
Workshop production management methods

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Abstract: The contribution is devoted to a mechanical engineering company, then the methods of workshop production management and the systems that are used in this management are discussed in detail. At the beginning of the practical part, the current state of workshop management is identified using a questionnaire. In the second part, there is an analysis of workshop management in the company and a proposal for improving the given management.

Keywords: workshop management, management, analysis, enterprise, production.

INTRODUCTION

The main task of an engineering manufacturing company is to ensure the material and cultural requirements of people by producing products that meet high standards and also must meet the required amount of products. The production of the required amount of high-quality products is therefore among the most important target functions of all industrial and thus also engineering companies. To carry out this important function, other functions should be developed in the engineering plant. Their task should be to ensure such conditions that they have a

permanent and efficient performance of these basic functions. These functions include in particular:

- a) Sales function - This function includes the sale of products, the delivery of commercial and technical services to the customer, etc.
- b) Innovation function - It can also be called a scientific and technical function, its goal is to innovate products and the production base.
- c) Supply function - This function has the task of procuring manpower, means of production and information.

- d) Proper function - The function is taking care of the material factors of production, financial resources, etc.
- e) Protective function - It can be internal or external.
- f) Organizational and management function.
- g) Political-educational and social-health function, which is supposed to provide culture assurance and innovation of living and working conditions for people who work in the given company.

All units that fulfil a function have their own unique goal, which should be the same as the primary goal. The task of corporate management is to coordinate these functions as best as possible, constantly according to certain criteria. The functional structure of the workshop management system is shown in Fig. 1.

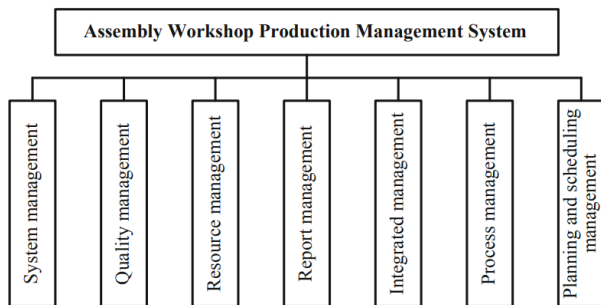


Fig. 1. System function structure map

System Management: It includes three main contents, namely user information management, system setup and database management.

Resource Management: It mainly involves the work staff in the assembly process, the tools and equipments needed in the process, and the corresponding material resources management. In the assembly production process, the most important resource is the personnel, and the work staff of each position is the undertakers to ensure assembly work smooth progress. The requirement for tools, equipments and materials are prerequisites in the whole assembly process.

Planning and Scheduling Management: It mainly includes planning task management, document demand management, planning division management, resource scheduling management, outsourced information management, and dispatching and completion management. Taking production planning as the main line, enterprise, branch and production workshop are connected in series, so that each department is managed as a whole. The production plan may also be changed after it is formulated. It needs to be determined according to the specific production situation and the degree of customer requirement. The function module needs to deal with these changes in time, so as to make the internal

resources of workshop more effective adjustment, to ensure the stability of assembly production process.

Process Management: It is mainly responsible for the management of process documents and related information. The assembly process is the method and skill used in the specific assembly process. The assembly process covers process planning, process resource, and process change and assembly route. Only by formulating assembly documents in line with the actual situation of the enterprise can we effectively guide the relevant production activities of the workshop and ensure the correctness and safety of assembly process. The assembly workshop completes parts and components assembly according to the production plan, assembly document and process requirement, and finally a deliverable product is formed.

Quality Management: Its functions include work in process information management, qualified inspection product management, scrap information management and quality report information management. The requirements of assembly production process management for quality management are essential. It is related to the future development of the whole assembly production workshop.

