Case study on flexible manufacturing system pdf





Although accountants list inventory as an asset on company balance sheets, too much inventory can be a burden when it comes to efficiency and the use of precious capital. Even if you get a discount on production parts by buying in bulk, the parts you think you need today are often not the parts you need when orders arrive. Production systems simply increase efficiency, sowing stocks to a minimum and waiting for parts to be ordered until orders are placed. Eli Whitney, inventor of cotton gin, led the predecessor just in his time of production in the early days of the Industrial Revolution by developing systems to produce machines that used many interchangeable parts. The fact that specific parts can be used for the state help of many functions has reduced the need for large reserves of specialized stocks. Henry Ford took Whitney's ideas of production to a new level at the Model T plant, optimizing assembly line processes and simplifying procurement inventory by offering limited options - a single model is available in one color. Toyota Motor Company draws on Ford's ideas and systems, chasing a description just in time to describe this scientifically effective approach to manufacturing that is focused on carefully tight inventory control. Lean production systems are linked, but the terms don't have exactly the same meanings. Both systems are important for the role of inventory. Lean manufacturing focuses on excess reserves as a waste of resources and time, emphasizing the savings you can get by keeping on hand for as long as you need, and being able to replace the stock quickly and accurately. Lean manufacturing also attaches great importance to the experience of customers and the importance of delivering goods to customers in a way that ensures maximum value. Easy-to-produce adds a measurement of the workflow comparison with inventory by developing systems that rely on a short supply chain to reduce ordering time. Toyota is the most famous and obvious example only in its production time. The company gave the process its name and used it as the basis for historically efficient systems. Toyota modeled it only in time practice on a Japanese grocery replenishment inventory system called Kanban, which relies on protocols for communicating when the item needs to be replenished, relaying information through links in the supply chain. General Electric and Kawasaki have also successfully used manufacturing as models for their industries. In the world of manufacturing, there are many systems to choose from, each with its perfect case of use and a set of pros and cons. Having an appropriate production system for Product can give a variety of benefits, including the ability to maintain the high quality of your product, product, more efficient in production processes and saving money across the board. The right system can also help you produce higher volumes, thereby meeting your production targets. According to the book Handbook on Design, Manufacturing and Automation by Richard K. Dorf and Andrew Kusiak, there are four types of production systems: bespoke manufacturing, intermittent production, continuous manufacturing and flexible manufacturing. Customs production is by far the oldest and most popular type of production system in existence. This is also due to both the highest quality products and low efficiency. In the custom production system, each item is produced by one craftsman who works exclusively manually or with the help of a machine. When using machines, they usually specialize in their tasks and cannot produce more than one item at a time. This system tends to have the highest unit cost for the product produced. As a result, custom-made products of the highest quality, but are also the most expensive products on the market. The intermittent production system allows companies to create different types of products using the same production line. Thus, the production facility is designed to handle different product sizes and requirements. As a rule, the goods are processed in lots to fulfill orders. This system is commonly referred to as shop jobs because of its popularity in countries with relatively cheap labor making products for multinationals based thousands of miles away. Items produced using this method of production are produced in small quantities, so they may not be suitable for warehouses. The setting is usually done after the purchase. This type of system is designed for production launches that occur intermittently, hence the name, or products that do not require large volumes. It uses general-purpose machines and requires a highly skilled workforce. Continuous production systems are designed to provide mass production of a single product. The product passes through the assembly line with different stations, where parts are added or work a little further. This method first emerged during the Industrial Revolution and is most closely associated with Ford, which used the system to produce Model Ts in the 1920s. This type of production system is ideal when a company has a very high volume of goals because it reduces the unit cost of the product. This, however, requires a massive infusion of capital when launched due to investments in equipment and the necessary labor. Flexible manufacturing is a modern production system that has become very It includes significant investments in equipment, although it reduces labor costs by introducing robots that generally evade human labor. These machines can be easily reconfigured to products in different quantities, and the whole process is automatic. This method is called flexible production because of the flexibility in the variety of large volumes of goods it can produce. Thanks to the automated process, guality control is much easier, and unit costs are low. Competing firms in the market distinguish themselves on the basis of factors such as price and guality of products. They also seek to satisfy customers with factors such as faster delivery. Another way to distinguish yourself is to produce custom products. Flexible production methods to make the product more individual in accordance with customer requirements. Flexibility in production systems can take different approaches. This could mean that the company's existing systems are flexible enough to produce different parts without any major changes. It can also mean that production systems are flexible enough to move from producing a single product to a newer product relatively quickly. Another form of production flexibility is that management can relatively easily change the production schedule. Manufacturers generally prefer to use flexible production systems when they receive economies of scale so that they can produce custom products using their existing systems at little additional cost. This is unlikely when customers have a wide range of flavors, as manufacturers are unlikely to be fairer to produce a small number of different products using flexible production systems. Businesses can adapt their core product to different consumer needs with flexible production systems. A company that manufactures shoes, for example, can produce less production of a specific design in order to appeal to a particular market. So one of the advantages of these systems is that they help the business gain a larger market share. They can also achieve this by using a lower level of input and inventory. Although flexible production systems give flexibility to the production process, they do not provide complete flexibility. Machines cannot be fully refurbished to reflect changes in demand for certain products, for example. Businesses that use such systems should carefully plan their production schedule. These kinds of complex production systems are very expensive to install. They also include the use of precision technology, which requires great care in positioning components properly. In this course, as part of the MicroMasters Manufacturing Principles program, you will learn how to analyze manufacturing to optimize performance and control costs. You will develop an understanding of seemingly opaque production lines with a special focus on random disruptive events - their effects and how to deal with them, as well as stock and management dynamics. Management. systems are complex and require decision-making and analytical analysis. Practitioners use a wide variety of methods to optimize production system performance and control costs. The many processes and functions involved in the creation and maintenance of these systems require a high level of knowledge. In this course you will learn about these different methods and processes. Let's start with a review of probability and statistics, and then look at the topics of linear programming, queue theory, inventory management and The Toyota Production System (TPS). Finally, we will present stochastic models of production systems developed here at the Massachusetts Institute of Technology. The topics under consideration will provide a framework for students to continue to work in the manufacturing industry in roles such as operating manager or supply chain manager. Develop the skills needed to be competent and competitive in today's manufacturing industry with the principles of manufacturing micromaster management developed and supplied by the

Massachusetts Institute of Technology's engineering department in #1 rankings worldwide. Students who take 8 courses in the program will earn MicroMasters credentials and the right to apply for a loan to MIT Master Engineering in advanced manufacturing and design programs. Applying Basic Probability Models Building and Solution optimization models of inventory dynamics and management philosophy behind Toyota Production System (TPS) Get instructor signed a certificate with the logo of the institution, To check your accomplishments and increase your job prospectsAdd Certificate on your resume or resume, or to post it directly on LinkedInGive yourself an additional incentive to complete the courseEdX, a non-profit, relies on proven certificates to help fund free education for everyone around the world For more information, please see the frequently asked questions Page.Unfortunately, students from one or more of the following countries or regions will not be able to register for this course: While edX has requested licenses from the U.S. Office of Foreign Assets Control (OFAC) to offer our courses to students in these countries and regions, the licenses we have obtained are not broad enough to allow us to offer this course in all locations. EdX sincerely regrets that U.S. sanctions prevent us from offering all of our courses to everyone, no matter where they live. Live. case study on flexible manufacturing system pdf

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