TABLE OF CONTENTS

Preface	vii
CHAPTER 1 Introduction to Feature Based Manufacturing J. Shah, M. Mäntylä and D. Nau	1
PART 1: MANUFACTURING FEATURE RECOGNITION	13
CHAPTER 2 Boundary Representation-based Feature Identification M. Henderson, G. Srinath, R. Stage, K. Walker and W. Regli	15
CHAPTER 3 Volumetric Feature Recognition Using Convex Decomposition Y. Kim	39
CHAPTER 4 Definition and Recognition of Volume Features for Process Planning H. Sakurai and C. Chin	65
PART 2: FEATURE MAPPING	81
CHAPTER 5 Geometric Computation for the Recognition of Spatially Interacting Machining Features J. Vandenbrande and A. Requicha	83
CHAPTER 6 Feature Mapping and Feature Recognition in Geometric Design Generation R. Gadh	107
CHAPTER 7 Determination of Machining Volumes From Extensible Sets of Design Features J. Shah, Y. Shen and A. Shirur	129
PART 3: PROCESS PLANNING FOR MACHINING	159
CHAPTER 8 A Methodology for Systematic Generation and Evaluation of Alternative Operation Plans S. Gupta, D. Nau, W. Regli and G. Zhang	161
CHAPTER 9 Validation, Workpiece Selection and Clamping of Complex 2.5D Components Y. Yue and J. Murray	185
CHAPTER 10 Automatic Part Coding Based on Interfeature Relationships A. Srikantappa and R. Crawford	215

CHAPTER 11 Feature-Based Part Programming J. Opas and M. Mäntylä	239
CHAPTER 12 An Introduction to Parallel Machine Tools and Related CAPP Issues D. Yip-Hoi and D. Dutta	261
PART 4: PLANNING FOR NON-MACHINING PROCESSES	287
CHAPTER 13 Preliminary Design of Injection Molded Parts Based on Manufacturing and Functional Simulations I. Grosse and K. Sahu	289
CHAPTER 14 Multi-view Feature Modelling for Design and Assembly W. Bronsvoort and F. Jansen	315
PART 5: INSPECTION PLANNING	330
CHAPTER 15 The Selection of Surfaces for Inspection Planning N. Juster, L. Hsu and A. de Pennington	333
CHAPTER 16 Computer-Aided Inspection Planning (CAIP) H. ElMaraghy and W. ElMaraghy	363
PART 6: PROTOTYPE SYSTEMS	397
CHAPTER 17 Overview of Allied Signal's XCUT System S. Brooks and M. Wolf	399
CHAPTER 18 A Testbed for Rapid Prototyping of Feature Based Applications J. Shah and M. Rogers	423
CHAPTER 19 Incremental Feature Modeling T. Laakko and M. Mäntylä	455
CHAPTER 20 Topics in Feature-Based Design and Manufacturing M. Wozny, M. Pratt and C. Poli	481