



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Manpower Planning Utilizing Work Study at Data Storage Manufacturing Company

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Bachelor of Manufacturing Engineering (Manufacturing Process)

By

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BORANG PENGESAHAN STATUS TESIS*

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DECLARATION

I hereby declare this thesis entitled “ Manpower Planning Utilizing Work Study at Data Storage Manufacturing Company ” is the result of my own research except as cited in the references.

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Date : 25 April 2008

APPROVAL

This thesis submitted to the senate of UTeM and has been accepted as partial fulfilment of the requirements for the degree of Bachelor of Manufacturing Engineering (Manufacturing Process). The members of the supervisory committee are as follows:

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Ms. Rohana Abdullah
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ABSTRACT

This project entitled Manpower Planning Utilizing Work Study at Data Storage Manufacturing Company is about work study which is applied in manufacturing company in order to utilize manpower. Work study consists of two components which are method study and time study. This project is initially a standard time data and from the data the manpower template will be develop. The aim for this project is to develop standard time utilizing the work method and time measurement, create template for the manpower planning in order to improve the productivity of the manufacturing company and propose improvements to the existing manpower planning. This study is done at Xyratex (M) Sdn Bhd (Seremban). From this study, the standard time, template for man power and suggestion for manpower planning will be established. These results will be used for improving the productivity at the company. So, the improvement for productivity can be done using the work study methods and will benefit the student and also the company.

ABSTRAK

Projek Sarjana Muda bertajuk “Manpower Planning Utilizing Work Study at Data Storage Company” adalah mengenai aplikasi pergerakan kerja yang dilaksanakan di dalam syarikat pembuatan bertujuan untuk mengira penggunaan pekerja. Pergerakan kerja terbahagi kepada dua kaedah iaitu kaedah kerja dan kaedah masa. Di dalam projek ini, data masa sebenar pekerja melakukan kerja akan diambil bacaannya dan dari data tersebut template untuk mengira pekerja yang diperlukan akan dicipta. Tujuan projek ini adalah untuk memperolehi data sebenar pekerja bekerja dan data tersebut diambil menggunakan kaedah pergerakan kerja dan kaedah masa, mencipta template bagi perancangan tenaga kerja yang diperlukan bagi syarikat dalam meningkatkan produktiviti. Kajian mengenai projek diadakan di Xyratex (M) Sdn Bhd (Seremban). Dari kajian ini, data untuk pekerja bekerja dan template bagi pengiraan pekerja yang digunakan dapat diguna pakai. Hasil dari projek ini boleh diguna bagi meningkatkan produktiviti syarikat tersebut. Kajian ini didapati mendatangkan kebaikan kepada pelajar dan juga syarikat dimana pelajar dapat menimba ilmu dan pengalaman manakala syarikat boleh menggunakan hasil projek ini untuk meningkatkan produktiviti syarikat.

DEDICATION

For my beloved parents and adored brothers:

Md Radzi B. Zamrose

Nor Raidah Bt. Abdullah

Saiful Azuan B. Md Radzi

Khairul Aizad B. Md Radzi

For my supervisor and all my friends those never give up supporting and encouraging.

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LIST OF ABBREVIATIONS, SYMBOLS, SPECIALIZED NOMENCLATURE

BT	Basic Time
CF	Cycle Frequency
ESD	Electro Static Device
HDD	Hard Disk Drive
ILO	International Labour Organizational
LRC	Loop Resiliency Circuit
MOST	Maynard Operation Sequence Technique
MTM	Method Time Measurement
NSS	Network Storage System
OEM	Original Equipment Manufacturer
OPD	Output Per Day
PSM	Projek Sarjana Muda
PTS	Predetermined Time Standard
PTSS	Predetermined Time Standard System
RAID	Redundant Array of Independent Disk
RF	Repeat Frequency
SBOD	Switched Bunch of Disk
ST	Standard Time
TMU	Time Measurement Unit
UPH	Unit Per Hour

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CHAPTER 1

INTRODUCTION

1.1 Introduction of the Project

Manpower planning is actually refers to the procedure of trying to forecast the number of workers a company will need in future years. Nowadays no enterprise is able or willing to afford incorrect over or under occupied departments, however in many cases the actual manpower requirements and the availability are far away from being equal.

