# Brief Contents

## PART ONE

**The Context of Systems Analysis and Design**

<table>
<thead>
<tr>
<th>Part</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Players in the Systems Game</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Information System Building Blocks</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>Information Systems Development</td>
<td>72</td>
</tr>
<tr>
<td>4</td>
<td>Project Management</td>
<td>120</td>
</tr>
</tbody>
</table>

## PART TWO

**Systems Analysis Methods**

<table>
<thead>
<tr>
<th>Part</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Systems Analysis</td>
<td>162</td>
</tr>
<tr>
<td>6</td>
<td>Requirements Discovery</td>
<td>212</td>
</tr>
<tr>
<td>7</td>
<td>Data Modeling and Analysis</td>
<td>254</td>
</tr>
<tr>
<td>8</td>
<td>Process Modeling</td>
<td>304</td>
</tr>
<tr>
<td>9</td>
<td>Feasibility Analysis and the System Proposal</td>
<td>362</td>
</tr>
</tbody>
</table>

## PART THREE

**Systems Design Methods**

<table>
<thead>
<tr>
<th>Part</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Systems Design</td>
<td>392</td>
</tr>
<tr>
<td>11</td>
<td>Application Architecture and Modeling</td>
<td>420</td>
</tr>
<tr>
<td>12</td>
<td>Database Design</td>
<td>466</td>
</tr>
<tr>
<td>13</td>
<td>Output Design and Prototyping</td>
<td>502</td>
</tr>
<tr>
<td>14</td>
<td>Input Design and Prototyping</td>
<td>534</td>
</tr>
<tr>
<td>15</td>
<td>User Interface Design</td>
<td>568</td>
</tr>
</tbody>
</table>

## PART FOUR

**Beyond Systems Analysis and Design**

<table>
<thead>
<tr>
<th>Part</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Systems Construction and Implementation</td>
<td>604</td>
</tr>
<tr>
<td>17</td>
<td>Systems Operations and Support</td>
<td>622</td>
</tr>
</tbody>
</table>

## PART FIVE

**Advanced Analysis and Design Method**

<table>
<thead>
<tr>
<th>Letter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Object-Oriented Analysis and Modeling</td>
<td>644</td>
</tr>
<tr>
<td>B</td>
<td>Object-Oriented Design and Modeling</td>
<td>674</td>
</tr>
</tbody>
</table>

**Glossary/Index**

695
## PART TWO  SYSTEMS ANALYSIS METHODS

### CHAPTER 5

**Systems Analysis**

**SoundStage Entertainment Club**

What Is Systems Analysis? 162

Systems Analysis Approaches

- Model-Driven Analysis Approaches 167
- Accelerated Analysis Approaches 171
- Requirements Discovery Methods 172
- Business Process Redesign Methods 173
- EAST Systems Analysis Strategies 174

The Preliminary Investigation Phase 174

- Task 1.1—List Problems, Opportunities, and Directives 176
- Task 1.2—Negotiate Preliminary Scope 178
- Task 1.3—Assess Project Worth 179
- Task 1.4—Plan the Project 179
- Task 1.5—Present the Project and Plan 180

The Problem Analysis Phase 181

- Task 2.1—Study the Problem Domain 183
- Task 2.2—Analyze Problems and Opportunities 185
- Task 2.3—Analyze Business Processes 186

Task 2.4—Establish System Improvement Objectives 187

Task 2.5—Update the Project Plan 188

Task 2.6—Present Findings and Recommendations 188

The Requirements Analysis Phase 189

- Task 3.1—Define Requirements 192
- Task 3.2—Analyze Functional Requirements 193
- Task 3.3—Trace and Complete Requirements 195
- Task 3.4—Prioritize Requirements 196
- Task 3.5—Update the Project Plan 196

Ongoing Requirements Management 197

The Decision Analysis Phase 197

- Task 4.1—Identify Candidate Solutions 199
- Task 4.2—Analyze Candidate Solutions 200
- Task 4.3—Compare Candidate Solutions 202
- Task 4.4—Update the Project Plan 202

Task 4.5—Recommend a Solution 202

The Next Generation of Systems Analysis 203

Where Do You Go from Here? 205

### CHAPTER 6

**Requirements Discovery** 212

**SoundStage Entertainment Club**

An Introduction to Requirements Discovery 214

The Process of Requirements Discovery 218

Problem Discovery and Analysis 218

Requirements Discovery 219

Documenting and Analyzing Requirements 221

Requirements Management 223

Requirements Discovery Methods 223

Sampling of Existing Documentation, Forms, and Files 223

Research and Site Visits 225

Observation of the Work Environment 226

Questionnaires 228

Interviews 230

How to Conduct an Interview 232

Discovery Prototyping 237

Joint Requirements Planning (JRP) 238

A Fact-Finding Strategy 243

Documenting Requirements Methods 244

Use Cases 244

How to Document a Use Case 245
### CHAPTER 7

**Data Modeling and Analysis** 254  
**SoundStage Entertainment Club** 256  
An Introduction to Systems Modeling  257  
System Concepts for Data Modeling  260  
Entities  260  
Attributes  261  
Relationships  264  
The Process of Logical Data Modeling  273  
Strategic Data Modeling  273  
Data Modeling during Systems Analysis  275  
Looking Ahead to Systems Design  276  
Automated Tools for Data Modeling  277  
How to Construct Data Models  277  
Entity Discovery  277  
The Context Data Model  279  
The Key-Based Data Model  281  
Generalized Hierarchies  284  
The Fully Attributed Data Model  284  
Analyzing the Data Model  286  
What Is a Good Data Model?  286  
Data Analysis  288  
Normalization Example  288  
Mapping Data Requirements to Locations  297  
Where Do You Go from Here?  298

### PART THREE  SYSTEMS DESIGN METHODS  391

### CHAPTER 10

**Systems Design** 392  
**SoundStage Entertainment Club** 394  
What Is Systems Design?  394  
Systems Design Approaches  395  
Model-Driven Approaches  395  
Rapid Application Development (RAD)  401  
FAST Systems Design Strategies  401