SOFTWARE ENGINEERING

A Methodical Approach

SECOND EDITION

Elvis C. Foster
with Bradford A. Towles, Jr.

CRC Press
Taylor & Francis Group
AN AUERBACH BOOK

สำนักหอสมุด มหาวิทยาลัยเชียงใหม่

Software Engineering

A Methodical Approach

b16622005
0125 53815
i 22608266

Second Edition

Elvis C. Foster

CRC Press
Taylor & Francis Group
Boca Raton London New York

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business
AN AUERBACH BOOK

Brief Contents

Preface xxix

Acknowledgements xxxvii

PART A FUNDAMENTALS 1

1 Introduction to Software Engineering 3

2 The Role of the Software Engineer 21

PART B SOFTWARE INVESTIGATION AND ANALYSIS 39

3 Project Selection and the Initial System Requirements 41

4 Overview of Fundamental Object-Oriented Methodologies 57

5 Object-Oriented Information Engineering 73

6 The Requirements Specification 89

7 Information Gathering 97

8 Communicating Via Diagrams 117

9 More Diagramming 139

10 Decision Models for System Logic 165

11 Project Management Aids 181

PART C SOFTWARE DESIGN 191

12 Overview of Software Design 193

13 Database Design 211

14 User Interface Design 237

15 Operations Design 255

16 **Other Design Considerations** 275

17 **Putting the Pieces Together** 289

PART D SOFTWARE DEVELOPMENT 295

18 **Software Development Issues** 297

19 **Human Resource Management** 309

20 **Software Economics** 325

PART E SOFTWARE IMPLEMENTATION AND MANAGEMENT 341

21 **Software Implementation Issues** 343

22 **Software Management** 353

23 **Organizing for Effective Management** 363

PART F ADVANCED SOFTWARE ENGINEERING CONCEPTS 373

24 **Using Database Systems to Anchor Management Support Systems** 375

25 **Software Architectures, Frameworks, and Patterns** 413

26 **New Frontiers in Software Engineering** 429

PART G APPENDICES 443

Appendix A: Project Proposal for a Generic Inventory Management System 445

Appendix B: Requirements Specification for a Generic Inventory Management System 453

Appendix C: Design Specification for a Generic Inventory Management System 471