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Nota di contenuto	Chapter 1. Fast And Reliable Power System Marginal States Assessment for Emergency Control Systems -- Chapter 2. Microgrid Optimization Using a Developed Model of Genetic Algorithm under MATLAB -- Chapter 3. State of Charge Estimation of the Li-ion Batteries Using Developed MATLAB Model of Kalman Filtering -- Chapter 4. Electric Vehicle and Photovoltaic System Integration in a Grid Connected AC Microgrid -- Chapter 5. Performance prediction of PV modules operating outdoor under varying conditions based on explicit model -- Chapter 6. Regeneration, resilience and metamorphosis of the building envelope: analysis of the high-rise and skyscraper types -- Chapter 7. Improving the Energy Performance for Tower Design by Using Innovative Façade Systems and Intelligent Skins: the Case of Amman City -- Chapter 8. Effect of PCM tubes on the thermal and dynamic behavior of a solar dyer -- Chapter 9. Optimization of Hydrothermal Synthesis Temperature for High Photocatalytic Degradation of

Methylene Blue by g-C3N4 Microtubes -- Chapter 10. Design and characterization of biodegradable self-healing nanocomposites -- Chapter 11. ectro-curing: saving energy for the manufacturing of structural resins is possible -- Chapter 12. Localized heat generation for de-icing applications by 3D printing of smart nanocomposites -- Chapter 13. Analysis of traditional construction materials and techniques: A Case study of Guthu Mane in Coastal region of Karnataka -- Chapter 14. Evaluation of energy consumption prediction models for smart buildings -- Chapter 15. Modeling the drying trays of an indirect solar dryer: porous medium vs solid zone.

Sommario/riassunto

This book is a great opportunity to make the research community discuss the dangerous environmental challenges such as climate change and its huge effects in addition to the world's reliance on fossil fuel and non-renewable resources. In recent years, the authors have been focused on the advancements of technology and how it can improve our lives, but the authors often overlook the fact that it is creating an unsustainable approach that comes at a high cost which makes a sustainable approach to cities necessary, focusing on accessible public transport, energy, water, and food security, and regenerating compact fabric areas. To discuss how to reach this sustainable approach, IEREK held the Advances in Energy Research, Materials Science and Built Environment (EMBE) conference from October 3 to 4, 2024, with attendees from all over the world. It provides an opportunity to exchange ideas and solutions on urban planning, sustainable architecture, climate change mitigation, and innovative design. The EMBE conference hosts a variety of knowledgeable keynote speakers and researchers who discussed the integration of technology in sustainable urban planning, green urbanism, preservation of coastal areas, innovative renewable materials, and responsive architecture. The book covers a wide range of scientific knowledge that can lead humanity toward a sustainable and greener future.