This project involves the manpower needed based on the job in order to improve the productivity. This project basically using a standard time data to perform a template for calculate the manpower using for assemble a product for manufacturing company. This type of improvement translates to an increase in productivity.

1.2 Productivity

Productivity is the ratio of output divided by the inputs (resources, such as labor and capital). The operations manager's job is to enhance (improve) this ratio outputs to inputs. Improving productivity means improving efficiency.¹ Productivity, commonly expressed as a mere ratio between outputs produced and inputs consumed, is perceived as an easily interpretable measure of operational

¹ Efficiency means doing the job well – with minimum of resources and waste. Note that distinction between being efficient, with implies doing the job well, and effective, which means doing the right thing.

performance. Efficiency denotes the relative productivity measurement resulting from a comparison with some reference, other comparable units and/or historical values (Lilly, 2007).

The improvement can be achieved in two ways which is a reduction in inputs while output remains constant or an increase in outputs when input remains constant. Both represent an improvement in productivity. In economic sense, inputs are land, labor capital and management, which are combined into a production system. Production is the total goods and services produced. High production may imply only that more people working and that employment levels are high, but it does not imply high productivity.

Productivity improvement does not rely for its success on the application of specific productivity techniques. It depends much more on the commitment and creativity of all members of the organization. There are a number of approaches and techniques which have grown out of the productivity movement which is work study, organization and methods, operational research and others. The approach and attitude to productivity improvement is much more important than the type or nature of any techniques employed. One of the great strengths of those properly and fully trained in the use of productivity techniques (Daniels, 1997).

1.3 Work Study

Work studies consist the following two main components which is method study and work measurement. Work study is being used to analyze method of work, gain insight in how work is performed, improve method of work or detect potential for improvements enable planning by providing data, provide information for time studies, wage calculation and incentive schemes and also this research of the work study is used to perform a data for the template. Time measurement involves a measurement where it is use to measure work. The result of time study is the time

that a worker suited to the job and fully trained in the specified method that will need to perform the job if the worker works at a normal or standard time.

1.3.1 Method Study

Method study is the process of subjecting work to systematic, critical scrutiny in order to make it more effective and/or more efficient.

The process is often seen as a linear, described by its main steps of:

1. Select (the work to be studied).
2. Record (all relevant information about that work);
3. Examine (the recorded information);
4. Develop (an improved way of doing things);
5. Install (the new method as standard practice);
6. Maintain (the new standard proactive).
7. Study for further improvement.

Work is selected for method study on the basis of it being an identified problem area or an identified opportunity (resulting from a systematic review of available data, normal monitoring or control processes, high levels of dissatisfaction and complaint or as part of a management-derived change in policy, practice, technology or location), and usually because it meets certain conditions of urgency and/or priority.

The purposes of method study are:

1. Analyze method of work
2. Gain insight in how work performed
3. Improve method of work or detect potential for improvements
4. Enable planning by providing data
5. Disable possible hazards and dangers to safety

6. Provide information for Time Studies, development for equipment, wage calculation and incentive schemes.

The outputs of a method study will be:

1. Systematic method description involving, operator, equipment, materials and procedures.
2. Recommendations for improvement.

1.3.2 Time Study (Work Measurement)

It involved the technique of establishing an allowed time standard to perform a given task , based on measurement of the work content of the prescribed method , with due allowance for fatigue and for personal and unavoidable delay. Time study analysts use several techniques to establish a standard stop watch time study, computerized data collection, standard data, fundamental standard data, work sampling, and estimate based on historical data. Each of this techniques has application under certain technique and then use that technique judicious and correctly.

The purpose of time study is to:

1. Establish standard times
2. Rate operator performance
3. Gain information to calculate overall production capabilities and data for capacity panning
4. Establish the total work content of finished goods.

