

The Design of the Integrated Training Information System for Equipment Maintenance Management

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Abstract. The construction of equipment maintenance management integrated training information system goal is to use engineering method of military information system requirement, need to closely around demand of the equipment maintenance management integrated drills, maintenance business relations as the basis, based on the analysis of the system construction goal, content and procedure of the equipment maintenance management integrated training, put forward the main functions and overall technical framework of the system.

The development of science and technology have widely used in the military field, have had a profound impact on war support issues, the outstanding performance is the status and role of an unprecedented increase of equipment maintenance. Regional war under information-based conditions, the technically complex, consumption of a huge, timeliness strong, more and more dependent on equipment maintenance, maintenance has become an important part of military activities, impact on the formulation and application of strategy and tactics, restricting the scale of the war, the process and result. Equipment maintenance management, equipment maintenance business department and maintenance unit management (command) personnel, under the leadership of the head of equipment department, its subordinate units the usual equipment maintenance activities and wartime rescue and maintenance the implementation of the action plan, organization, control, is an important part of the equipment technical support. Its essence is the management personnel make decision and implementation of decision. The army colleges and universities is an important base of personnel training, speed up the construction of teaching information is to adapt to the need of military training transformation and college educational transition. Speed up the construction of teaching information in army colleges and universities, for college teaching and training content, method and means put forward new requirements. Therefore, as a college of education, the establishment of equipment maintenance management integrated training training system, improve the trainees business ability and level, it has positive significance to improve the quality of talent training.

System Construction Goal

The construction of equipment maintenance management integrated training information system goal is to use engineering method of military information system requirement, need to closely around demand of the equipment maintenance management integrated drills, maintenance business relations as the basis, take the computer technology and simulation technology as a means to establish to meet the hardware and software environment below the division level of army equipment maintenance management business and maintenance unit battalion personnel for equipment maintenance in peacetime, mobilization and wartime equipment maintenance and management. The platform mainly for every equipment business department and maintenance unit business management (command) personnel and institutions undertake in-service training to provide training means of equipment maintenance management, as the research of equipment support and command field heavy difficult problem to provide scientific experimental platform[1].

Equipment maintenance management integrated training content and process

The content and process of the training are specific and particular.

The content of the training. Integrated training based on the existing equipment, by setting an attempt to file, induced by the way, take the combined marshaling, centralized operation, one is training usually the equipment maintenance management business activities; two is training the conversion of combat readiness level of equipment maintenance management business activities; three is training equipment maintenance planning and maintenance power and maintenance method as combat action. Through the operating training, the trainees to master the basic theoretical knowledge of equipment maintenance management, improving peacetime equipment maintenance management capability and planning wartime equipment maintenance capability, groping characteristics and principles of equipment maintenance management to peacetime and wartime, further to meet the requirement of post[2].

Training process. Integrated training refers to every equipment business department and maintenance unit business management (command) personnel in equipment maintenance management training under the scenarios induced, can be divided into unilateral training and confrontation training. Integrated training usually is divided into prepare、implementation and summary three stages. Training preparation stage, organization personnel should determine the training topics, and according to the topics prepared scenario, system support personnel should be based on the training plan to deploy and test the system, and the related data of the training input system. Training implementation stage, organization personnel should announce the initial situation and drill documents; the trainees' analysis and processing of information after accept conditions, planning and command equipment support action. Summary stage, the organization personnel evaluate the effect of performance, discussing the work done.

Integrated training system construction tasks and main functions

According to the content and the training process, the specific construction tasks of equipment maintenance management integrated training system mainly has following several aspects: firstly is the guide and control, including command institutions setting, seat setting, software deployment, data maintenance functions etc.; secondly is to maintenance support business processing, including equipment technology state management, equipment maintenance units information management, equipment maintenance equipment information management, equipment maintenance facilities and equipment information management, equipment maintenance plan, document preparation calculation, tactics, maintenance resources information query, maintenance plan, data query business processing functions etc.; finally is the training evaluation, including assessment data entry and evaluation results query function. The main functions as shown below.

