Adult and Higher Education (2022)
Clausius Scientific Press, Canada

DOI: 10.23977/aduhe.2022.040401
ISSN 2523-5826 Vol. 4 Num. 4

Research on Discipline Construction of Control Science and Engineering in Private Undergraduate University

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Keywords: private undergraduate, control science and engineering, discipline construction

Abstract: Control science and engineering is a discipline that studies control theory, method, technology and engineering application. With the sustained and rapid development of China's economy, the demand for talents in control science and engineering is becoming more and more urgent. On the basis of expounding the talent training orientation of control science and engineering, this paper focuses on the construction measures and paths of control science and engineering, so as to provide some reference for the discipline construction and promotion of private undergraduate colleges.

1. Introduction

The discipline service fields of control science and engineering cover the Internet, artificial intelligence, communication, IT, intelligent manufacturing, financial management, education consulting, scientific research and other fields, and the work forms cover technology research, management consulting, teaching and scientific research, etc[1][2]. The combination of control science and engineering disciplines with specific problems in various fields has formed rich and diverse contents of control engineering. This discipline plays a powerful role in promoting the development of related disciplines, and shows outstanding vitality in the intersection and penetration of disciplines[3][4]. For example, the combination with information science and computer science has opened up the field of knowledge engineering and intelligent robot. The combination with sociology and economics makes the research object enter the category of social system and economic system. The combination with biology and medicine has more effectively promoted the development of biological cybernetics. At the same time, the development of adjacent disciplines such as computer, communication, microelectronics and cognitive science also promotes the new development of control science and engineering, and expands the research fields involved in this discipline[5].

2. Talent training orientation of control science and Engineering

Based on cybernetics, information theory and system theory, control science studies the common problems independent of specific objects in various fields, that is, in order to achieve some goals, how to describe and analyze object and environmental information, and what kind of control and decision-making behavior should be taken. This discipline is called automation in the undergraduate stage and control science and engineering in the graduate stage[6][7]. There are five secondary

disciplines under this discipline, namely: "control theory and control engineering", "detection technology and automatic device", "system engineering", "pattern recognition and intelligent system", "navigation, guidance and control".

Combined with the current situation of higher education of control science and engineering in China, talent training can be divided into four types, namely "research oriented", "engineering research and application oriented", "application technology oriented" and "technical skill oriented"[8]. Considering the discipline construction level and service field of private colleges and universities, the discipline construction of control science and engineering in private colleges and universities should take the "application technology leading" talents as the training orientation of college students, and cultivate high-quality innovative talents for the application of automation technology[10].

3. Construction Measures of Control Science and Engineering Discipline

(1) Discipline management

Discipline construction is a systematic project, which requires a perfect organizational system as a leading and coordinating organization. At the same time, policies and systems conducive to discipline development are issued in terms of teaching staff, scientific research, talent training and international cooperation and exchange. Therefore, a "Discipline Construction Committee of control science and engineering" should be established within the college, which is composed of the leading group of the college and the principals of various disciplines. It is responsible for leading the formulation of the overall discipline construction plan, supervising the implementation of the discipline construction plan, coordinating the relationship between various sub disciplines, and commending and rewarding relevant collectives and individuals according to the discipline construction, Form the "positive resultant force" of discipline construction of the college.

(2) Discipline team construction

College teachers are not only responsible for teaching and educating people, but also the main force to promote scientific and technological innovation and scientific research in Colleges and universities. Excellent teachers play an important role in promoting discipline construction. The construction of teachers should have a strategic vision and go beyond the original field. In order to improve the talent training ability and scientific research ability of the discipline team, we must build a discipline team composed of discipline leaders, academic leaders and academic backbone through training, introduction and use, and form a relatively reasonable structure, including professional title, academic history, academic background, age and ability structure.

In accordance with the principle of training young talents and introducing high-level talents at the same time, and focusing on training, young teachers should be encouraged to study for doctoral degrees, further study or visit schools to improve their academic level and academic level; Select key teachers as discipline leaders and improve their leading role in discipline construction; Actively create conditions to help teachers promote higher professional titles, and form a discipline team with professional leaders and famous teaching teachers as the backbone, strong practical ability and reasonable mix of old, middle-aged and young people.

(3) Collaborative specialty construction and discipline construction

Discipline construction and specialty construction are the two only ways for the connotative development of colleges and universities in China. There is not only the conflict between resources and development in fact, but also the inherent dependence, unity and synergy between discipline construction and specialty construction. Discipline construction reflects the overall academic level of a discipline or a school, with more emphasis on the level of scientific research ability. Specialty construction reflects the talent training type and level of a specialty or a school, and pays more

attention to the level of talent training. Both have their own inherent advantages in the specific practice of talent training in universities.

At present, major colleges and universities enhance the strength of talent training by coordinating the relationship between the two, strive to drive discipline construction with discipline construction, and enhance professional strength with discipline construction. Realize the basic functions of university personnel training, scientific research and social service. Most private undergraduate colleges and universities in China are application-oriented colleges and Universities Serving Local Social and economic development, so the types of talents trained are mostly high-quality application-oriented talents. Most Application-oriented Undergraduate Colleges and universities pay more attention to professional construction, especially at the beginning of the establishment of the school, they will focus on professional construction. For discipline construction, to a large extent, it is still in the exploratory stage. Most private undergraduate colleges and universities adopt the strategy of "discipline construction driven by specialty construction".

(4) Talent training and scientific research

In terms of talent training, we will improve the construction of the four curriculum systems of "general courses, general platform courses, professional courses and practical courses", deepen curriculum reform, effectively improve classroom teaching quality, build an applied talent training system, and actively apply for teaching reform projects and curriculum construction projects at all levels. In scientific research, strengthen scientific research and improve the ability of scientific and technological innovation and achievement transformation. Implement the plan to improve teachers' scientific research ability, encourage discipline members to actively apply for various national, provincial, ministerial and vertical research topics, and make outstanding achievements in the publication of high-quality academic papers, monographs, patents, teaching materials and high-level awards. Improve teachers' scientific research concept and awareness, form a certain number of first-class academic directions and collaborative innovation scientific research teams, improve the ability of scientific and technological innovation and achievement transformation, form a number of landmark high-level scientific research achievements, lead discipline development and enhance the ability to serve regional economic and social development.

4. Construction Path

The discipline construction of private undergraduate colleges needs to build a first-class discipline construction path based on the regional economic development and demand orientation. Discipline construction needs to focus on regional demand, identify the entry point of service demand, and form advantages in service demand; Under the new situation, local colleges and universities should avoid misunderstandings and aim at "first-class in the province" to promote discipline construction; Discipline construction and specialty construction support and complement each other; Focus on developing characteristic disciplines as a breakthrough; Organize the coordination and co construction of government, society, schools and other multi subjects; Create a relaxed academic atmosphere and strengthen interdisciplinary exchanges and sharing.

5. Conclusion

Based on cybernetics, system theory and information theory, the discipline of control science and engineering has obvious characteristics and advantages in the combination of theoretical research and engineering practice, discipline intersection and military civilian combination. It plays an important role in cultivating outstanding engineering talents with engineering consciousness, innovation ability and practical ability. On the basis of clarifying the talent training orientation of control science and engineering, this paper mainly discusses the construction measures and paths of

discipline construction, which can provide some reference for Discipline Construction in private colleges.

Acknowledgements

Key project of "Innovation and strengthening school project" of Guangdong University of Science and Technology in 2019: Discipline Improvement Plan of Control Science and Engineering (Project No.: gky-2019cqyj-10).

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