



Victoria University of Bangladesh

Assessment Topic:

Final Assessment

Course Title: Production & Operations Management

Course Code: POM-325

Submitted To:

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Ans: to the question no-1

* Ans:- Qualified worker:-

Qualified worker means a worker who possesses the skills, knowledge and abilities to perform the essential functions of a job.

Qualified worker means a claimant who because of the effects of a work related injury or occupational disease is permanently precluded from engaging in his usual and customary occupation and is unable to perform work for which the individual has previous training or experience and can reasonably be expected to attain suitable, gainful employment upon successful completion of a vocational rehabilitation program.

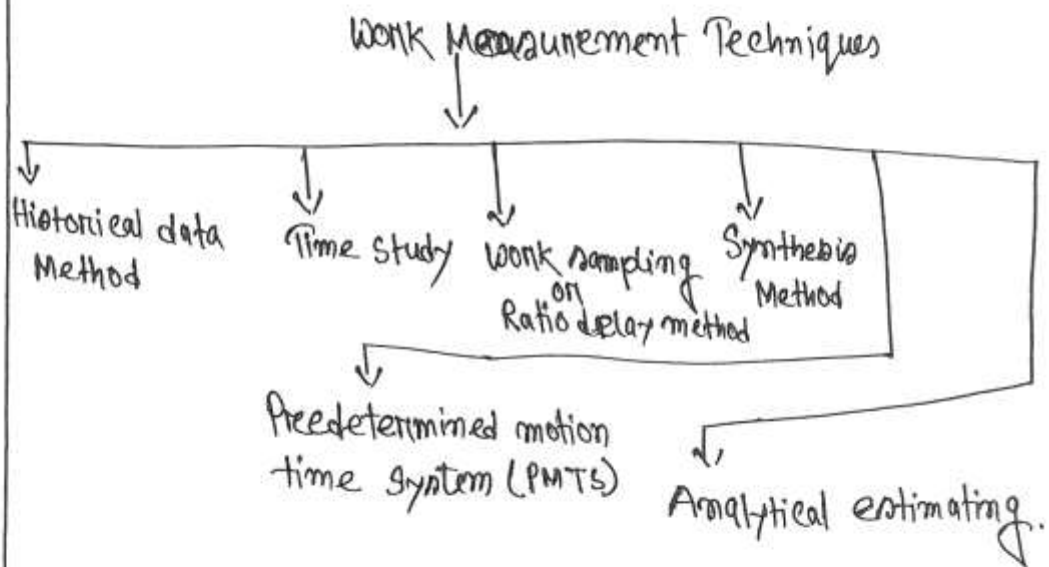
* ~~WORK MANA~~ Discuss about work measurement techniques
these are below

* Work Measurement Techniques:-

Work Measurement can be defined as the implementation of a series of techniques which are designed to find out the work content of a particular task or activity by ascertaining the

actual amount of time necessary for a qualified worker, to perform the task, at a predetermined performance level.

Work Measurement techniques are listed below:-



★ Historical data Method:- Historical data method used the past performance data. Here past performance is used as a guideline for setting work performance standards. The main advantage of this technique is that it is simple to understand quicker to estimate and easier to implement. This is because there may be many changes in technology, employees behavior, abilities etc.

- * Time Study:— Time study refers to the ascertainment of the time needed to carry out a unit of work. In this method observation and recording of time is necessary for undertaking each unit of an operation and done with a view to ascertaining the actual time, in which the work can be accomplished.
- * Work Sampling or Ratio Delay Method:— A work measurement method, in which the work of several employees is sampled randomly, at periodic intervals, to ascertain the proportion of total operation, of a specific activity.
- * Synthesis Method:— A work measurement method, in which the job or activity is divided into various parts after which the time consumed in performing each element of the job is recorded and then combined.
- * Predetermined Motion Time System (PMTS):— In PMTS method, basic times are set up for basic human motions. Such time values are used to compute the time required by the job for its completion, with fixed standard. It is a new and improved version of motion study.

* Analytical Estimating:— This method of time measurement is used to ascertain the time values for the tasks, that are long and not repetitive in nature.

