

CPM And PERT Technique Efficiency Model For Child Veil Production

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Abstract—The production process is a major problem in implementing the production of raw materials into finished materials. Inaccuracy and delay in completion time will result in additional time and costs. In order to anticipate such situation, one method is by using network analysis. Network analysis is described as a network that must be run which limited by time. The purpose of this study is to determine the work-network in a logical work sequence, when the child veil production process in PD ABC Bandung business units. Planning is prepared using the Critical Path Method (CPM) and Program Evaluation and Review Techniques (PERT). The critical path method (CPM) can be interpreted as a path that has the longest total activity period during which the project must be completed in a short time between the starting point and end point on the project network. PERT can be interpreted as an analytical method designed to assist in scheduling activities that must be carried out in a particular order. Further analysis of the average completion time at this time, the average for every 15 dozen was 4.28 hours. Through the proper scheduling of activities, using PERT / CPM techniques, the activities of child veil production processes for every 15 dozen products, it takes 3,822 hours. This means there is a time difference of 0.458 hours. With this time difference will help the level of production speed and reduce production costs.

Index Terms—model, demand, product, veil, cpm, pert, network-analysis.

1 INTRODUCTION

Demand for child veil in the PD ABC Bandung child's veil business unit are generally processed in the form of orders. The production process to fulfill orders is strived to be completed on time. If the production process is completed more than the scheduled time, it will cause additional costs outside the planned budget. The production process can be interpreted as an activity to add value to an item by utilizing the resources of raw materials, human resources and production equipment in order to gain profits. In order to get accurate results as a basis for calculation before carrying out the production process, planning is needed, such as: proper and logical scheduling so that errors are not expected, the production process is stopped due to the absence of raw materials, traffic jams between work units, and late delivery of goods. Likewise, if there are inaccuracies in planning to determine the amount of production, the company will experience a shortage of production or an excess of production. Careful time planning is very important for the success of production activities. Production activities that are completed beyond the targeted time cause an increase in costs exceeding the budgeted costs. This program is carried out by companies, to encourage management to use certain techniques that can help in preparing plans, scheduling activities, evaluating, controlling activity costs. In practice, planning in a company's production activities can be deviated from what was planned before, this occurs because of the lack of coordination and supervision of the company during the production process itself so that there are inefficiencies in the use of time, costs and existing resources. So that the production process can be completed on time, the company needs to arrange a production process schedule.

One of the tools of supervision and control over the course of the production process that is widely used is the network method or network control method. Operational management that can help in making plans for the completion of production activities better and more efficiently can use the CPM (Critical Path Method) and PERT (Program Evaluation and Review Technique) techniques. This technique can divide larger activities into smaller activities and organize them in a network, so that the duration and cost of working on the program can be reduced. PERT and CPM can explain the flow of the production process, so that it can be determined the critical path of the production process to complete the work in an efficient time. Thus deviations and errors that arise as well as activities that are not in accordance with the plan can be seen as early as possible, so as to reduce risks that can harm the company. PD ABC, is a company engaged in the production of veil child. The models currently produced (2019) range from 25-30 models, with the size of a baby veil, kindergarten veil and elementary school veil. For each month, the company gets an average order of 3400 dozen for all models or an average of 425 dozen per cycle. In facing of Ramadhan, orders can increase to 100%. At this time, the PD ABC production process uses an estimated time based on previous experience. This experience is used as a basis for determining how long it will take to complete it. In many activities, PD ABC has not implemented a standard scheduling system in the production process, so there are often problems of inefficient use of time in the production process. In addition to the inefficient use of time, it is also influenced by the limited workforce in production. In this study, PD ABC applies network analysis to the production process, so that there is no work pending in completion. One of the efforts to anticipate late completion of activities is to use network analysis using the CPM / PERT method. Associated with the veil production process carried out several stages of work including: design planning, preparation of raw materials, measurements, pattern making, cutting materials, sewing, grinding, neci, accessories preparation, installation of accessories, color and size separation, grouping, calculation of the number of orders, and packing.

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