

جامعة الجميع الذكيه

Everyone's Smart University

البرنامج: ماجستير الإدارة

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Title: Impact of Organizational Structure on Total Productive Maintenance Pillar (Training) for Improving Equipment Maintenance Efficiency in a Petrochemical Plant (Methanol Producer) in KSA

Introduction

Since achieving quality in all facets of manufacturing operations, implementation of Total Productive Maintenance (TPM) is required [1]TPM provides a comprehensive, life cycle approach, to equipment management that minimizes equipment failures, production defects, and accidents. It involves everyone in the organization, from top level management to production mechanics, and production support groups to outside suppliers { 2]and while TPM was built on pillars that include “ 5S concept , Autonomous maintenance, KAIZEN, PLANNED MAINTENANCE, QUALITY MAINTENANCE, TRAINING, OFFICE TPM, SAFETY, HEALTH AND ENVIRONMENT{.3] ,

It valuable to see the Implementing training pillar of TPM from point view of firms organizational structure and functional of organization department objectives that restricts the Improving Equipment Maintenance Efficiency in Petrochemical organization structure (Methanol Producer) in KSA

What is Total Productive Maintenance (TPM) ?

It can be considered as the medical science of machines. Total Productive Maintenance (TPM) is A maintenance program which involves a newly defined concept for maintaining plants and Equipment. The goal of the TPM program is to markedly increase production while, TPM brings maintenance into focus as a necessary and vitally important part of the business. It is No longer regarded as a non-profit activity. Down time for maintenance is scheduled as a part of. The Goal is to hold emergency and unscheduled maintenance to a minimum. [3]

TPM – History:

TPM is a innovative Japanese concept. The origin of TPM can be traced back to 1951 when Preventive maintenance was introduced in Japan. However the concept of preventive Maintenance was taken from USA. Nippondenso was the first company to introduce plant wide Preventive maintenance in 1960. Preventive maintenance is the concept wherein, operators Produced goods using machines and the maintenance group was dedicated with work of Maintaining those machines, however with the automation of Nippondenso, maintenance became A problem as more maintenance personnel were required. So the management decided that the Routine maintenance of equipment would be carried out by the operators. (This is Autonomous Maintenance, one of the features of TPM). Maintenance group took up only essential Maintenance works.

Thus Nippondenso which already followed preventive maintenance also added Autonomous Maintenance done by production operators. The maintenance crew went in the equipment Modification for improving reliability. The modifications were made or incorporated in new Equipment. This lead to maintenance prevention. Thus preventive maintenance along with Maintenance prevention and Maintainability Improvement gave birth to Productive Maintenance. The aim of productive maintenance was to maximize plant and equipment Effectiveness to achieve optimum life cycle cost of production equipment.

By then Nippon Denso had made quality circles, involving the employees participation. Thus all Employees took part in implementing Productive maintenance. Based on these developments .Nippondenso was awarded the distinguished plant prize for developing and implementing TPM, By the Japanese Institute of Plant Engineers (JIPE). Thus Nippondenso of the Toyota group Became the first company to obtain the TPM certification. [3]

Research Problem:

Improving equipment Maintenance Efficiency by only train the maintenance staff while TPM training Pillar mentioned that operators shall capable about equipment failure moods.

And as Maintenance Engineering Handbook (2) was mentioned that Equipment efficiency is commonly used to metric when evaluating a manufacturing system. The Efficiency is typically maximized by running the equipment at its highest speed, for as long as possible, To increase the product throughput. The efficiency is reduced by time spent with the equipment Idling (waiting for parts to load), time lost due to minor stops (to make small adjustments to The equipment), and lower throughput from running the equipment at a reduced speed. These efficiency Losses can be the result of low operator skill, worn equipment, or poorly designed manufacturing System

Importance & Objectives of Research

1. What the base to select operator training need.
2. How operator training enhance equipment Maintenance Efficiency

Research Hypotheses

- Training of equipment operator not increase the knowledge of opratort about equipment failure root cause

Research Methodology

- Questionnaire to measure Individual development Plan for operator in one Petrochemical plant (Methanol producer) in KSA.

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