

The software engineering curriculum development based on working process oriented systematic curriculum system

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Abstract. On the basis of software engineering specialty in higher vocational colleges, combining with the ideas of the working process oriented curriculum system construction, the systematic curriculum system design of systematic software engineering based on the working process and construction strategy is studied. It provides the beneficial reference for the construction of other professional curriculum system.

Introduction

With the rapid development of Chinese software industry in 21st century, The demand for software professionals continued growth. Course based on work process systematization has become an important part of modern vocational education curriculum research and exploration. Working process is "a complete work process carried out to complete a task and get the results of the work in the enterprise." the purpose of work process-oriented course content and structure is working process systematization instead of discipline architecture systematization. Software development internship program is a working process base on software development, use working process systematization method, Integrated Ability, knowledge, skills and technology which distribute in multiple courses together, finally construct a training course based on the work process.

Systematization Curriculum System Ideological Based on Work Process Oriented

Compared with traditional vocational education, work-process-oriented software engineering curriculum has its own distinct characteristics in terms of guidelines, curriculum development, teaching content and teaching methods. From the process analysis, education based on work process-oriented can be divided into three stages.

The market research phase. Market research is a basic curriculum development work. Market research involving industry Current Situation of personnel structure, professional development trend, the demand of job knowledge and ability, professional qualification, student employment destination and so on.

Determine the training objectives stage. Combined with local economic development, based on market demand, grasped the positioning of talent culture. Construct school-enterprise cooperation, work-study cooperation framework, agreement and implement school-enterprise cooperation programs. Explicit job responsibilities and tasks of the culture object, integrated with actual production, explicit professional development objectives.

Curriculum development stage. Curriculum development is the core of the model, curriculum development phase is substantive reform stage to implement the employment-oriented. Course system based on work process shown in Figure 1.

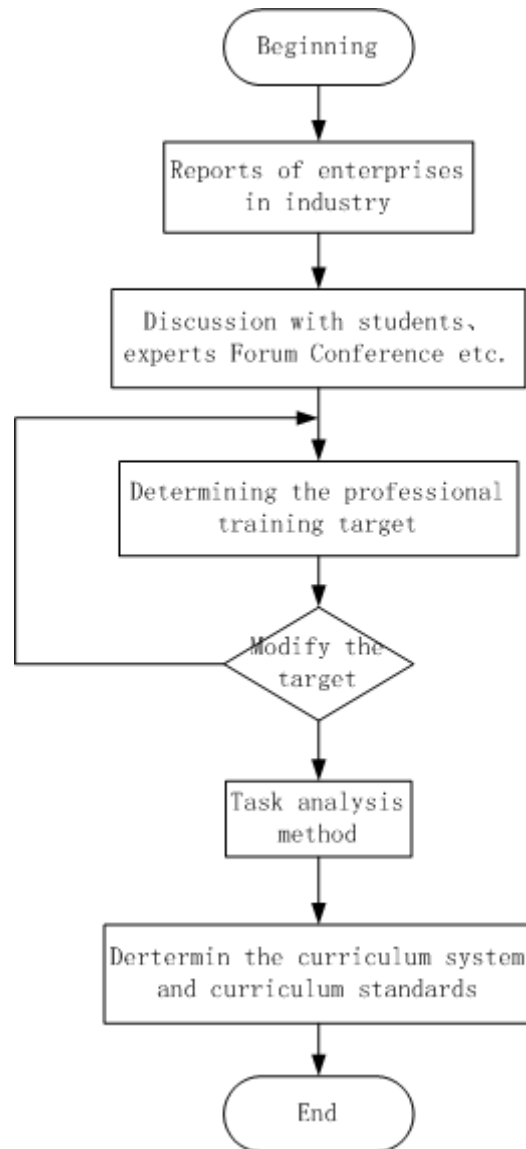


Fig. 1 The low chart of curriculum system based on the working process

The design and development methods of the software engineering course system based on the working process

The software engineering course system design thinking based on the working process. I) Break the mode of traditional courses which uses the knowledge as the main characteristics, and organizing the course content with using work as the center. Then let students build relevant theoretical knowledge in the process of completing specific projects, and let them develop relevant professional competence.

