

## **Application-Oriented College Studio Construction Strategy and Operation Mechanism under the Background of New Engineering**

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**Abstract:** This paper introduces a reform in the training of applied universities in the context of new engineering, mainly to build professional studios to cultivate applied talents in the context of this new engineering. It introduces the requirements and strategies of the studio during construction, and also describes the methods and systems at runtime. Guided by the general nature of the application-oriented university studio construction under the background of new engineering, the overall framework of the construction studio is explained in detail, and two examples are given to analyze the specific functions and operation modes of the studio. The benefits and advantages of the studio are summarized.

### **1. Introduction**

The construction of colleges and universities will become higher and higher with the progress of society. In order to adapt to the ever-increasing demands of colleges and universities in today's society, as a front-line teacher, we must constantly innovate educational ideas and educational methods. At present, the construction and operation of professional studios is An effective means of improving teaching methods and improving the quality of teaching.

The eastern part of Heilongjiang is located in the northeastern border area of China. Due to the geographical location and transportation capacity, the teaching resources of colleges and universities in this area are insufficient, and the research capacity of teachers is limited. Due to the support of national policies, the universities in the region are all developing towards the application-oriented universities in the context of new engineering. Therefore, under the influence of this environment, the construction of colleges and universities in the region has embarked on the road with its own unique characteristics, and on this basis The construction of professional studios has also added a colorful touch to the construction of applied universities.

### **2. The Importance of Applied University Construction Studio under the Background of New Engineering**

Under the background of new engineering, the construction of applied university studios can fully meet the development ideas of school running. The studio is a small talent training base, which allows interested students to apply their theoretical knowledge to the actual design in the studio. In order to achieve the cultivation of applied talents. And because the design of each small project requires the application of many aspects of knowledge, students can only complete the design of the whole project without learning their own professional knowledge. This requires students to expand more majors on the basis of the original professional. The knowledge, in this way, has reached the goal of training new engineering talents, and from these two reasons can prove the importance of studio construction in the development of applied universities.

### 3. Studio Overall Construction Framework

The construction of the studio is planned according to the characteristics and professional foundation of the school, so that it is possible to create a studio with its own characteristics and suitable for its own students, and this article is based on the electrical engineering and automation of our school. Construction is introduced as an example, and I hope it can be used by scholars and experts. The studio construction framework is shown in Figure 1.

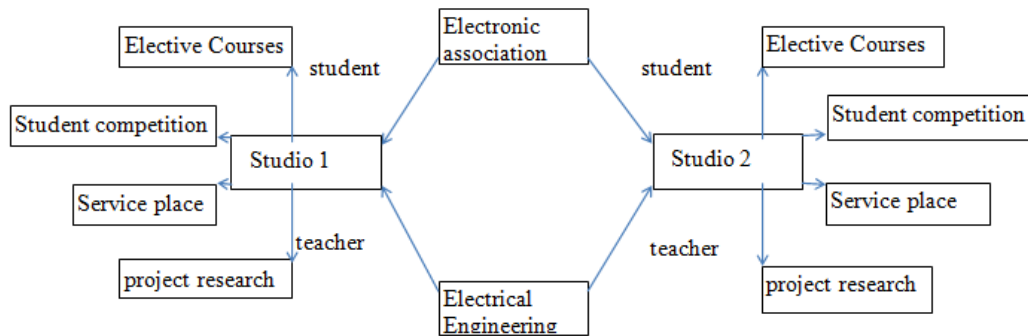


Figure 1. Studio building block diagram

The construction of the electrical engineering and automation professional studio was built by an electronic association and two studios. The Electronic Association is officially registered in the school's academic department, and is a student's professional interest activity center. This electronic association has a wide range of undergraduate students in the school, aiming at cultivating students' interests. The Electronic Association has one president, two vice presidents, and several research team leaders. This can fulfill the requirements of students to manage students. It does not require the intervention of teachers and counselors, but it also sends teachers for professional knowledge. Guide students for the specified time.

The studio is composed of two, one of which is called “Electronic Product Design Studio”, which is managed by a vice president of the Electronics Association. The studio also has two young teachers working with the students for a long time. Learning, this studio has been maintained for about 10 students for a long time. The studio, called “Smart Car Control Design Studio”, is completely consistent with the previous studio. It is only in different research directions, laying the foundation for students' diversified development.

The advantage of the overall construction framework of electrical engineering and automation is that the professional studio can increase the number of studios according to the strength of teachers and students' interests at any time, that is, they can grow up at any time according to the needs of the development of the school, and contribute to the development of the school.

