

Exploring the Efficient Development of Digital Microwave Courses in Junior Police Officer Job Training

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Abstract: The job training for junior police officers plays a fundamental role in the initial formation and gradual improvement of their job skills. Through short-term training, the trained police officers are made aware of the basic principles and understand that equipment operation is easy to achieve, but it is difficult to integrate the principles with practical operations. This article explores the efficient implementation of digital microwave courses in the training of junior police officers, and provides experience summary through course teaching practice. It has a certain reference value for other theoretical and practical integration teaching courses.

Keywords: Job training, Digital microwave, Efficient implementation.

1. Introduction

The first on-the-job training is designed to meet the requirements of job abilities, aiming to teach students the necessary abilities and qualities. Therefore, on-the-job training points out the professional learning direction for trainees and also puts forward clear requirements for long-term competence in the position in the future. The learning effect of the first job training can serve as a guide for future ability improvement training and promotion training. Mastering the learning methods of such courses is of great significance for their subsequent autonomous learning and cultivating their ability to explore independently.

The integrated teaching course of theory and practical operation lays a solid foundation for theoretical knowledge and applies it to specific practical cases. Practical teaching is supported by theoretical knowledge, which is combined with practical operation, complementing and promoting each other. On the basis of mastering the operation and maintenance of digital microwave theory and wireless bridge products, practical problems are solved through the practical application of wireless bridges. The learning of other courses of the same type can play a methodological role.

2. Digital Microwave Course

As an important part of police training courses, practical teaching is directly related to the improvement of students' comprehensive abilities. Unlike the indirect experience gained in the process of theoretical knowledge learning, the direct experience accumulated in practical teaching is more profound, especially in the analysis of practical operation steps and system maintenance problems, which promotes the re understanding and flexible application of theoretical knowledge. Therefore, according to the training purpose, the practical class hours account for 2/3, and the theoretical explanation part only accounts for 1/3.

2.1. Main Content of Digital Microwave Course

The operation and maintenance course of digital microwave transmission system is a major compulsory course

in the post training for junior police officers. It is a course composed of theoretical knowledge and practical operation, covering electromagnetic wave, radio propagation, microwave, digital microwave, network equipment, antenna, optics, camera and related knowledge of transmission system supporting products. Through this course, the aim is to provide trainees with systematic training in the basic theoretical knowledge, system operation ability, maintenance skills, and other aspects of wireless bridge operation and maintenance. This will deepen their understanding and mastery of digital microwave related basic knowledge and system operation, and enable them to use commonly used wireless bridges to build basic transmission systems, analyze and eliminate common wireless bridge equipment and line faults. By configuring, erecting, and withdrawing wireless bridges, we aim to cultivate practical skills and lay a solid foundation for our job responsibilities.

2.2. Problems in the Teaching Process of Digital Microwave Course

Firstly, theoretical knowledge is very important, but it is not easy to understand and master.

Before practical operation, a large amount of theoretical knowledge is required for preparation, but these theoretical knowledge are highly abstract. Although it is not easy to master, the use of these knowledge in configuring wireless bridges can make it easier for students to understand the meaning of each parameter, which puts forward high requirements for students to understand and master theoretical knowledge.

The operation and maintenance course of digital microwave transmission system has the characteristics of abstract theoretical knowledge and flexible practical operation. The mastery of theoretical knowledge and the improvement of job skills depend on practical exercises. The students come from grassroots troops and have strong hands-on abilities, but there is a phenomenon of neglecting theoretical knowledge, emphasizing the rapid connection of equipment, and ignoring the understanding of various functions and system principles, resulting in blind or random debugging during the system maintenance process. We cannot solve the problem by analyzing phenomena and quickly

locating fault points based on theoretical knowledge. Instead, we focus more on the rapid installation and withdrawal of already configured equipment, resulting in a desire for correct results and a reluctance to be problem oriented. We use theoretical knowledge as guidance for analysis and processing, and then summarize experience to reduce time consumption for solving similar faults. In the process of relatively complex system networking, if it cannot be adjusted for the first time, it is easy to experience impatience, coupled with the widespread carelessness, which often leads to system problems not being resolved in a timely manner.

