Engineering decision making and risk management [

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Monografía

"Engineering Decision Making and Risk Management uniquely presents and discusses three perspectives on decision making: problem solving, the decision-making process, and decision-making systems"--

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Contenido: Machine generated contents note: 1. Introduction to Engineering Decision Making 1.1 Introduction 1.2 Decision Making in Engineering Practice 1.3 Decision Making and Optimization 1.4 Decision Making and Problem Solving 1.5 Decision Making and Risk Management 1.6 Problems in Decision Making 1.7 The Value of Improving Decision Making 1.8 Perspectives on Decision Making Exercises References 2. Decision Making Fundamentals 2.1 Decision Characteristics 2.2 Objectives in Decision Making 2.3 Influence Diagrams 2.4 Rationality 2.5 Dominance 2.6 Choice Strategies 2.7 Making Tradeoffs 2.8 Reframing the Decision 2.9 Risk Acceptance 2.10 Measurement Scales Exercises References 3. Multicriteria Decision Making 3.1 Pugh Concept Selection Method 3.2 Analytic Hierarchy Process (AHP) 3.3 Multiattribute Utility Theory (MAUT) 3.4 Conjoint Analysis 3.5 Value of a Statistical Life 3.6 Compensation 3.7 The Impact of Changing Weights Exercises References 4. Group Decision Making 4.1 Ranking 4.2 Scoring and Majority Judgment 4.3 Arrow's Impossibility Theorem Exercises References 5. Decision Making Under Uncertainty 5.1 Types of Uncertainties 5.2 Assessing a Subjective Probability 5.3 Imprecise Probabilities 5.4 Cumulative Risk Profile and Dominance 5.5 Decision Trees: Modeling 5.6 Decision Trees: Determining Expected Values 5.7 Sequential Decision Making 5.8 Modeling Risk Aversion 5.9 Robustness 5.10 Uncertainty Propagation: Sensitivity Analysis 5.11 Uncertainty Propagation: Method of Moments 5.12 Uncertainty Propagation: Monte Carlo Simulation Exercises References 6. Game Theory 6.1 Game Theory Basics 6.2 Zero-sum Games 6.3 Optimal Mixed Strategies for Zero-sum Games 6.4 The Minimax Theorem 6.5 Resource Allocation Games 6.6 Mixed Motive Games 6.7 Bidding 6.8 Stackelberg Games Exercises References 7. Decision-making Processes 7.1 Decision-making Contexts 7.2 Technical Knowledge and Problem Consensus 7.3 Optimization: Search and Evaluation 7.4 Diagnosing Risk Decision Situations 7.5 Values and Ethics 7.6 Systematic Decision-making Processes 7.7 The Decision-making Cycle 7.8 The Analytic-deliberative Process

7.9 Concept Selection 7.10 Decision Calculus 7.11 Recognition-primed Decision Making 7.12 Heuristics 7.13 Unconscious Decision Making 7.14 Search 7.15 Types of Search in Practice 7.16 Secretary Problem 7.17 Composite Decisions 7.18 Separation 7.19 Product Development Processes Exercises References 8. The Value of Information 8.1 The Expected Value of Perfect Information 8.2 The Expected Value of Imperfect Information 8.3 Experimentation to Reduce Ambiguity 8.4 Experimentation to Compare Alternatives 8.5 Experimentation to Compare Alternatives with Multiple Attributes Exercises References 9. Risk Management 9.1 Risk Management Process 9.2 Potential Problem Analysis 9.3 Risk Management Guide for DOD Acquisition 9.4 Risk Management at NASA 9.5 Precursors 9.6 Warnings 9.7 Risk Communication 9.8 Managing the Risk of a Bad Decision 9.9 Learning from Failures 9.10 Transforming Failure Information Exercises References 10. Decision-making Systems 10.1 Introduction to Decision-making Systems 10.2 Mechanisms of Organization Influence 10.3 Roles in Decision-making Systems 10.4 Information Flow 10.5 The Structure of Decision-making Systems 10.6 Product Development Organizations 10.7 Information Flow in Product Development 10.8 The Design Factory Exercises References 11. Modeling and Improving Decision-making Systems 11.1 Modeling Decision-making Systems 11.2 Rich Pictures 11.3 Swimlanes 11.4 Root Definitions 11.5 Conceptual Models 11.6 Models of Product Development Organizations 11.7 Improving Decision-making Systems 11.8 An Integrative Strategy Exercises References

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