



Computer Techniques and Models in Power Systems

By K. Uma Rao

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The first edition of the book was well received by students and faculty all over India. There was a need to update the first edition. In the second edition, over 75 numerical problems have been added. A chapter on simple modeling of synchronous machines has also been included. With many universities having a laboratory course in Power System Simulation, there was a need to introduce a chapter on simulation. This chapter has program codes, sample data and results, and exercises to strengthen the programming skills of students. This edition is more comprehensive and covers the syllabus of a first course in power systems and also topics on computer techniques and simulation. The book deals with the application of digital computers for power system analysis including fault analysis, load flows, stability assessment, economic operation and power system control. The book also covers extensively modeling of various power system components. The required mathematical background is presented at the appropriate sections in the book. A sincere attempt has been made to include a number of solved examples in every chapter, so that the students get an insight into the problems in practical power systems. Results from simulation are presented wherever applicable. The simulations have been carried out in MATLAB. The book covers more than a semester course. It can be used for UG courses on Power System Analysis, Computer applications in power system analysis, modeling of power system components, power system operation and control. It is also useful to postgraduate students of power engineering. Contents: Basic Principles Network Topology Network Matrices Symmetrical Faults Symmetrical Components Un Symmetrical Faults Power Flow Studies Economic Operation of Power System Power System Stability Modeling of Synchronous Machine Modeling of Excitation System Modeling of Prime Movers and Loads Load Frequency Control Power System Simulation with Matlab Appendix Bibliography Index. Audience: PG students of power engineering.

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Editorial Review

About the Author

K. Uma Rao is Professor and Head, Department of electrical and electronics Engineering at RNS Institute of Technology, Bangalore and formerly Associate Professor, Andhra University, Visakhapatnam. She obtained her B.E. and M.E. degrees from UVCE, Bangalore and her Ph.D from Indian Institute of Science, Bangalore. She has been involved in teaching and research of Power Systems for the last 20 years and has several research publications. She is the adaptation author of Indian Adapted Edition of Schaum's Outline Series in Electric Power Systems and Electric Circuits. Her areas of interest include Power System Stability, FACTS and Power Quality.

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