Secondly, the equipment cannot undergo live training, making it difficult to verify its effectiveness.

The impact of various terrain environments on microwaves, and how to solve these problems through networking, is mostly based on scenario assignments in practice. Only simple scenarios can be designed, or problems can be posed through imagination, and appropriate and reasonable solutions can be provided through discussion, greatly reducing the ability of trainees to solve practical problems. Especially for long-distance communication site selection in real-life environments, it is difficult to organize on-site teaching, which greatly reduces practicality. The wireless bridge can transmit 10-50KM, and its powerful function cannot be verified only on campus, which cannot make trainees feel the performance of the equipment firsthand.

3. Training for Junior Police Officers

The training for junior police officers aims to "lay a solid foundation and enhance their abilities", cultivate a group of professional talents with solid professional foundations and outstanding job abilities, and provide talent support for the military to carry out diversified tasks. There are the following issues in the specific organizational implementation process.

3.1. Teachers lack military experience and lack understanding of in-service microwave communication equipment

From the perspective of the composition structure of teachers, a relatively large proportion come from local universities, with the vast majority understanding the military through research; Secondly, there are teachers who have graduated from military academies. These teachers have less experience in military agency work and often engage in management work during agency work. They also have limited knowledge of specific equipment and limited agency locations, and are not familiar with similar equipment from other units; A small number of teachers have a clear understanding of the overall situation and most models. The training task is a major task assigned by the superior unit, with temporary characteristics, and significant changes in the training task have resulted in insufficient time for the teaching staff to conduct preliminary research and prepare targeted courses. After receiving training tasks, instructors often organize teaching based on previous courses taught and existing knowledge and experience, resulting in a low degree of matching between teaching content and actual job requirements.

3.2. The theoretical foundation of the trainees is weak, and their maintenance ability needs to be strengthened

Junior police officers come from frontline grassroots units,

most of whom have a college degree. However, the correlation between their majors and the knowledge reserve required for the course is not high. Relying solely on high school physics knowledge and college cultural course knowledge is difficult to meet the theoretical course needs, and even some students have weak high school physics foundations, making it even more difficult to learn this course. Some units even have a phenomenon of lax control over the selection of training targets, and the selected targets do not match the training positions. These students lack initiative and enthusiasm in learning due to significant deviations between their positions and the training majors. In addition, the daily training tasks of junior police officers are heavy, and most students do not develop a good self-learning habit before participating in the training, unable to quickly enter the learning state, and unable to calm down and actively think.

3.3. Teaching equipment cannot fully meet the needs of the course

The trainees of the training class come from different regions, and the equipment provided by each grassroots unit is not the same, which makes it difficult for teachers to cover most models in the design and teaching process, resulting in weak alignment in actual installation operations. This leads to the lack of equipment for the military in the institutions, and some of the equipment in the institutions is not distributed to the troops. The training focuses on new equipment while the troops are still using old equipment. The core equipment of the transmission system is still the same, and the supporting equipment of the system is limited in models and types. For example, audio and video surveillance cameras only have one brand and a single model, which can only meet the needs of system image and audio acquisition and cannot meet the comparison of multiple models. The selection needs should be based on actual scenarios.

3.4. Realistic training relies on simulation and is difficult to achieve the expected results

It is difficult to organize on-site scene teaching and on-site exercises. This course focuses on application, with a focus on practice. Only operating and using it on campus cannot simulate complex terrain environments, while going out requires consideration of safety issues, vehicle support, weather and other factors, making it difficult to achieve. As a result, during school training, only various scenarios can be simulated, and the limitations of the objective environment make it difficult to effectively verify the equipment application and maintenance effects under various complex environmental conditions.

4. Efficient Implementation of Digital Microwave Courses in Junior Police Training

Through two rounds of course teaching practice, solving these problems can be considered from the following points.

4.1. Regarding teachers

Firstly, strengthen delegation and research.