Work measurement techniques helps in preparing realistic work schedules by proper evaluation of human work. It helps in comparing the actual time taken by the worker, with the time allowed, to keep a check on the workers and avoid idle time. R

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Ans: - to the question no-02

★ Ans: - Define fixed product layout: - A fixed product layout is the least important for today's manufacturing industries. In this type of layout the major component remain in a fixed location, other materials, parts, tools, machinery, man power and other supporting equipments are brought in this location.

The major component on body of the product remain in a fixed position because it is too heavy or too big and as such it is economical and convenient to bring the necessary tools and equipments to work place along with the man power. This type of layout is used in the manufacture of boilers, hydraulic and steam turbines and ships etc.

★ Advantages of fixed product layout: - Advantage of fixed product layout ~~are~~ there are below -

① Material movement is reduced.

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/ (b) Capital investment is minimized.

/ (c) The task is usually done by gang of operators, hence continuity of operations is ensured.

/ (d) Production centers are independent of each other. Hence, effective planning and loading can be made. Thus total production cost will be reduced.

/ (e) It offers greater flexibility and allows change in product design, product mix and production volume.

* Limitations of fixed product layout:— Limitations of fixed product layout there are below—

/ (a) Highly skilled man power is required.

/ (b) Movement of machines equipments to production centre may be time consuming.

/ (c) Complicated fixtures may be required for positioning of jobs and tools. This may increase the cost of production.

Ans: to the question no-03

* Ans: Learning Curve:— A Learning curve is a correlation between a learner's performance on a task and the number of attempts or time required to complete the task, this can be represented as a direct proportion on a graph.

In the case of more labour intensive mass production industry, mostly the labour is repetitive type of job, that results in more learning due to experience of doing the same job because of this, the time taken to produce subsequent units gets reduced compared to the previous units. ~~The~~ After the learning effect ceases, the time required to produce one unit or one batch will be the same irrespective of the number of units or batches. The organization has to cash in the relevant range period, the period in which the learning effect is there. During the learning effect period, the standard time per unit is not constant it varies depends upon the quality of the order you get. Since the learning effect has impact on the standard time that is the reason to study this concept in the ~~Cost~~ section.

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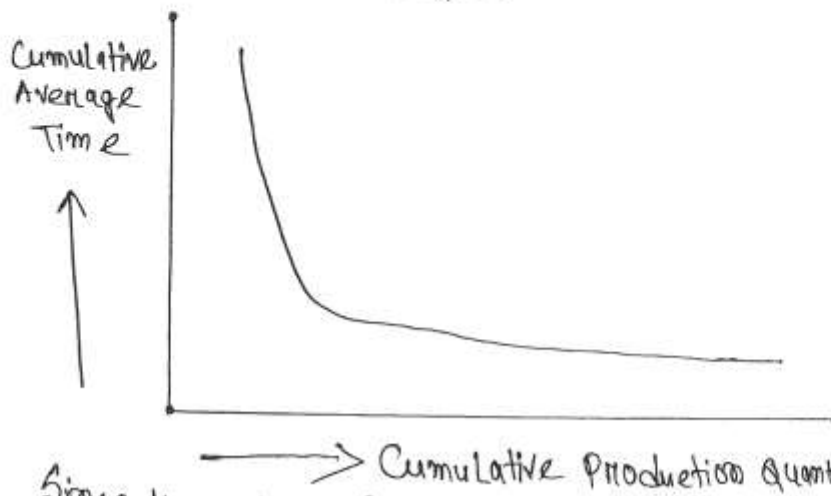
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Consider the past data of a Company manufacturing Aircraft Components. for a particular Component the data are taken for ten situations - Table

Situation	Quantity (Q)	Production Time (P)	Cumulative batches (1)	Cumulative Production Time (2)	Cumulative Average Time (3) = (2)/(1)
1	20	164	20	164	8.2
2	30	228	50	392	7.84
3	50	340	100	732	7.32
4	80	453	180	1185	6.58
5	120	655	300	1840	6.13
6	150	767	450	2607	5.79
7	210	863	660	3470	5.26
8	260	1115	920	4595	5
9	330	1488	1250	6083	4.86
10	380	1311	1630	7394	4.53

using (1) and (3) if you draw the curve, it appears as follows.

