

# Discussion on the Application and Strategy of Micro-course in the Course of “Machining Technology” in Colleges and Universities

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**Abstract:** As a kind of information-based teaching mode, “micro-class” can bring students a more intuitive experience and arouse students’ attention to the content of the course. Applying micro-courses to the course of “Machining Technology” in colleges and universities is a measure of college education reform. This article focuses on the two aspects of the application advantages of micro-classes in the course of “Machining Technology” in colleges and universities and the application strategies of micro-classes in the course of “Machining Technology” in colleges and universities, focusing on the analysis of the advantages of micro-classes, and combining the advantages of micro-classes, explore the teaching strategies of “Machining Technology” courses in colleges and universities, hoping to start with “import links”, “training links” and “expanding links”, reform the traditional teaching mode, and optimize the course system of “Machining Technology” in colleges and universities.

**Keywords:** Colleges and Universities; Micro-classes; Mechanical Processing; Application Strategies

“Micro-course” is a form of information teaching. Although the duration of the micro-class is relatively short, it has a strong generality, which can sort out the complex knowledge structure and bring inspiration to students’ thinking. In the course of “Machining Technology” in colleges and universities, micro-classes can be applied to multiple links such as “introduction”, “training”, and “expansion”, playing an active auxiliary role. At present, although some colleges and universities have introduced micro-courses, they have not really taken advantage of their advantages. Some “formalistic” styles have even appeared which affects the normal teaching atmosphere of the “Machining Technology” course. It can be seen that in the course of “Machining Technology”, in order to scientifically apply the micro-class, relevant teachers should not blindly pursue the trend, but must analyze specific problems and pay attention to methods and methods.

## 1. The application advantages of micro-courses in the course of “Machining Technology” in colleges and universities

### 1.1 Mobilize students’ interest

Reasonable application of micro-classes can add interest to the “Machining Process” course. On the one hand, “life-oriented micro-classes” are produced. Teachers in colleges and universities can make “life-oriented micro-classes” to attract students’ attention from the perspective of life, and stimulate students’ interest in the course of “Machining Technology”. For example, playing the “Metal Cutting Process Micro-Lesson” makes students realize that the beautiful metal jewelry in life needs special processing, and the processing knowledge comes from the “Machining Process” course. On the other hand, making “career-oriented micro-classes”. Starting from the interests of students, college teachers can also make some “career-oriented micro-

classes". For example, "manufacturing technology micro-class", "safe production technology micro-class", "energy-saving and environmental protection technology micro-class", etc., broaden students' horizons and allow students to intuitively experience the practical significance of the "Machining Technology" course.

## **1.2 Highlight important and difficult content**

Micro-classes can well highlight the important and difficult points in the "Machining Technology" course. On the one hand, design "theoretical knowledge micro-classes". When stating theoretical knowledge, college teachers can display "theoretical knowledge micro-course", highlighting important and difficult content. For example, in the analysis of "turning tool angle", if only the "real object" and "model" are used as references, students may not feel the spatial position of the turning tool angle, and it is difficult to understand the impact of the tool angle on the machining quality. After playing the "Theoretical Knowledge Micro-Lesson", students can dynamically observe the angle of the turning tool and have a clear idea of thinking; On the other hand, they can design an "Operation Demo Micro-Lesson". For example, when carrying out "lathe fixture" related practical teaching, you may use the tool holder and the center frame, but not all schools are equipped with these two lathe fixtures. After designing the "Operation Demonstration Micro-Class", students can watch and perform online practical operations to understand how to install and use the tool holder and the center frame. Moreover, in the "operation demonstration micro-classes", there are often professional voice explanations, so that students can practice and listen to theoretical knowledge, which helps to deepen their learning and memory.

