



## Computer Techniques and Models in Power Systems, 2/e

K. Uma Rao

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### About the Book

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.

### Salient Features

- ▶ This second edition provides a new chapter on "Simple Modeling of Synchronous Machines" and "Power System Simulation with MATLAB".
- ▶ Provides a detailed coverage of matrix algebra in the appendix.
- ▶ Has an appropriate mathematical rigor. Derivations are often given in a step-wise manner.
- ▶ Each chapter ends with a summary and review questions for practice.
- ▶ Contains more than 130 solved numerical problems for better understanding.

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### About the Author

**K. Uma Rao** :- 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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#### **Book Review**

**Ajay Jain** :- Power system stability chapter stands out. Power flow studies is also very well explained. Overall, a very good book.

**Ajay Sood** :- I found the matlab codes in power simulation very useful, apart from the rest of the book.

**Jay Jadega** :- Modeling of the power system components is dealt well. Finding it extremely useful for my semester.

**Latika Mahajan** :- This book explains topics on computer techniques at both fundamental and advance level. Must say a very good book!

**Pankaj Mahajan** :- All the simulations have been done in MATLAB, which is a good thing about this book.

**Tatvam Doda** :- The concepts are very well explained. The load flow studies is particularly very well explained using flowcharts.

**Tilak Rao** :- Some of the concepts like load flows, fault analysis, and the clear derivations helped me a lot in getting through this subject.

**Vilas Kale** :- The faults are painstakingly explained and also supplemented with solved examples. Highly recommend.