1 ANALYSIS OF THE WORKSHOP PRODUCTION MANAGEMENT SYSTEM IN THE COMPANY

The selected enterprise belongs to the category of medium-sized enterprises and deals with the production of electro-mechanical systems. According to the principle of management, the company is classified as a company with a pressure system and has a combined approach to management, which means that there are elements of both centralized and decentralized management.

The company uses the *MOIS 2.0* system for planning and then production management, this system has been modified and is still being developed. It is currently in charge of one IT technician, who sets it up and, in case of malfunctions, looks for a solution to eliminate them. An ordinary worker cannot get into the system, only masters and people in charge of engineering, planning and inventory management have access to it. When someone opens *MOIS 2.0*, the main menu opens, where on the top bar they can choose from six industries such as *Logistics, Manufacturing, Planning, Reports, Master, CRM*. The core of the main group consists of four groups, the first of which is *Work Orders*, it contains information about orders, delivery dates, work schedule, the second group is *Master Data*, this group contains current information about workplaces, the third group contains information primarily about

productivity, information about the productivity of the operator and individual groups can be found there or centers. In the last group, Import, there are reports on export logistics and many others. Management in the enterprise uses a pressure system, that is, workers after execution of their work, they hand over the material to the next workplace, which they have recorded in the guides. Workers have pallets at their workplaces from which they can freely choose which materials to process first and which to process later. This is how employees work unless they receive an instruction from the foreman that something has a higher priority and needs to be processed before other materials.

In the company, each employee has his own unique barcode, which is also recorded in the *MOIS 2.0* system, when the worker goes to perform some task, in this case, he goes to bend sheet metal on a press brake, scans his barcode, then scans barcode on the production guide, selects from the menu which action is to be performed, confirms it and the system records it.

2 THE EVALUATION OF THE ANALYSIS OF THE CURRENT STATE

Workshop production management in the company using the *MOIS 2.0* system, which is still under development, could be described as a well-functioning system. However, every company and every system has good sides and also sides that could be worked on to make the system more reliable, work more efficient and thus a prosperous business. The main pluses of production management in the company include:

- excellent interpersonal relations in the company, if the situation arises that it is necessary for workers to come to work on the weekend or work an extra shift the workers are always willing and can come to an agreement with them,
- recording and collection of production data is at an excellent level.

The management and monitoring of product quality is also at a good level, if there is an error on a product, it is immediately corrected and the required product quality is ensured.

- management of *NC* programs also works very well in the company and I haven't had any problems with it,
- in the company, situations are very well managed when an error occurs in the company that relates to the workshop production management, which may be that there is an error in the documentation, that there are insufficient production means, some unexpected failure

occurs and quick action is needed. Then the foreman and the workers act very quickly and try to solve the situation as quickly and efficiently as possible,

- among the shortcomings that was noticed during stay at the company are:
- problems with meeting deadlines,
- some workplaces do not manage to produce on time, the biggest problems with handing over materials on time are experienced by the workers at the bending presses,
- out-of-date time standards for workers, which results in situations where the worker gets the job done earlier and does not work. Adjusting the standards would benefit production management,
- inappropriately chosen layout of the company, since materials have to take unnecessary long routes around the company, thereby congesting material flows. It would also help management in the company to change the layout.

The primary task of production management is based on the fact that it manages a specific production system and ensures that the performance potential is actively used in the production of products that were calculated at a higher planning level. This should be done with as much efficiency as possible.

CONCLUSIONS

The results can be applied in the teaching of the *Department of Industrial Engineering* thanks to the processing of theory from the field of workshop production management, detailed processing of workshop production management systems. Identification of the current state of workshop production management and analysis of the current state in the company, this knowledge can be applied to the subject *Production Management 1*. They can also use the results in the company by applying the proposed solutions, such as proposing the training of workers to process the material according to the one with the earliest delivery date. Editing the layout would also be beneficial and positive for workshop production management.

There could also be an update of work standards at some workplaces in the company. These changes should improve compliance with deadlines and reduce company losses due to non-compliance with deadlines.

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