Figure



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Since the nature of the curve is exponential, the general equation for exponential curve is

Curve is —

$$Y = aX^b$$

Y = Cumulative average time

X = Cumulative production quantity

a = The time required to produce the first quantity

b = Exponent

' b ' depends upon the operating conditions. In the above model for the particular cumulative production quantity what will be the cumulative average time. This could be easily calculated provided, if you know the two parameters namely ' a ' and ' b '. Since the curve is exponential in nature, if you take the logarithm for the ' X ' value and ' Y ' value then you can get a linear curve as follows —

$$\log(Y) = \log(a) + b \times \log(X)$$

Thus the curve is of the form —

$$Y = a + bx$$

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Ans: to the question no-04

* Ans:- Expect from CADD:- Computer Aided Design and Drafting (CADD) is an electronic tool that enables you to make quick and accurate drawings with the use of a computer. Unlike the traditional methods of making drawings on a drawing board with CADD you can sit back in an easy chair and create wonderful drawings just by clicking the buttons of a keyboard. CADD drawings are neat, clean and highly presentable. Electronic drawings can be modified quite easily and can be presented in a variety of formats.

You can do amazing things with CADD that you never thought possible while ~~or~~ creating drawings with a pen or pencil. The following are some of the important capabilities that make CADD a powerful tool -

- / Presentations
- / Flexibility in ~~end~~ editing
- / Units and accuracy levels
- / Storage and access for drawings

- / Sharing CADD drawings
- / Project reporting
- / Engineering analysis
- / Computer Aided Manufacturing (CAM)
- / Design
- / Add-on Programs.

* Presentations:— you can create fine drawings with hundreds colors, line types, hatch patterns, presentation symbols, text styles, etc. Even if you don't like something about your presentation after you have finished it, you can instantly change it. Every time drawings the change it. This kind of luxury is available only when working with CADD.

* Flexibility in Editing:— CADD provides the flexibility to make quick alterations to drawings. you can erase any portion of a drawing with pinpoint accuracy. It takes only seconds to do a job that could take hours on a drawing board. In many cases you do not even have to

erase to make the change. This enable you to analyze design options with minimal effort.

The following are some of the editing capabilities of

- CADD —
- / Move or Copy drawing elements.
 - / Enlarge or reduce parts of a drawing.
 - / Add one drawing to another.
 - / Stretch a drawing to fit new dimensions.
 - / Make multiple Copies of a drawing element.
 - / Change the size, style and fonts of text.
 - / Change units of measure of dimensions.

* Units and accuracy levels:— CADD allows you work with great accuracy. If you need to create highly accurate geometrical shapes. CADD is the answer. It can help avoid time-consuming mathematical calculations. you can work with different units of measure, such as architectural units, engineering units, scientific units and Surveyors units. These units can be represented in various formats commonly used by professionals.

* Storage and access for drawings:— It is quick and convenient to organize for a CADD drawing in the Computer. you can have thousands of drawings on a Computers hard disk and can open any one of them

within seconds.

~~A Computer~~

- * Sharing CADD Drawings:— The electronic drawings can be shared by a number of users, allowing them to coordinate their tasks and work as a team. This is accomplished by connecting different computers via a network.
- * Project Reporting:— The computer can be used to prepare project reports such as records of areas, quantities and cost estimates. Using the database capabilities of CADD. The non-graphic information is stored in a database and can be used to prepare reports.
- * Engineering Analysis:— CADD drawing can be used to perform specific engineering analysis. There is a separate category of programs called Computer Aided Engineering (CAE) that can use CADD drawing for engineering analysis.
- * Computer Aided Manufacturing (CAM):— CADD extends its power to yet another branch of engineering called Computer Aided Manufacturing (CAM). CAM is a common method of manufacturing used by large corporations. These systems import CADD drawings into CAM programs to automate the manufacturing process.

* Design:- CADD provides a convenient means to create design for almost every engineering discipline. It can be used for architectural design, landscape design, interior design, civil and surveying, ~~me~~ mechanical design, electrical engineering, plant design, industrial design, duct design, electronic circuit design, plumbing design, textile design and product design.

* Add-on Programs:- There are a number of separate programs available that can enhance the power of CADD. The add-on programs work as an extension of CADD to accomplish specific tasks. There are hundreds of add-on programs available for popular CADD programs.

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