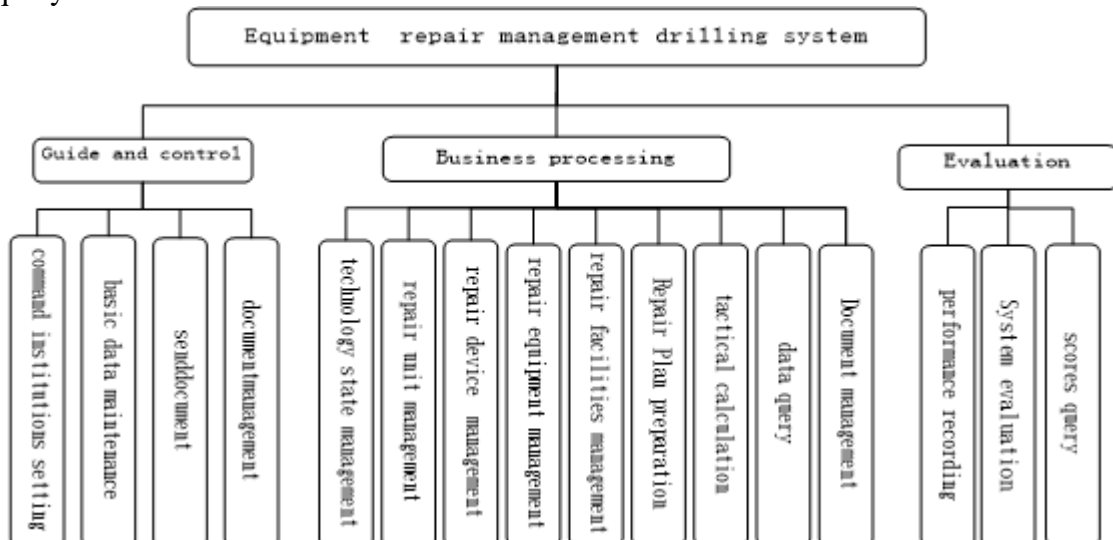


Fig. 1, The System Function Structure

The control system. Configure in the integrated training director's department, can be set up and management (including: seat setting and management, system deployment), data maintenance (including: troops sequence, technology condition, maintenance unit strength, equipment maintenance strength, maintenance facilities strength etc.), document management (including: documents sent, document management), ensure that the participating systems and personnel simulation according to the idea of director.

Business processing system. Configure in the training seat client. According to the guide and control order of director's department, students can analyses work using the business processing system, making documents, and receive documents, equipment maintenance support information query, equipment maintenance plan of year, operation tactics computing, data query. Business processing system contains the following configuration items: equipment technology state management, equipment maintenance troops (unit) management, equipment maintenance case query, equipment maintenance facilities management, equipment management, maintenance plan, tactics calculation, data query, documents management.

Evaluation system. Configure in the training director's department, Function is based on the behavior of participants and working results (documents, data) acquisition and storage etc., according to the assessment of trainees' exercises and homework results were given award, sub item examination results and the comprehensive evaluation results. According to result of student documents (artificial, document elements, job completion time parameters) were evaluated by operation, according to the result of student data (planning, feasibility, scientific assessment, human use load degree, resource utilization efficiency parameters were evaluated by operation, according to personnel issued participating training behavior table, to analyze and evaluate the behavior of the trainees, and provides the reference for the director's department to regulate the training process, mainly by means of manual examination mode.

Design of general technical framework of integrated training system

Equipment maintenance management integrated training system consists of basic service layer, application software layer, system application layer, the technical framework as shown below.