There are some benefit gain from the time study which is:

1. Knowledge about standard time to be expected
2. Ability to estimate total work content
3. Operator can be appraised on factual grounds

Some of inputs are required for time study which is:

1. Documented result of method study for the job to be measured
2. Observation of the job studied
3. Time readings for the job to be measured from stop watch

The output from the time study will be:

1. Standard time for job that has been measured
2. Complete time study sheet with rating and time
3. Knowledge about the work content for specific product and process

1.4 Importance of Manpower Planning

In some industries where there is a high turnover, it makes little sense to just carry on with an existing process. Better recruitment and more cost effective training may be just two factors which should be looked at. Much of the statistical manpower planning information are able to produce and many of the resulting trends will be of immense value to customers. It is important to make sure that the resulting benefit or saving is measured and include that in added value contributions. Planning is nothing but using the available assets for the effective implementation of the production plans. After preparing the plans, people are grouped together to achieve organizational objectives.

Planning is concerned with coordinating, motivating and controlling of the various activities within the organization. Time required for acquiring the material, capital and machinery should be taken into account. Manager has to reasonably predict future events and plan out the production. The basic purpose of the management is to increase the production, so that the profit margin can be increased. Manager has to guess the future business and to take timely and correct decisions in respect of company objectives, policies and cost performances. The plans need to be supported by all the members of the organization. Planning is making a decision in advance

what is to be done. It is the willpower of course of action to achieve the desired results. It is a kind of future picture where events are sketched. It can be defined as a mental process requiring the use of intellectual faculty, imagination, foresight and sound judgment.

It involves problem solving and decision making. Management has to prepare for short term plan and measure the achievements, while the long term plans are organized to develop the improved and new products, services, expansion to keep the interest of the owners.

Manpower planning ensures optimum use to company which is:

1. It is useful both for organization and nation.
2. It brings about fast economic developments.
3. It boosts the geographical mobility of labor.
4. It provides smooth working even after expansion of the organization.
5. It opens possibility for workers for future promotions.
6. It creates healthy atmosphere of encouragement and motivation.
7. Training becomes effective.
8. It provides help for career development of the employees.

1.5 Problems Statement

Time study is the most common method use by a lot of manufacturing companies for improving company productivity. Standard data will be produced by time study and this standard data are important in every manufacturing company because it can provide uniform process and time for workers do their work. In order to improve the productivity, effectiveness and also reduce cost for manpower, every manufacturing company should used a manpower planning.

This project focuses more on performing time study and implementing the standard time at Networked Storage Solution (NSS) production line in a selected manufacturing company which is Xyratex (M) Sdn Bhd in order to increase the working effectiveness.

Currently this company performs the manpower planning based on the historical data. Manpower planning is important to provide smooth working environment and bring up fast economic development.

The manpower planning will be produced based on data from standard time which consider allowance, rating and other important information needed.

1.6 Objectives of the Project

The objectives of this project are to:

1. Develop standard time utilizing the work method and time measurement.
2. Create template for the manpower planning in order to improve the productivity of the manufacturing company.
3. Propose improvements to the existing manpower planning.

1.7 Scopes of the Project

This project is concerned on how the manpower utilizing work study will improve the company productivity. The project will focus at NSS production line which is the worker are assemble NSS product. The project is focused on the work study, build the standard time based on the data taken and also build the manpower template. The duration of the project is from July 2007 until April 2008.

1.8 Importance of the Project

The importance of the project is as follows:

1. Comparing the historical data for manpower using by company and the data based on the calculation which consider allowance, rating and other important information.
2. Able to propose a better standard time and template for manpower that can be used for every product for company.
3. As a references for academic studies related to work study and manpower planning

1.9 Outline of Project

The project will be divided into two parts which is Projek Sarjana Muda (PSM) 1 and PSM 2. The first part contains three chapters which are introduction, literature review and also the methodology. The second part contains three more chapters which are result and discussion, and conclusion of this project.

Introduction discusses about the definition, objectives, scope and the problems statement for this project. Literature review explains in term of method and measurement in order to produce a result. Methodology explain about the technique of obtain the data. Result and discussion explain mainly about the result or data that gain from the work study and analysis of the result from the work study that have done earlier. Conclusion is the last chapter based on the objectives that have been determined before.

Work study is utilized in this project and these methods and techniques have been proved useful in increasing the effectiveness for company. Before the work study is done, a process analysis will be conducted to understand the process involved of producing the product at production line. The component and procedure of work