

Exploration and Practice of Curriculum Innovation Construction of Software Testing under the background of first-class curriculum

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Abstract: The construction of first-class courses is one of the core elements of the construction of first-class majors. Combining the high-level, innovative, and challenging goals of first-class course construction with the practical application of schools, taking the teaching of the "Software Testing" course as an example, this study explores the addition of educational goals, updating teaching concepts, and adjusting teaching objectives on the basis of existing knowledge, ability, and quality goals in the context of first-class course construction; Pay attention to analyzing the learning situation and reconstructing teaching strategies; Developing teaching resources and integrating teaching content; Innovating teaching models and reforming assessment methods are the practical paths for the construction of the first-class course "Software Testing".

Keywords: Software Testing; Teaching Innovation; Ideological and Political Elements.

1. Introduction

In 2019, the Ministry of Education issued the "Implementation Opinions on the Construction of First Class Undergraduate Courses", which clearly stated that it is necessary to comprehensively carry out the construction of First Class Undergraduate Courses, establish new concepts of course construction, promote course reform and innovation, implement scientific course evaluation, and form a first-class undergraduate course system with Chinese characteristics and world level [1]. "Software Testing" is one of the mandatory courses for the software engineering major. It must be combined with the school's application-oriented characteristics to enhance the high-level, innovative, and challenging nature of the course, in order to build a first-class major, cultivate first-class talents, and truly implement the fundamental task of cultivating morality and talent [2].

2. The Current Situation and Shortcomings of Software Testing Course Teaching

Software Testing has been under construction since 2014 and has accumulated rich teaching resources. The structure of teaching resources mainly includes: course introduction, learning guide, lesson plan, courseware, course training, exercise and test question library, homework, auxiliary resources, development cases, and development materials. There are still some urgent problems to be solved in building high-level software testing courses.

(1) Course objective: "Emphasize teaching books and neglect educating people"

The teaching objectives are mostly focused on the disciplinary perspective of professional talent cultivation such as statistical knowledge transmission, software testing literacy formation, and thinking ability cultivation, lacking the setting of value oriented goals such as political identity, character cultivation, and scientific spirit [3].

(2) The teaching resource platform is too outdated

Due to the inconvenient operation of teaching resource platforms and communication with students in the past, teaching reform requires the creation of new teaching resource platforms.

(3) Need to adapt to modern enterprise technology.

The teaching content mainly focuses on traditional and classic case analysis and teaching methods, with insufficient attention to students' needs, industry needs, and social needs, making it difficult to effectively solve practical social problems.

(4) The teaching mode needs to be updated.

The teaching is mostly in the form of offline classrooms, and the teaching model of "teachers teach students to listen, teachers ask students to answer" cannot fully mobilize students' learning initiative and initiative. Classroom teaching is limited by time, space, and teaching techniques and means, making it difficult for teachers and students to have effective communication and interaction. We should strengthen practical teaching, reform learning plans, and stimulate students' interest in learning.

(5) Lack of integration of ideological and political education into the curriculum.

In the past, teachers only focused on the core content of knowledge points and neglected knowledge. The educational approach under the cognitive system. The knowledge points of the course "Software Testing" should be sorted out, starting from digging out the knowledge points of the course to explore the ideological and political content of the course. Explain the course 'Software Testing'. The historical figures, engineering cultural background, industry development, and students involved in the knowledge points. Establish a knowledge point course ideological and political matrix by linking future responsibilities and other content. When integrating ideological and political education into the curriculum, it is necessary to naturally integrate and not sing high pitched songs to arouse students' emotions Resonance.

3. Teaching Innovation and Practice

3.1. Establishing a Dual Syllabus for Teaching and Educating Students in the Course of "Software Testing"

Integrating the cultivation of a pragmatic and proactive attitude towards students' academic pursuits, as well as the cultivation of a serious and meticulous work style, in the teaching of knowledge, and guiding the formation of students' socialist core values through objective and dialectical thinking methods[4].The teaching syllabus integrates the ideological and political content of the curriculum from multiple dimensions and channels, such as teaching objectives, teaching content, teaching design, and teaching methods, to organically integrate professional knowledge with ideological and political education.

In order to strengthen the ideological guidance and value shaping of students, enhance their innovative spirit and professional literacy, guide them to increase their knowledge and knowledge, stimulate their interests and hobbies, enhance their confidence, and effectively exercise their oral expression ability, this semester, we will promote the "5-minute speech before class" activity for all students on campus and the administrative class as a unit.

