

1. Record Nr.	UNINA9910513592303321
Autore	Golpira Heris
Titolo	Application of mathematics and optimization in construction project management // Heris Golpira
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
ISBN	9783030811235 9783030811228
Descrizione fisica	1 online resource (261 pages)
Disciplina	338.47624
Soggetti	Gestió de projectes Indústria de la construcció Models matemàtics Construction industry Project management Mathematical optimization Calculus of variations Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Contents -- About the Editor -- 1 Overview of Project Management -- 1.1 What Are the Projects? -- 1.2 What Are Temporary Organizations? -- 1.3 Why Are Projects Created? -- 1.4 What Is Project Management? -- 1.5 Project Success/Failure -- 1.6 Project Management Main Processes -- 1.7 A Short Review of Applications of Project Management Techniques -- 1.8 Construction Project Management -- 1.9 Conclusion -- References -- 2 Optimization Models and Solution Techniques -- 2.1 Introduction -- 2.2 Project Scheduling Models -- 2.2.1 The Resource-Constrained Project Scheduling Problem -- 2.2.2 Multiple Modes -- 2.2.3 Further Generalizations of the Activity Concept -- 2.2.4 Generalized Temporal Constraints -- 2.2.5 Generalized Resource Constraints -- 2.2.6 Alternative Objectives -- 2.2.7 Multiple Objectives -- 2.2.8 Multiple

Projects -- 2.2.9 Uncertainty -- 2.3 Solution Methods -- 2.3.1 Exact Algorithms -- 2.3.2 Priority Rule Heuristics -- 2.3.3 Metaheuristics -- 2.4 Developments in Resource-Constrained Project Scheduling -- 2.4.1 Publications -- 2.4.2 Trends -- 2.5 Conclusions -- References -- 3 Optimization for Project Scheduling -- 3.1 Introduction -- 3.2 The Importance of Project Scheduling -- 3.3 General Approaches in Project Scheduling Problem -- 3.4 Trends in Optimal Project Scheduling -- 3.5 Detailed Literature Review -- 3.5.1 Deterministic Approaches -- 3.5.2 Uncertain Approaches -- 3.6 Conclusion -- References -- 4 Optimization for Project Cost Management -- 4.1 Project Cost Management -- 4.2 General Approaches in Project Cost Management -- 4.2.1 The Time-Cost Relationship -- 4.2.2 The Time-Cost Tradeoff Curve -- 4.3 An Overview of the TCTP Studies -- 4.3.1 Publication Year -- 4.3.2 Publication Types and Publishing Outlets -- 4.3.3 Citation Network -- 4.3.4 Keyword co-Occurrence Network -- 4.4 The TCTP Mathematical Models. 4.4.1 The Discrete TCTP with Budget and Deadline Constraints -- 4.4.2 An Illustrative Example -- 4.5 Solution Techniques for the TCTP -- 4.5.1 Exact Methods -- 4.5.2 Non-exact Methods -- 4.6 Other Variants and Extensions -- 4.7 Concluding Remarks -- A.1 Appendix -- References -- 5 Time -Cost Trade-off Optimal Approaches -- 5.1 Introduction -- 5.2 General Approaches to Time-Cost Trade-off Problems -- 5.3 Optimal Approaches to Time-Cost Trade-off Problems -- 5.4 Conclusion -- References -- 6 Optimization for Project Quality Management -- 6.1 Definition of Project Quality Management -- 6.2 The Importance of Project Quality Management -- 6.3 General Approaches in Project Quality Management -- 6.4 Trends in Optimal Project Quality Management Models -- 6.5 Detailed Literature Review -- 6.5.1 Deterministic Single-Mode and Multimode Modeling Approaches -- 6.5.2 Nondeterministic Modeling Approaches -- 6.6 Conclusion -- References -- 7 Optimization for Construction Supply Chain Management -- 7.1 Introduction -- 7.2 Construction Supply Chain -- 7.3 Trends in Optimal Construction Supply Chain Network Design -- 7.4 Detailed Literature Review -- 7.5 Conclusion -- References -- 8 Optimization for Project Resource Management -- 8.1 The Definition of Project Resource Management -- 8.2 The Importance of Project Resource Management -- 8.3 Project Resources Classification -- 8.4 Heuristic Approaches in Project Resource Management -- 8.5 Optimal Project Resource Management Models -- 8.6 Need for a New Approach in Resource Management -- 8.7 Development of an Optimum Material Procurement Schedule -- 8.7.1 Step 1: Preparation of Construction Schedule -- 8.7.2 Step 2: Material Requirement Planning -- 8.7.3 Step 3: Development of the Optimization Model -- 8.7.3.1 Material Procurement Cost -- 8.7.3.2 Impact of the Shortage of Materials -- 8.7.3.3 Constraints. 8.7.4 Step 4: Optimization Process Using NSGA-II -- 8.7.5 Step 5: Development of Material Procurement Schedule -- 8.8 Benefits of Using the Developed Optimization Model for Material Procurement Schedule -- 8.9 Conclusion -- 8.9.1 Contribution -- 8.9.2 Limitation and Future Scope -- References -- 9 Project Stakeholder Management -- 9.1 Introduction -- 9.2 Trends in Construction Project Stakeholder Management -- 9.3 Detailed Review of the Literature on the Project Stakeholder Management -- 9.4 Conclusion and some Future Directions -- References -- 10 Optimization for Project Risk Management -- 10.1 Definition of Project Risk Management -- 10.2 The Importance of Project Risk Management -- 10.3 General Approaches in Project Risk Management -- 10.4 Optimal Project Risk Management Models -- 10.4.1 The Input Parameter Aspect -- 10.4.2

The Decision Variables Aspect -- 10.4.3 The Objective Function Aspect  
-- 10.4.4 The Constraints Aspect -- 10.4.5 Solution Techniques --  
10.5 Conclusions -- References -- Index.

---