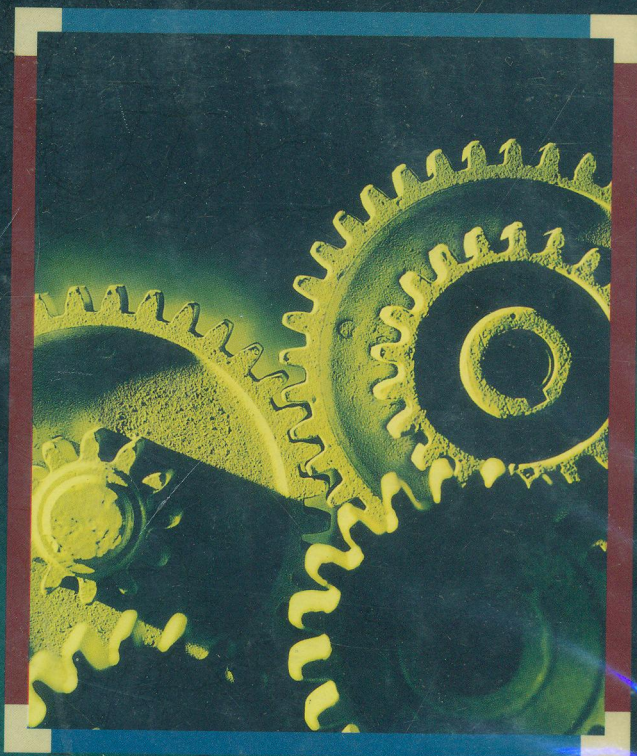


MANUFACTURING AUTOMATION



Morris

day M. Apte

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R S T E D I T I O N

MANUFACTURING AUTOMATION

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Manufacturing technology is a body of knowledge which affects the design, production, and delivery of goods and services. It is embodied in the equipment, processes, procedures, and methodologies used throughout the firm as it generates value for its customers. Changes to these technologies, based on automation and computerization, is accelerating and these changes have had a profound impact on company organization, the definition of work itself, and the expectations of consumers for product performance, value, and quality. This technology also has fueled the creation and demise of different industries and has altered the competitive structure of the survivors. Finally, the introduction of automation and computerization technologies has affected the productivity of all segments of the economy and thereby has influenced the overall prosperity of the national economy.

In spite of these influences, most companies still struggle with the management of technology. How much should a manager know about the underlying technology before he or she can make an informed decision concerning investment or deployment? How should cost, quality, and service be measured and managed in the new environment? How should existing business functions and processes be reengineered with the aid of the new technologies? This book is directed towards providing some answers to these questions.

This book was developed to support a course which provides students with an understanding, from a *managerial* perspective, of the emerging automation and information technologies which are used in production. The emphasis is to develop an appreciation of what these emerging technologies are and how they have been (or should be) used to provide firms with competitive advantage. The focus throughout is the operations function and, hence, the complete range of value-adding activities are scrutinized. Thus, we look both inside the factory walls and beyond, throughout the supply chain for examples of the application of technological innovation. We also consider cases drawn from the service sector and believe that the subject matter of this book is equally relevant for operations management in this sector as well. Our aim throughout is to balance

discussion of current and emerging technologies with discussion of key managerial issues.

This book is an outgrowth of a course on Operations Technology which has been taught for 10 years at the Wharton School. Versions of the course have also been taught at Stanford University and at Southern Methodist University. This book can be used to support courses directed towards business administration, engineering systems, and/or industrial engineering students at either the advanced undergraduate or masters levels. It has evolved from the recognition that the current level of understanding of managing technology among business and engineering students is superficial and that the relevance of this topic is high, regardless of the ultimate career path of the student.

We have found that students with some prior knowledge of operations management, operations research, and computer science are adequately prepared for the material. In some cases, students without this background, but with a strong interest in the subject of technology have taken the course and have done well. The instructor can supplement the book with a wide variety of ancillary and supporting materials (some of which is included in the instructor's guide), to tailor the course and the use of the book to their specific requirements.

This book supports a flexible approach to teaching the subject, since we recognize that subject material concerning technology and its use in operations, has a short shelf life. Consequently, the book emphasizes basic principles concerning either the function of different classes of technology or management decisions in an environment where such technologies are in place. Wherever possible, we have introduced concept frameworks to support understanding of these principles.

- Close integration with managerial cases which provide in-depth insight into specific technologies, i.e., how they work, their use in operations, the challenges faced in their implementation, their impact (actual and potential), how they were justified, etc.
- Design of a web page which includes downloadable course materials (readings, lectures, software), Internet supported case discussion interactions, hot links to relevant company pages, and other academic web sites.
- Opportunities to use multimedia instruction materials such as videos, Internet sources, and interactive cases.
- Opportunities to use various software tools (e.g., simulation models of a factory, schedule optimization models, CAD systems, etc.) which can provide students with hands-on experience.
- A comprehensive set of supplementary readings which can be adjusted in response to changes in the underlying technologies and the relevant managerial issues.
- A comprehensive instructor's manual which includes detailed overheads of lectures and instructions for case discussions.
- Concept-building problems at the end of each chapter.
- An extensive bibliography of current titles drawn from both the business and academic literature concerning the management issues covered in this book.
- A comprehensive glossary of technical terms commonly encountered in the field of manufacturing automation.

Bạn đang có trong tay thông tin cơ bản của một trong số những tài liệu có hàm lượng chất xám cao, với những thông tin vô cùng hữu ích cho quá trình học tập và nghiên cứu của bản thân bạn !

Bạn đã và đang trải qua những ưu tư, trăn trở của bản thân mình trước biển kiến thức mênh mông vô hạn và đang tìm hướng đi cho riêng mình bằng việc biến kiến thức thành tài sản tri thức của riêng bạn !

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This is a decorative worksheet template. In the top-left corner, there is a detailed line drawing of a flower with multiple petals and leaves. From the top of the flower, a series of elegant, swirling lines extend towards the top-right corner of the page. Similarly, from the bottom of the flower, another series of swirling lines extends towards the bottom-left corner. The right half of the page is filled with horizontal dotted lines, providing space for writing. A large, faint, light-gray spiral watermark is centered in the background of the page.

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