

Robert A. Ullrich

THE
**ROBOTICS
PRIMER**

**The What, Why, and How
of Robots in the Workplace**

TECHNISCHE HOCHSCHULE DARMSTADT	
Fachbereich 1	
Gesamtbibliothek	
<u>Betriebswirtschaftslehre</u>	
Inventar-Nr. :	36.572
Abstell-Nr. :	A03/262
Sachgebiete :	0.1



Prentice-Hall, Inc., Englewood Cliffs, New Jersey 07632

CONTENTS

Preface xi

1

An Introduction 1

The Fayetteville Robots 3

Substituting Robots for Labor 5

A Glimpse of the Future 6

2

What Is a Robot? 9

A Breakthrough in Automation	11
Robot Defined	12
Introduction to a Robot	12
Species of Robots	16
Robot Control	18
Power	20
Putting a Robot to Work	21

3

Robots at Work 23

How a Robot Performs a Task	25
A Job at Which Robots Work	29

4

Economics and Robots 37

Economic and Technical Antecedents of the Robot Industry	39
Economic Costs and Benefits of Robot Workers	43
Future Economies from Robotics	47

5

Research in Robotics 57

Vision and Other Sense Modalities	59
Artificial Intelligence	71

6

Robots and Organizations 79

Organization Design for Robotic Factories 81

Managing Robots and People 87

Changing Work Roles for Human Labor 90

7

The Next Industrial Revolution 95

What It Will Mean to Increase Productivity 97

Work, Leisure, and Robots 100

Challenges to Education 102

Bibliography 105

Index 117