1. Record Nr. UNINA9910480671003321

Autore	Kirsch Uri
Titolo	Structural Optimization [[electronic resource]] : Fundamentals and Applications / / by Uri Kirsch
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 1993
ISBN	3-642-84845-1
Edizione	[1st ed. 1993.]
Descrizione fisica	1 online resource (XII, 302 p.)
Disciplina	624.1/7
Soggetti	Buildings—Design and construction Building Construction Engineering, Architectural Civil engineering Applied mathematics Engineering mathematics Building Construction and Design Civil Engineering Mathematical and Computational Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1 Problem Statement -- 1.1 Introduction -- 1.2 Analysis Models -- 1.3 General Formulation -- 1.4 Typical Problem Formulations -- Exercises -- 2 Optimization Methods -- 2.1 Optimization Concepts -- 2.2 Unconstrained Minimization -- 2.3 Constrained Minimization: Linear Programming -- 2.4 Constrained Minimization: Nonlinear Programming -- Exercises -- 3 Approximation Concepts -- 3.1 General Approximations -- 3.2 Approximate Behavior Models -- Exercises -- 4 Design Procedures -- 4.1 Linear Programming Formulations -- 4.2 Feasible-Design Procedures -- 4.3 Optimality Criteria Procedures -- 4.4 Multilevel Optimal Design -- 4.5 Optimal Design and Structural Control -- 4.6 Geometrical Optimization -- 4.7 Topological Optimization -- 4.8 Interactive Layout Optimization -- Exercises -- References.

Sommario/riassunto

This book was developed while teaching a graduate course at several universities in the United States. Europe and Israel. during the last two decades. The purpose of the book is to introduce the fundamentals and applications of optimum structural design. Much work has been done in this area recently and many studies have been published. The book is an attempt to collect together selected topics of this literature and to present them in a unified approach. It meets the need for an introductory text covering the basic concepts of modem structural optimization. A previous book by the author on this subject ("Optimum Structural Design". published by McGraw-Hill New York in 1981 and by Maruzen Tokyo in 1983). has been used extensively as a text in many universities throughout the world. The present book reflects the rapid progress and recent developments in this area. A major difficulty in studying structural optimization is that integration of concepts used in several areas. such as structural analysis. numerical optimization and engineering design. is necessary in order to solve a specific problem. To facilitate the study of these topics. the book discusses in detail alternative problem formulations. the fundamentals of different optimization methods and various considerations related to structural design. The advantages and the limitations of the presented approaches are illustrated by numerous examples.

2. Record Nr. UNINA9910830973603321

Autore	Louis Jean-Paul
Titolo	Control of synchronous motors [[electronic resource] /] / edited by Jean-Paul Louis
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ISBN	1-118-60178-5 1-118-60173-4 1-118-60174-2 1-299-18759-5
Edizione	[1st edition]
Descrizione fisica	1 online resource (431 p.)
Collana	ISTE
Altri autori (Persone)	LouisJean-Paul <1945->
Disciplina	621 629.8
Soggetti	Actuators - Automatic control Synchronization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page; Copyright Page; Table of Contents; Introduction; Chapter 1. Synchronous motor controls, Problems and Modeling; 1.1. Introduction; 1.2. Problems on the synchronous motor control; 1.2.1. The synchronous motor control, a vector control; 1.2.2. Direct/inverse model and modeling hypotheses; 1.2.3. Control properties; 1.3. Descriptions and physical modeling of the synchronous motor; 1.3.1. Description of the motor in preparation for its modeling; 1.3.2. Hypotheses on the motor; 1.3.3. Notations; 1.3.4. Main transformation matrices; 1.3.5. Physical model of the synchronous motor 1.3.6. The two levels voltage inverter1.3.7. Model of the mechanical load; 1.4. Modeling in dynamic regime of the synchronous motor in the natural three-phase a-b-c reference frame; 1.4.1. Model of the machines with non-salient poles and constant excitation; 1.4.2. Exploitation of the model in the a-b-c reference frame in sinusoidal steady state, electromagnetic torque; 1.4.3. Extensions to the case of non-sinusoidal field distribution machines 1.5. Vector transformations and dynamic models in the a-ß and d-q

Sommario/riassunto

Synchronous motors are indubitably the most effective device to drive industrial production systems and robots with precision and rapidity. Their control law is thus critical for combining at the same time high productivity to reduced energy consummation. As far as possible, the control algorithms must exploit the properties of these actuators. Therefore, this work draws on well adapted models resulting from the Park's transformation, for both the most traditional machines with sinusoidal field distribution and for machines with non-sinusoidal field distribution which are more and more used in