Short term training is different from academic education, and the teaching ability of training class teachers should be improved from a practical perspective. Emphasis should be placed on having proficient equipment application skills, representing a unit for detailed understanding, conducting

extensive research in multiple locations, and mastering the overall situation and specific implementation. Before the training starts, one can go to the resident unit system to act as a substitute. At the same time, targeted research can be organized, with a wide range of research subjects and a wide range of research scope as possible. For on-site research that cannot be conducted due to time or other reasons, online questionnaire surveys can be organized to understand the situation.

Secondly, the design of theoretical knowledge content should be visual and easy to understand.

The abstraction of theoretical knowledge is manifested as the difficulty in understanding the knowledge points. In course design, for knowledge points with strong abstraction, abstract problems can be visualized through simple and understandable forms such as animation demonstrations and small video simulations, and models that require human brain construction can be presented in an animated manner; During the implementation of the course, difficult to understand knowledge points can be analogized and mastered using simple and easy to understand things in daily life, such as electromagnetic waves that cannot be seen or touched, the characteristics of electromagnetic waves can be understood through the formation of water waves, and water flow can be used to simulate current.

Thirdly, theoretical knowledge should be more closely combined with practical content.

When explaining theoretical knowledge, attention should be paid to the corresponding relationship between knowledge points and equipment parameters. Understanding and mastering knowledge points helps to quickly and accurately set parameters, and can accurately locate fault points when encountering problems. During the actual installation operation, each step of setting and parameter should be linked to the previous theoretical knowledge explanation, constantly reminding students that practice is completed under the guidance of theory, helping them establish connections and achieve the goal of knowing its nature, strengthening understanding, and helping memory.

4.2. Utilize simulation software to simulate complex environments and enrich practical operations

Firstly, use simulation software to assist in understanding abstract theoretical problems.

The hardware equipment installation in the practical operation part can be achieved through explanation and practice, but the data transmission direction, sequence, and on/off situation of each node in the system are not easy to analyze. With the help of simulation software, it is possible to focus on the macro level and start from the small parts of the micro components, achieving a comprehensive understanding and mastery.

Secondly, use simulation software to build complex application environments and verify system effectiveness.

By using simulation software, it is possible to simulate various complex climates and electromagnetic environments, thereby enriching experimental content, expanding application fields, increasing the fun of practical courses, and being closer to the real application environment. It can effectively verify the system effect, achieving simulation exercises first and then practical exercises, solving possible problems in advance and improving the success rate of practical operations.

Once again, focus on site selection exercises and verify their effectiveness in simulation exercises.

For the most important site selection problem in the system, in a network simulation environment, given conditions, guide students to make the optimal choice. Verify the practical application ability of the course in a simulation environment by setting up a background for the exercise.

4.3. In terms of trainees

Firstly, hold a pre class preparation meeting.

Through pre class preview in Rain Classroom, before each class, release the preparation knowledge that should be mastered for this class, release relevant audio and video learning materials, urge students to prepare well before class, raise thinking questions, and ensure classroom progress.

Secondly, periodic assessments are conducted to supervise the mastery of knowledge.

Refine stage tests and supervise students to master key knowledge through classroom exams and other forms; The practical part can be achieved through group competitions, where students can catch up and surpass each other, enhancing their interest in learning and promoting their mastery of knowledge.

Thirdly, follow-up and feedback after class.

Use spare time to focus on thematic explanations of common problems found in classroom tests, and provide individual guidance on individual problems. Follow up and solve problems in a timely manner to ensure that subsequent courses are not affected.

4.4. Strengthen teaching guarantee and verify what has been learned in practice

Firstly, increase investment and replenish equipment.

Try to enrich the types of equipment as much as possible, especially the core wireless bridge should cover various brands and models as much as possible, and the surrounding supporting equipment should also be classified and equipped with typical models to ensure that there are various levels and levels, so as to visually distinguish equipment performance through comparative experiments.

Secondly, combined with reality, test the learning effectiveness.

Combining with other courses or practical tasks, actively apply the knowledge learned in this course, especially field exercises, and analyze and solve specific problems in practice, truly achieving flexible application of the knowledge learned and effectively solving practical problems.

5. Conclusion

The efficient implementation of digital microwave courses in police training should keep up with the times, introduce the latest theories, achievements, and products, continuously update them, and improve the overall effectiveness of job training.

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