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Integrated Maintenance Planning in Manufacturing Systems

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Integrated Maintenance Planning in Manufacturing Systems

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Preface

Traditionally, maintenance is viewed as the necessary challenge that needs to be controlled and shrunk down to an affordable size. This view is wide spread in all sectors, manufacturing and service, public and private, small and large organizations. Only when an asset is acquired or constructed the maintenance role starts with the objective of keeping the asset available for operation as much as possible. The role of maintenance is complete when the decision of disposing or demolishing the asset is made. This view has changed since the last decade and will continue to change in the coming years driving a change in the way maintenance is planned, managed, and executed.

The manufacturing sector is the first to realize the major role maintenance can play in increasing the competitive edge of the organization in a globally competitive market. It is recognized that maintenance should play a role in the whole life cycle of the asset from procurement and installation stage to operational stage to its decommissioning stage. In addition, it is realized that maintenance is the major contributor to the safety of the working environment as well as the global environment. Maintenance is becoming involved in strategic decisions related to asset acquisition, product design, customer satisfaction, and manufacturing sustainability.

As the scope of maintenance widens to encompass larger responsibilities, its planning process moved from a local functional planning to a more strategic planning linked to corporate business strategies. Plans that are horizontally integrated with other functional units such as production and quality are vertically and strategically integrated with corporate business units. High level of coordination with external contractors, spare part suppliers, and even business partners is becoming essential in a global business environment.

This emerging view of maintenance has generated a wave of research and the best practices in the area of integrated maintenance manufacturing planning. Integrated strategic planning methodologies are adopted for generating long-term and short-term plans. New optimization models are developed that integrate resources and objectives across functional units. Supply chain methodologies are adopted for maintenance of logistics across vendor and material inventories.

The aim of this book is to introduce the reader to this new global view of maintenance as a strategic role player in modern manufacturing systems. It briefly surveys the components of maintenance systems, including traditional and recent

maintenance concepts and strategies in light of this view. The book gives the reader an insight into the integrated planning process at a global level starting from the business level and ending with the operational level where the plan is implemented and controlled. The result would be a maintenance plan integrated with a production plan that maintains quality and accompanied by a safety system and code of ethics. Usually, these issues are dealt with in an independent manner that might result in semi-optimum results at the implementation stage. Latest studies and reports related to maintenance planning are utilized in shaping up the contents of this book to make it as useful and practical as possible for all types of readers.

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