### 4. The Operating Mechanism of the Electronics Design Studio

The electronic product design studio consists of 1 management student, 2 teachers and 10 students. First of all, the studio is managed by the hospitals at all levels, and the setting of the studio itself is also a course, consisting of 2 students. As a teacher of the class, 11 students, as the students of this course, can get the corresponding credits and grades as long as they pass the examination in each semester. Followed by the project arrangement of this studio, whenever a company or a manufacturer needs technical services, a team of teachers and several students in the studio will accept projects that require technical services. Once again, it is a professional technical competition. Every year, students majoring in electrical engineering and automation will participate in the “National College Student Electronic Design Competition”. When it is necessary to participate in the competition, there will be a team of 3 students from the electronics design studio and the electronics association. Participate in the competition, there will be instructors to participate in the competition, to increase the student's chances of winning, and students who have obtained the competition certificate can also apply for exemption for the next semester corresponding course. Finally, it is the service place. When the

studio teachers and students have spare time, they will contact the organization department of the school. The organization department will contact the enterprises and factories in the eastern part of Heilongjiang to ask if they need the impermanence service in electronic design. The company, teachers and students will come to the company to solve technical problems with the employees. Although this service is impermanent, it is a rare opportunity for students to use their free time to improve their application technology.

The operation mechanism of the electronic product design studio not only takes into account the needs of student credits and grades, but also takes into account the training of applied scientific research capabilities. On the basis of these, it also takes into account the acquisition of student competition honors and the planning requirements for serving local economic construction.

## **5. The Operating Mechanism of the Intelligent Car Control Design Studio**

The Intelligent Vehicle Control Design Studio is also composed of one management student, two young teachers and 10 students. In the curriculum, the intelligent car control design studio is the same as the previous electronic product design studio. It is based on the school elective course orientation, so that students can get the corresponding credits and grades in this studio every semester, so that Students who participate in the studio graduated while developing their own hobbies. But when a professional runs multiple studios, there will be students who want to participate in multiple studios, so that they can get more credits and knowledge. Because the studio needs a lot of time for each participant, all theoretically is not allowed. One person participates in multiple studios, which ensures the efficiency of each studio, and the same teachers are not allowed to participate in multiple studios.

In terms of scientific research, because the research direction of the intelligent car control design studio is narrow, there are no projects received by the electronic product design studio in taking over the enterprise project, but the studio has positioned the research direction at the beginning of its establishment. Therefore, the research results of this studio often have certain scientific research value. For this reason, young teachers of this profession are actively involved.

In terms of competitions, this studio also has its own national competition. The more prominent representative is the “National College Student Smart Car Competition”. This professional competition is dominated by competition, so the students’ participation is very high, and the way of participating in the competition is also Like other studios, students from the studio and the Electronics Association are free to team up with a young teacher. Due to the in-depth research of this studio, the students of the Intelligent Vehicle Control Design Studio are also outstanding in the awards of the competition.

Finally, the service place, intelligent car control design studio and electronic product design studio in the spare time, it is certainly the former time is more abundant, all the studios serve the local times more often, small equipment inspection and maintenance, large Participation in equipment renewal is involved, and all the new engineering application talents cultivated by this studio are also of a high standard.

## **6. Running the Studio to Achieve Results and Achievements**

The electrical engineering and automation engineering has been running in the school for five years under the construction strategy and operation mechanism of this studio. It is representative from the enthusiasm and achievements of students. In the past five years, none of the students who participated in the studio had lost their studies because of their studies and research. Students were able to graduate with the credits while studying the project, and they will shine in the final graduation design. The completion of the thesis defense, laying the foundation for the cultivation of applied talents in the new engineering of the school.

In the research and award-winning, the teacher led the students to complete more than 10 municipal-level scientific research projects, won 5 municipal-level natural science awards, and completed two provincial-level scientific research projects. Students participated in the "National

College Student Electronic Design Competition" and won the first prize of the provincial level six times, and the second and third prizes reached dozens of times. Participated in the "National College Student Smart Car Competition" won the second prize of the national level twice, the first prize of the Northeast Division 10 times, the second and third prizes dozens of times, and also achieved excellent results in other professional competitions.

The two studios, in conjunction with the organization department of the school, have served more than 20 times for the enterprises and factories in the surrounding areas of the city. They have won unanimous praise from all enterprises and brought many jobs for the electrical profession of the school.

The cultivation of applied talents in the context of new engineering requires that colleges and universities must pay attention to the cultivation of students' hands-on ability and the ability to connect with corporate positions. The construction and operation of such professional studios can meet the needs of the development of colleges and universities. Students are in the studio. You can complete the practical knowledge of your own theoretical knowledge, and you can participate in school-enterprise cooperation projects to improve your employability. Teachers participating in the studio can not only improve their own research level, but also meet the national strategy of serving local economic construction. However, there are some shortcomings in the operation of the studio. The number of studios is small. There is no way to train the application-oriented talents in the new engineering background in large quantities. I hope that in the future, the operation of the studio can gradually improve this deficiency.

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