

Research on Laboratory Management and Maintenance Methods in Institutions of Vocational College

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Abstract—With the rapid development of electronic technology and the reform of talent training mode in colleges and universities, the electronic laboratory of the college has become an important place for education, teaching and research. Its high-cost electronic equipment provides a good working and learning environment for the teachers and students of the school. It also brings a series of management and maintenance issues. Managing the electronic laboratory has a great effect on the realization of experimental teaching. This paper gives a series of solutions to the problems in the management and maintenance of electronic laboratories, making the electronic laboratory more efficient, scientific and standardized in management and maintenance, so as to better carry out experimental teaching.

Keywords—Vocational College Laboratory Management and Maintenance

I. THE STATUS QUO OF MANAGEMENT AND MAINTENANCE OF ELECTRONIC LABORATORY IN COLLEGES AND UNIVERSITIES

A. Problems Caused by Human Factors.

Because each student's electronic facilities have different learning ability and operating ability, they sometimes accidentally short-circuit the experimental power supply, sometimes inadvertently connect the experimental electronic circuit or use electronic instrumentation, and some do not comply with the standard specifications. The student maliciously changed the experimental system instrumentation and experimental equipment settings or damaged the relevant experimental equipment, resulting in the experimental equipment not working properly or even crashing. These situations will greatly increase the management and maintenance of electronic laboratories and affect the progress of electronic experiments.

Some human factors will bring health problems in the laboratory, while electronic laboratories have higher requirements for hygiene, and long-term unreasonable use will reduce the service life of electronic equipment and equipment, so the electronic equipment will be fast in the long run. The aging has greatly reduced the age of its use and seriously increased the cost of the experiment. For networked electronic laboratory facilities such as computers, it is easy to browse through the Internet and download and install malicious programs, which leads to a series of problems such as abnormal use of network electronic laboratory facilities.

B. Problems Caused by the External Environment.

For electronic facilities, the requirements of the external environment are very strict. First of all, the quality of power supply plays an important role in the normal operation of electronic facilities. The level of external voltage is closely related to the stability and life of electronic equipment. Without proper power supply and distribution system, the service life of electronic equipment may be shortened. Secondly, natural factors such as humidity and temperature in the environment also affect the degree of aging of electronic components. The normal operating temperature of an electronic device such as a microcomputer is between 100 °C and 26 °C. If the temperature is too high, the heat generated by various electronic components will accumulate, affecting the performance of the circuit, causing the machine to operate unsteadily. When the temperature is too high, the electronic device may be burnt. If the temperature is too low, it is not conducive to the stable operation of the machine. Because, under a certain humidity, too low external temperature will cause condensation of water vapor, causing rust or even short circuit. Moreover, when the temperature is too low, the insulating material becomes hard and brittle, which greatly shortens the service life of the device. Humidity: When the humidity is too high, the circuit board will increase and deform, which makes it difficult to insert and pull. The high temperature and humidity environment will also accelerate the rust of the contact surface of the metal components, and the contact resistance of the contacts will become large, which will affect the normal operation of the equipment and shorten the service life. However, if the ambient humidity is too low, static electricity is likely to occur. In low-humidity laboratories, people walking on the ground, operating equipment, friction of mechanical components, etc., generate static electricity, which is one of the greatest threats to the life of electronic components. This requires the electronics lab to have a complete set of management measures and methods that are appropriate for itself.

II. STRATEGIES FOR IMPROVING MANAGEMENT AND MAINTENANCE OF ELECTRONIC LABORATORIES IN COLLEGES AND UNIVERSITIES

A. Improve and Improve the Laboratory Use and Maintenance System.

Without rules and regulations, it is necessary to formulate rules and regulations in any group. The effective implementation of the system requires strong sense of responsibility of the laboratory management personnel and can actively cooperate with

the experimental teachers. For the management of electronic laboratories, the ability to manage personnel should be improved. For example, when new students enter the school, the school is responsible for publicity, and with the cooperation of the college youth league committee or student union, lead the new students to visit the electronic laboratory, so that the new students can understand the regulations of the laboratory. The importance of the system, and can show the new students how to regulate the use of various instruments in the laboratory.

Only by complying with relevant regulations can we ensure the standardization and standardization of the use of electronic laboratories and ensure the safety of infrastructure, so as to ensure the property safety and academic value of school laboratories, and achieve the goal of research and exploration by research teachers and students.

Through the use of the laboratory log, you can find out the problems in the management and use process in a timely manner, and can improve the management physique required by the electronic laboratory, and can effectively record and track the operation and use of the laboratory. Each laboratory should record the laboratory usage and logs every year. The logs mainly include the name of the experimental project, the date, the instructor, and the equipment.

Establish specifications for the use of each laboratory facility to ensure that the user is using it in accordance with the operating manual. First of all, the school can introduce a group of high-level and quality management personnel to make a better contribution to electronic experimental teaching and scientific research. In addition, the school should increase the input of teachers, regularly carry out training for management personnel, better improve and standardize the quality and level of management personnel, ensure the number of electronic laboratory management personnel, and train according to the requirements of the instructors. Good laboratory management staff to meet laboratory management and maintenance requirements.

B. Do a Good Job in the Protection of the Environment in the Electronic Laboratory.

The power supply and distribution system of electronic equipment should be designed according to the required electrical capacity of the laboratory equipment. When the capacity of the electronic equipment is small, it can be powered by a dedicated low-voltage feeder line; when the capacity requirement is large, a dedicated power transformer should be set up. The effect of static electricity is an easily overlooked aspect. There are many cases of static-induced faults in daily life. Therefore, at the beginning of the design laboratory, all static-conducting floors, raised floors, and countertops in the main laboratory must be considered. Effective electrostatic protection.

In addition to temperature and humidity in the natural environment, the cleanliness of electronic laboratories is also an important factor affecting the reliability of electronic equipment. Keep the laboratory clean and tidy, in addition to a set of dust removal equipment, more importantly, to prevent external dust from entering the laboratory. For example, laboratory personnel should wear clean shoe covers when entering the laboratory, and do not allow snacks and other messy things to enter. Laboratory, etc.

C. Strengthen the Safety Management of Electronic Laboratories.

Establish special personnel in the laboratory, mainly responsible for the safety of the experimental equipment and personal safety, and strengthen the protection against safety accidents, such as fire, burglary and other related safety issues. If equipment is stolen or an experimental accident occurs, it should be Ensure the safety of personnel while handling in a timely manner, immediately take effective measures, timely report to the relevant departments of the school, and protect the site. Schools should ensure the number of fire extinguishers in the laboratory according to the surrounding environment of the laboratory and the scale of laboratory equipment, and regularly check whether the fire extinguishers are effective according to relevant requirements. If there is a sudden fire, the fire-related measures should be taken quickly and effectively to rescue (call the fire, initiate fire, organize evacuation, etc.), and report the situation to the school in a timely manner, and do a good job of on-site protection.

III. CONCLUSION

In today's experimental teaching, the electronic laboratory of the incumbent college plays an irreplaceable role, and the management and maintenance of the electronic laboratory is a complicated task, which requires the electronic laboratory management department, the electronic laboratory user and Safety and security personnel work together and cooperate with each other to ensure the normal operation of experimental teaching in colleges and universities. Laboratory management personnel should constantly improve their management concepts and professional skills to make university laboratories achieve their due value.

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