II) In the process of teaching, through kinds of ways, like the cooperation between colleges, school training and base construction and so on, and adopting the forms of the work-integrated learning, work-study program etc., it can fully develop the learning resources and provide students with abundant practical opportunities.

III) Teaching effect evaluation mainly uses the way that it combines the process evaluation with result evaluation, and through the combination of theory and practice, to evaluate of the professional ability of students.

The development method of software engineering curriculum system based on the working process

Social demand research and determine the typical work tasks. The face-to-face communication with the industry to discuss the software industry, especially the typical work tasks of software engineer, software test engineer, document writing , engineers and project configuration manager to identify the major typical work tasks.

Analyze the the typical tasks and determine the learning areas. By experts team composed of workers, school teachers, enterprise training teacher, to analyze typical work tasks and determine this major field of study.

Design software technology professional course. According to differently difficult learning areas, to deconstruct the original discipline system architecture based on knowledge base course, and to concise working process elements and build the professional curriculum system for the software technology in specific jobs.

Training target design

Personnel training goal is the basis to organize teaching activities and implement teaching evaluation. It is the key to pay special attention to teaching quality and cultivate effective talent. Therefore, the talent training is the foundation of professional course system and the the development of learning field curriculum. In fully listen to the experts and professional teachers' opinions and suggestions, we should revise and perfect them, then the final goal of talent cultivation can be determined, which is shown in table 1.

Table 1 Determine specialty education objective

Aims and demands		Contents
Goal Statement		Good comprehensive quality and ability to adapt, mastering the computer software design thought, preliminary software project demand analysis ability, being familiar with one or two programming languages, and according to the standard of unemployment and software engineering specification requires skilled programming task can be engaged in software design, coding, testing, maintenance and project management and the technical support of computer software and documentation such as work of highly skilled professionals
Competency requirements		The program design ability Database application and development capabilities The web application system development capabilities Software testing and documentation writing ability Foreign language application and communication skills
Knowledge requirements	Support knowledge	The operating system A programming language The database system Application integration, debugging and testing Application document writing

The professional course system

The realization of the talent cultivation goal is largely depends on the correct positioning of the specialized courses and the strain capacity. And the certain course system is mainly composed of a certain curriculum view, curriculum objectives, curriculum content, curriculum structure and

curriculum, where the curriculum plays a dominate role. Professional curriculum system including professional quality course, post core course and post extension field study field. The software engineering course system is shown in figure 2.

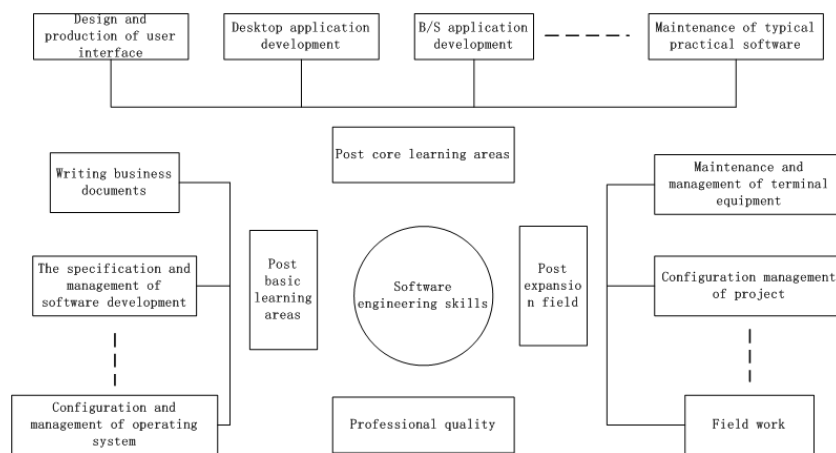


Fig. 1 Hierarchical curriculum architecture of software engineering

Conclusion

The design of software engineering course system uses the market research as the logical starting point and uses the way of the cooperation between colleges to realize the work-integrated learning through the work process. Proceeding from China's national conditions, it constructs the professional curriculum system based on the working process and solves the fundamental problem caused by the transformation of subject system of higher vocational education into the areas of action in this paper. It provides the beneficial reference for the construction of other professional curriculum system.

Acknowledgements

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