## **1.3 Improve the quality of extracurricular development**

Micro-classes can clarify the goals of extracurricular expansion, provide extracurricular expansion methods, and improve the quality of extracurricular expansion of "Machining Technology". Specifically, first, clarify the goals of extracurricular expansion. For example, after learning "metal cutting technology" related knowledge, college teachers can make "metal cutting technology extended micro-classes" to introduce the practical application of metal cutting technology in different fields, and guide students with clear goals to explore the metal cutting technology and the interrelationships among "daily necessities", "travel goods", and "art supplies" open up expansive learning. Second, provide extracurricular expansion methods. In the "metal cutting process development micro-course", college teachers can also provide some scientific learning methods, such as: "online search", "field investigation", "enterprise research", etc. After mastering the learning methods, students' extracurricular development efficiency will be higher and the quality will be higher.

# **2. The application strategy of micro-class in the course of "Machining Technology" in colleges and universities**

## **2.1 During the introduction**

"Heat treatment" refers to a metal thermal processing technology that changes the original structure and performance of a material in a solid state through heating, heat preservation, and cooling, etc., to meet specific expected standards. When explaining "heat treatment" related knowledge, if college teachers directly state the relevant theories, students may feel boring and unable to concentrate. At this time, college teachers can make a "micro-class of heat treatment in the past and present" to introduce the origin of heat treatment, allow students to enter the historical context, understand the application of heat treatment in the Bronze Age and the Iron Age, and stimulate students' desire for exploration. As an introductory link, although the "micro-class of heat treatment in the past and present" is only a few minutes, it can fully mobilize students' interest and make students actively and actively participate in the "Machining Technology" course.

## **2.2 In the training session**

Take the "heat treatment process" as an example. When carrying out the "heat treatment process" training and teaching, professional training equipment is required for the operations of "tempering", "annealing", "normalizing", "carburizing", "nitriding" and other processes. During the training process, students should not only pay attention to technology, but also pay attention to safety, and carry out practical operations under the premise of safety. In order to remind students of "safety first", college teachers can create a "micro-class on heat treatment process safety matters", focusing on: "safe operation process",

“safe operation system”, “emergency plan”, “emergency tools”, “safety responsibility”, “Person”, “reward and punishment measures”, etc. Through the “micro-class on heat treatment process safety matters”, college students can increase their vigilance and conduct standardized training.

### 2.3 In the expansion link

In the expansion link of “Machining Technology”, the micro-class can assign expansion tasks, formulate evaluation standards, and guide students to carry out quality expansion learning. Specifically, first, arrange expansion tasks. In the expansion link, college teachers can release some expansion tasks in the form of micro-classes. For example, after learning the knowledge of “testing mechanism product quality”, teachers can make a “testing mechanism product quality extension mini-course”, enumerating “testing mechanism product quality related systems”, “testing mechanism product quality related standards”, and “testing mechanism product quality”, “quality-related enterprises” and other development directions, instruct students to study efficiently around these directions. Second, formulate evaluation standards. After issuing the expansion task, according to the students’ learning situation, college teachers should organize the “Machining Process Technology” course extracurricular expansion evaluation activities to make students aware of the importance of extracurricular expansion. In order to unify the evaluation standards and improve the quality of evaluation, college teachers can create a “test mechanism product quality evaluation standard micro-course”, draw up specific evaluation standards, and send it to each student’s mailbox, or send it to the “collaboration of schools, enterprises, and students.” WeChat group invites students to actively participate in evaluation activities.

### 3. Conclusion

In summary, in the course of “Machining Technology” in colleges and universities, “micro-classes” have many advantages: ① Mobilize students’ interest; ② Highlight important and difficult content; ③ Improve the quality of extracurricular development. As a college teacher, in order to apply the micro-class flexibly, we must make relevant preparations. First, college teachers should strengthen the study of theoretical knowledge, have a deep understanding of the characteristics and advantages of the micro-class, and know how to apply the micro-class to “Machining Technology” curriculum theory teaching. Secondly, college teachers should strengthen practical learning, link micro-classes with the practical teaching of “Machining Technology” to create a higher-quality practical teaching system. Finally, college teachers should actively explore the “micro-class +” model. Try to combine micro-classes with other teaching modes, carry out diversified teaching, and innovate the teaching path of “Machining Technology” course.

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