

Instructional Objectives

After learning the lesson students should be able to

- A. Describe the major functions of Production Management Systems under Level 3 Automation
- B. Describe the major features of a Supervisory Control System under Level 2 Automation
- C. Describe the major features of a Distributed Control System (DCS)

Introduction

The major activities that define the manufacturing enterprise in direct relation to the manufacturing of products include (i) Production Management, and (ii) Manufacturing. The first function is incorporated in Level 3 automation while the second one refers to Level 1 and Level 2 functions of a hierarchical Industrial Automation System. In the earlier lessons of this course we have predominantly been concerned with Level 1 Automation for manufacturing. In this lesson we briefly discuss these other aspects and particularly Level 2 and Level 3 Automation in more detail below. Finally a typical implementation of the functionality of Level 2 and 3 automation, under the technological platform known as Distributed Control Systems (DCS).

Level 3 Automation: Production Management

The role of production management is to plan and control effectively the physical and operational resources of the manufacturing plant such as, materials, tools, fixtures, machines, storage space, material handling equipment, and manpower, so as to meet the production requirements. Production management is also referred to as Production Planning and Control. As the name implies, it comprises two functions, namely, Production Planning and Production Control.

Production planning is concerned with: (1) deciding on the set of products to be manufactured, along with their production volumes, over a certain duration which is called the planning horizon; (2) scheduling, i.e., determining the sequence of production of the set of parts and products over the time duration and (3) allocation of the necessary manpower, raw material and equipment resources needed to accomplish the production plan. Activities within the scope of production planning include the following.

- **Aggregate production planning.** This involves determination of the target production output levels. The word *aggregate* means that planning is conducted at a gross level to meet the total demand collected over all products consolidated into product groups, utilizing the total human, equipment and material resources. These plans must be made in cognizance of various functions of the firm other than manufacturing, such as product design, production, inventory, marketing, and sales for the plan to be feasible and effective for the overall business objectives of a firm. Further, it must be made based on an accurate forecast of the demand for the products.
- **Master production planning.** In the next stage, the aggregate production plan must be detailed into a master production schedule (MPS), which includes specification of target production volumes of individual product types and their production schedules. In turn,

Introduction To Logic Problems And Solutions Nptel

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Introduction To Logic Problems And Solutions Nptel:

The book delves into Introduction To Logic Problems And Solutions Nptel. Introduction To Logic Problems And Solutions Nptel is a vital topic that must be grasped by everyone, ranging from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into Introduction To Logic Problems And Solutions Nptel, encompassing both the fundamentals and more intricate discussions.

1. This book is structured into several chapters, namely:
 - Chapter 1: Introduction to Introduction To Logic Problems And Solutions Nptel
 - Chapter 2: Essential Elements of Introduction To Logic Problems And Solutions Nptel
 - Chapter 3: Introduction To Logic Problems And Solutions Nptel in Everyday Life
 - Chapter 4: Introduction To Logic Problems And Solutions Nptel in Specific Contexts
 - Chapter 5: Conclusion
 2. In chapter 1, this book will provide an overview of Introduction To Logic Problems And Solutions Nptel. The first chapter will explore what Introduction To Logic Problems And Solutions Nptel is, why Introduction To Logic Problems And Solutions Nptel is vital, and how to effectively learn about Introduction To Logic Problems And Solutions Nptel.
 3. In chapter 2, the author will delve into the foundational concepts of Introduction To Logic Problems And Solutions Nptel. This chapter will elucidate the essential principles that must be understood to grasp Introduction To Logic Problems And Solutions Nptel in its entirety.
 4. In chapter 3, the author will examine the practical applications of Introduction To Logic Problems And Solutions Nptel in daily life. This chapter will showcase real-world examples of how Introduction To Logic Problems And Solutions Nptel can be effectively utilized in everyday scenarios.
 5. In chapter 4, this book will scrutinize the relevance of Introduction To Logic Problems And Solutions Nptel in specific contexts. The fourth chapter will explore how Introduction To Logic Problems And Solutions Nptel is applied in specialized fields, such as education, business, and technology.
 6. In chapter 5, this book will draw a conclusion about Introduction To Logic Problems And Solutions Nptel. This chapter will summarize the key points that have been discussed throughout the book.
- The book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Introduction To Logic Problems And Solutions Nptel.

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