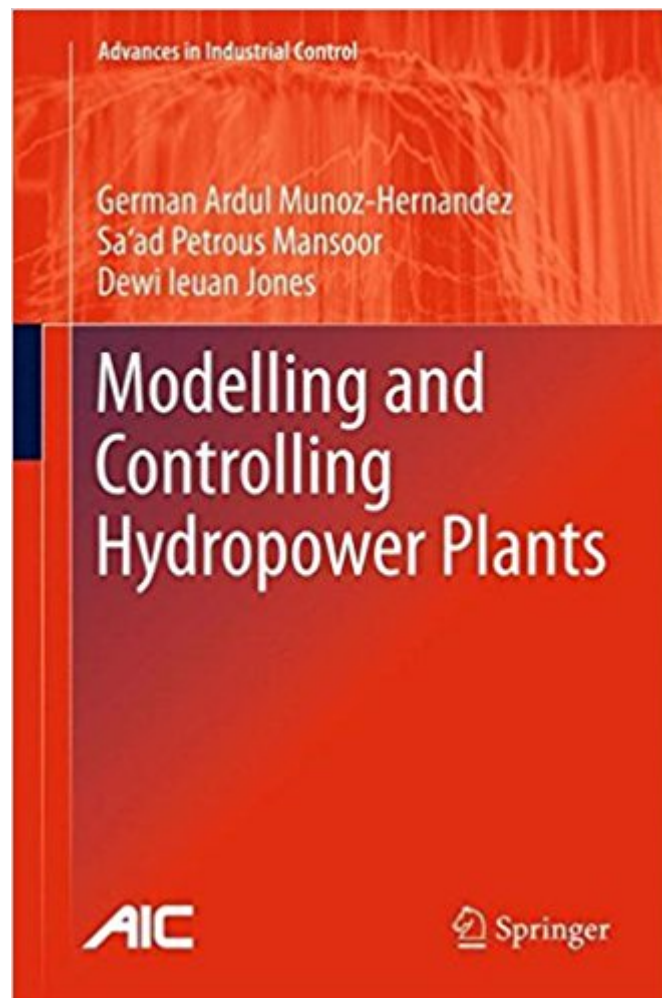




Ebook Directory
the best source of ebook

The book was found

Modelling And Controlling Hydropower Plants (Advances In Industrial Control)



Synopsis

Hydroelectric power stations are a major source of electricity around the world; understanding their dynamics is crucial to achieving good performance. The electrical power generated is normally controlled by individual feedback loops on each unit. The reference input to the power loop is the grid frequency deviation from its set point, thus structuring an external frequency control loop. The book discusses practical and well-documented cases of modelling and controlling hydropower stations, focused on a pumped storage scheme based in Dinorwig, North Wales. These accounts are valuable to specialist control engineers who are working in this industry. In addition, the theoretical treatment of modern and classic controllers will be useful for graduate and final year undergraduate engineering students. This book reviews SISO and MIMO models, which cover the linear and nonlinear characteristics of pumped storage hydroelectric power stations. The most important dynamic features are discussed. The verification of these models by hardware in the loop simulation is described. To show how the performance of a pumped storage hydroelectric power station can be improved, classical and modern controllers are applied to simulated models of Dinorwig power plant, that include PID, Fuzzy approximation, Feed-Forward and Model Based Predictive Control with linear and hybrid prediction models.

Book Information

Series: Advances in Industrial Control

Hardcover: 302 pages

Publisher: Springer; 2012 edition (June 14, 2012)

Language: English

ISBN-10: 1447122909

ISBN-13: 978-1447122906

Product Dimensions: 6.1 x 0.9 x 9.2 inches

Shipping Weight: 1.3 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #4,933,615 in Books (See Top 100 in Books) #76 in Books > Engineering & Transportation > Engineering > Energy Production & Extraction > Alternative & Renewable >

Hydroelectric #1159 in Books > Science & Math > Physics > Light #2049 in Books > Business & Money > Industries > Energy & Mining > Oil & Energy

Customer Reviews

Hydroelectric power stations are a major source of electricity around the world; understanding their

dynamics is crucial to achieving good performance. *Modelling and Controlling Hydropower Plants* discusses practical and well-documented cases of modelling and controlling hydropower station modelling and control, focussing on a pumped storage scheme based in Dinorwig, North Wales. Single-input-single-output and multiple-input-multiple-output models, which cover the linear and nonlinear characteristics of pump-storage hydroelectric power stations, are reviewed. The most important dynamic features are discussed, and the verification of these models by hardware in the loop simulation is described. To show how the performance of a pump-storage hydroelectric power station can be improved, classical and modern controllers are applied to simulated models of the Dinorwig power plant. These include PID, fuzzy approximation, feed-forward and model-based predictive control with linear and hybrid prediction models. *Modelling and Controlling Hydropower Plants* will be of value to control engineers working in industry. In addition, the theoretical treatment of modern and classic controllers will be useful for academic researchers and graduate students in control and power engineering. *Advances in Industrial Control* aims to report and encourage the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.

[Download to continue reading...](#)

Modelling and Controlling Hydropower Plants (Advances in Industrial Control) *Wind Turbine Control Systems: Principles, Modelling and Gain Scheduling Design (Advances in Industrial Control)* *Modelling and Control of Dynamic Systems Using Gaussian Process Models (Advances in Industrial Control)* *House Plants: A Guide to Keeping Plants in Your Home (House Plants Care, House Plants for Dummies, House Plants for Beginners, Keeping Plants in Your Home, DIY House Plants Book 1)* *Air Plants: A Beginners Guide To Understanding Air Plants, Growing Air Plants and Air Plant Care (Air Plants, Ornamental Plants, House Plants)* *Advances in Modelling and Clinical Application of Intravenous Anaesthesia (Advances in Experimental Medicine and Biology)* *Real-time Monitoring and Operational Control of Drinking-Water Systems (Advances in Industrial Control)* *Evaluation of Industrial Disability: Prepared by the Committee of the California Medical Association and Industrial Accident Commission of the State ... of Joint Measures in Industrial Injury Cases.* *Clay Modelling for Beginners: An Essential Guide to Getting Started in the Art of Sculpting Clay ~ (Clay Modelling | Clay Modeling | Clay Art)* *Robotics: Modelling, Planning and Control (Advanced Textbooks in Control and Signal Processing)* *House Plants: Volume III: 2 Book Boxset - Air Plants & Your First Cacti (Ornamental Plants, House Plants, Indoor Gardening 3)* *Foraging: A Beginners Guide To Foraging Wild Edible Plants (foraging, wild edible plants, foraging wild edible plants, foraging for*

beginners, foraging wild edible plants free,) Model-Reference Robust Tuning of PID Controllers (Advances in Industrial Control) Continuous-time Stochastic Control and Optimization with Financial Applications (Stochastic Modelling and Applied Probability) Modelling and Control in Biomedical Systems 1988 Patty's Industrial Hygiene and Toxicology, Volume 3, Part B, Third Edition, Theory and Rationle of Industrial Hygiene Industrial Fluid Power, Vol. 1: Basic Text on Hydraulics, Air & Vacuum for Industrial and Mobile Applications 21st Century Pocket Guide to Hydropower, Microhydropower and Small Systems, Incentives and Funding, Dams, Turbine Systems, Environmental Impact and Fish Passage, History, Research Projects The Industrial Design Reference & Specification Book: Everything Industrial Designers Need to Know Every Day Fundamentals of Industrial Hygiene 6th Edition (Fundamentals of Industrial Hygene)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)