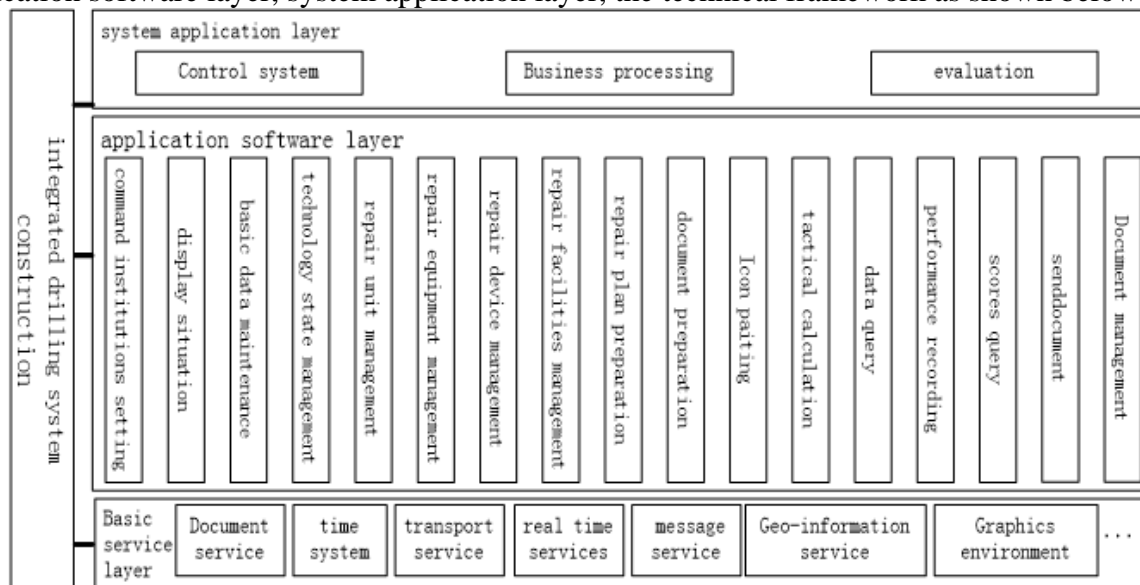


Fig. 2, General Technical Framework of Integrated Training System

Basic service layer. Basic service layer mainly adopts the integration platform of the public service supporting software. Among them, basic service software mainly includes message service, real time services, transport service, message service, alarm service etc..

System application layer. The system application layer is the guide and control personnel, trainees and evaluation personnel to use directly, including control system, maintenance support business process system, training evaluation system three parts.

Application software layer. Application software layer is the set of all application software in the integrated training system, including the command institutions setting software, basic data maintenance software, equipment technology state management software, equipment maintenance unit management software, maintenance equipment management software, maintenance device management software, maintenance facilities management software, maintenance plan software, document preparation software, tactical calculation software, data query software, performance recording software, scores query software. Integrated training system is composed of control subsystem, maintenance support business processing subsystem, integrated training evaluation subsystem and integrated training database.

Conclusions

Equipment maintenance management Integrated training system, focus on teaching service, needs of teaching and research, base on computer network, the use of advanced information technology and the modeling and simulation technology, the establishment of the army, Navy, air force and the Second Artillery Force of each equipment maintenance management authority and maintenance unit to use, meet the training of troops, colleges and universities need training and equipment maintenance management problem research. Research and development system, to enhance the teaching effect, has the positive significance of innovation information of teaching and training method.

References

- [1]Shu Zhengping, Li Yuan, Chen Le etc. Research on Equipment Maintenance Management Information System Construction [J]. Academy of Equipment Command & Technology 2011, 22 (2),P 5-7.
- [2]Su Xiong, Zhu Xiaoyang. The Design and Implementation of Maintenance Business Management Information System [J]. Modern military communication, 2006, 14 (1), P 54-57.
- [3]FM100-10-2:Contracting Support on the Battlefield[M]. Washington DC:Headquarters Department of the Army, 1999,P 3-20.
- [4]Xue Huacheng, Management Information System[M]. Tsinghua University press. 2006.
- [5]Chen Fengzhao. Management information system development and Prospect[J]. Economic and Social Development. 2004,3(3).