3.2. Selected Teaching Content, Organic Integration of Ideological and Political Education with Science and Education

In the past, teachers only focused on the core content of knowledge points and neglected the educational approaches under the knowledge system[5]. We should sort out the knowledge points of the course 'Software Testing' and explore the ideological and political content of the course from the course knowledge points. Link the knowledge points related to historical figures, engineering cultural background, industry development, and students' future responsibilities in the course of "Software Testing", and establish a knowledge point course ideological and political matrix. When integrating ideological and political education into the curriculum, it is necessary to naturally integrate, not sing high pitched, and evoke emotional resonance among students.

3.3. Responding to the Needs of Teaching and Corporate Positions

In the teaching of software testing technology courses, discussion based teaching is carried out using the software testing homework process on the front line of enterprises as a carrier to stimulate students' interest and improve their

enthusiasm. In practice, a "task driven, project oriented" teaching method is adopted, and typical and valuable applications are selected as teaching cases to stimulate students' interest and inspiration in testing applications in project practice, Emphasize the cultivation of students' practical abilities. Highlight the cultivation of specialized practical ability and comprehensive practical ability; Not only are there course related resources to support the learning of the course, but also the latest cutting-edge knowledge and project engineering cases are added, with a focus on strengthening students' ability to solve practical problems from the practical aspect.

3.4. Update of Teaching Resource Platform

Relying on platforms such as Chaoxing Learning Pass and Classroom Pai, we will build a course resource library for "Software Testing", develop complete teaching resources, open up the organization of teaching content, increase teaching interaction between teachers and students, and provide it for students to learn and use after class. Occasionally, online and offline discussions can also be organized to listen to students' ideas and provide guidance.

Learning Pass and other teaching platforms can strengthen the interaction between teachers and students. Through learning pass, rapid classroom roll call, question answer and statistics can be achieved; An online preview and test system has been set up to facilitate students to use fragmentation time for learning at any time, and facilitate students to learn before and after class. The establishment and use of these network information platforms are conducive to the combination of analytical chemistry experimental teaching mode with daily life at any time, and greatly improve students' enthusiasm for learning, innovation awareness, innovation ability and sense of national responsibility.

3.5. A Combination of Process Evaluation and Final Evaluation for Course Performance Evaluation

The reform of curriculum assessment can promote students' self-learning of unlearned knowledge, cultivate their self-learning ability, autonomous operation ability, and deepen their thinking and observation of problems, thereby improving their thinking ability. This academic evaluation model, which guides students to stimulate their intrinsic motivation for autonomous learning and actively participate in classroom teaching, highlights the characteristics of combining process evaluation and final evaluation, and can complement diverse teaching models.

Table 1. Composition of comprehensive scores

| Composition of comprehensive scores | | | | | |
|-------------------------------------|-----------------------|----------------------|--------------------|-----------------------------|--------------------|
| Project 1Project 1 | Project 1Project 2 | Project 1Project 3 | Project 1Project 4 | Project 1Project 5 | Project 1Project 6 |
| check on work attendance | Classroom performance | Homework after class | Midsemester | Project testing and defense | Examination |
| Proportion 10% | Proportion 10% | Proportion 10% | Proportion 10% | Proportion 30% | Proportion 30% |
| Total 100% | | | | | |

3.6. Course Evaluation and Reform Effectiveness

In order to verify the rationality of the evaluation method for the learning effectiveness of the first-class course

"Software Testing", the student satisfaction survey results after the teaching activities are used as a reference for the construction of the first-class course. And through comparative analysis of student learning engagement data collected during the teaching process, it was found that

students who evaluated their learning outcomes as excellent had higher satisfaction with the course, while students who evaluated their final learning outcomes as failed had a poor academic foundation, with the majority of students having insufficient investment in course learning.

4. Conclusion

In the context of the construction of the first-class course "Software Testing", the ideological and political aspects of the course are organically integrated into the course system according to the needs of talent cultivation and the requirements of the course objectives. Taking students as the center, adopting the entire process of pre class, in class, and post class education, achieving the curriculum reform of "Software Testing", improving students' comprehensive and innovative abilities, and laying the foundation for society to cultivate comprehensive talents with strong professional qualities and strong thinking.

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