher + course evaluation + professional evaluation + teaching effect of enterprise practice. Combining with the teaching evaluation of teachers, teaching effect of classroom, course construction and major construction impels the teacher to focus on their own professional development and overall quality of talent cultivation, which based on their courses and teaching effect. So that teamwork can promote sustainable development of major and team preferably.

Table 1 evaluation index weight and calculation method of classroom teaching quality supervision of teachers

| Assessment indicators | Index weights | Rank(Ni) | | | | |
|--------------------------|---------------|---------------------|-----------------|-------------------|--------------------|----------------|
| | | Excellent (N1)(1.0) | Good (N2)(0.8) | Middle (N3)(0.7) | Passing (N4)(0.6) | Poor (N5)(0.5) |
| Pre-class preparation(A) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Content updates(B) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Complete lesson plans(C) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Teaching objectives(D) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Curriculum standards(E) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Teaching methods(F) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Teaching means(G) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |

| | | | | | | |
|---|--|-----|---|------|-----|------|
| Proposition level(H) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Grading(I) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Job correcting(J) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Textbook selection(K) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Teaching documents(L) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Explain vivid, interactive, conceptual clarity of the principles set forth, focused and appropriate levels of detail, fine writing on the blackboard(O) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Class on time, classroom discipline(P) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Dressed, groomed, the language of civilization(Q) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Respect for students(R) | 5% | 5 | 4 | 3.5 | 3 | 2.5 |
| Student assessment(S) | 2.5% | 2.5 | 2 | 1.75 | 1.5 | 1.25 |
| The professional teacher Evaluation(X) | 2.5% | 2.5 | 2 | 1.75 | 1.5 | 1.25 |
| Inspection and Evaluation(Y) | 5 | 5 | 4 | 3.5 | 3 | 2.5 |
| Industry expert evaluation(Z) | 5 | 5 | 4 | 3.5 | 3 | 2.5 |
| Consolidated results(M) | $M=5\%(A+B+C+D+E+F+G+H+I+J+K+L+P+Q+R+O+Y+Z)+2.5\%X+2.5\%S$ | | | | | |

Conclusion

Construction of college teaching team is a complicated system engineering, it not only need external resources and system support, but need incentive of management mechanism of mutual cooperation and enhancement together. According to analysis, potential, strength, and creative ability of teaching team of optical fiber and cable are displayed fully. It can be believed that the team will become a motive force that drives development of inorganic non-metal major of Harbin University of Science and Technology with the common efforts of all team members, and devote to construction and development of major.

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