

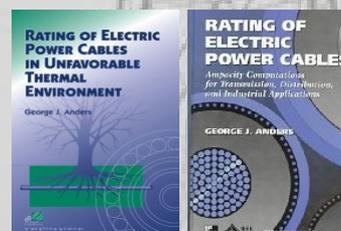
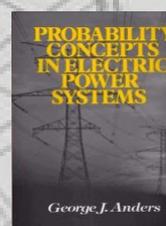
A 2-Day Professional Development Seminar on

Power System Reliability Evaluation



By **Dr. George Anders**, *Ph.D, P.Eng, Fellow IEEE*

- A Highly Regarded International Expert in Power Cable Rating and Power System Reliability Evaluation
- Author of Three Power Engineering Books:
 - "Rating of Electric Cables Crossing Unfavorable Thermal Environment" - IEEE Press & Wiley
 - "Rating of Electric Power Cables" - IEEE Press & McGraw Hill
 - "Probability Concepts of Electric Power Systems" - Wiley



OVERVIEW

Many national regulations required that mandatory and enforceable reliability standards be developed and enforced by local Electric Regulatory Agencies. Some of these standards deal with the Power System reliability evaluation. Reliability analysis also constitutes a cornerstone of modern planning and operating practices of electric power systems. This course will provide the background necessary to understand the methods and tools for the Power System Reliability Evaluation.

KEY BENEFITS:

Gain an understanding of:

- ◇ Probabilistic vs. Deterministic Approaches
- ◇ Techniques of Power System Reliability Evaluation
- ◇ Strengths and Shortcomings of Available Computer Programs in RE.
- ◇ The major ideas will be illustrated by practical numerical examples

COURSE OUTLINE

1. Reliability Concepts

- Review
- Reliability Management
 - Deterministic Approach
 - Probabilistic Approach
 - Cost-of-Worth Reliability
- Optimal Risk

2. Power System Reliability

- System Adequacy
- System Security
- Criteria and Factors
- Indices for Distribution Systems
- Operating States and Planning Applications
- Interruption Reporting

3. Probability Concepts

- Events and the Axioms of Probability
- Loss-of-Load Probability Computations
- Random Variables

4. Reliability Computations

- Modelling Reliability
- State-Space Method
- Monte Carlo Simulation

5. Customer Supply Reliability

- Load Point Reliability
- System Reliability

6. Examples and Case Studies

- Generation Reliability
- Substations
- Combined Generation and Transmission
- Ranking of Network Components
- Measuring Past Performance
- Predicting Future Performance

CPD RECOGNITION

These two seminar programs are especially designed to meet the Continuing Professional Development (CPD) needs of participants. A certificate of attendance will be awarded at the end of the program. This serves as evidence of your professional and personal development.

WHO SHOULD ATTEND?

This course is specially designed for technical personnel involved in power system reliability and performance studies, such as:

- ◇ Power System Reliability Engineers and Managers
- ◇ Power System Planners and Strategists
- ◇ Power System Regulators and Consultants
- ◇ Network Performance Engineers and Managers, technical personnel.

Dr George Anders *Ph.D., P.Eng., Fellow IEEE*

Dr. Anders has over 30 years experience in solving electric power system problems and the development of power cable calculation methods and application of advanced techniques in power system analysis. He is the president of Anders Consulting, Canada.



Employed by Ontario Hydro since 1975 and Dr. Anders has been Ontario Hydro's resource person responsible for the development of power cable calculation methods and application of advanced techniques in power system analysis. He has been a Principal Engineer/Scientist in Kinectrics Inc. for many years and is also a professor in the Faculty of Electrical and Electronic Engineering of the Technical University of Lodz in Poland and an Adjunct Professor in the Department of Electrical and Computer Engineering at the University of Toronto.

Throughout his 33 years with Ontario Hydro and the successor companies, Dr. Anders has been involved in several aspects of power system analysis and design. His principal activities have been concentrated in three areas: (1) ampacity computations of electric power cables, (2) application of probability methods in power system analysis and design, and (3) application of novel techniques in electric power utility practice. As recognition of his work in this field, he received from Ontario Hydro a New Technology Award in 1990.

He is the author of three books and has written over 80 papers published in several international journals and a similar number of papers published in various conference proceedings. He has been conducting seminars in Canada and the US as well as in Brazil, Poland, Columbia, Portugal, Australia and in Hong Kong.

Dr. Anders is a Canadian representative and co-convenor of IEC Working Group 19 (Ampacity computations of power cables and short circuit temperatures of power cables). He has also been a project leader on a number of projects dealing with ampacity computations sponsored by Canadian Electrical Association. In the course of these projects, a series of highly successful computer programs were developed for CEA and distributed by CYME Int. These programs are in use by over 200 institutions in 40 countries on 5 continents. In 2007 Dr. Anders received a prestigious 1906 Award from the IEC for his work on cable rating calculations. Another field of application in which Dr. Anders is involved is the development and installation of real time rating systems for underground power cables. Several dynamic rating systems whose software was designed by Dr. Anders are installed in the US & Canada.

Customised In-House Course Available

This program can be customised to suit the specific needs of your organisation at significant savings. Please contact us on (02) 8448 2078 or email : enquiry@cpdint.com.au for more details

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