ELECTRICAL ENERGY UTLISATION

Jacek F. Gieras and **Izabella A. Gieras**

Adam Marszalek Publishing House, Torun, 1998

This text evolved from notes used in teaching an undergraduate course *Energy Utilisation* at the University of Cape Town. As the curricula of electrical engineering programmes became more and more overcrowded, many electrical engineering departments decided to limit the number of compulsory courses in heavy current electrical engineering. As a result, the number of lectures in electrical machines and related subjects have been reduced. Under such circumstances students need a concise textbook which covers electrical motors with emphasis on their performance, selection and applications, characteristics of modern electrical drives including variable speed drives and the use of electrical energy in households.

This textbook deals with fundamentals of electrical motors, drives, electrical traction and domestic use of electrical energy. It is intended to serve second or third year students taking a one-semester course in energy utilisation or electric power engineering. Transformers and electromechanical generators have been omitted as transformation and generation of electric power is usually covered by a parallel course in power systems.

The textbook consists of seven chapters: 1. *Energy and drives*, 2. *D.c. motors*, 3. *Three-phase induction motors*, 4. *Synchronous motors*, 5. *Variable-speed drives*, 6. *Electrical traction* and 7. *Domestic use of electrical energy*. Chapter 7 also contains principles of *illumination*. For a one semester course and two lectures per week the authors recommend the first four chapters. For four lectures per week the authors recommend all seven chapters. Students using this textbook should have taken courses in circuit theory and electromagnetism as prerequisites.

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7 chapters, 4 Appendixes, 245 pages, 19 tables, 150 line drawings, 21 numerical problems with solutions, 52 numerical problems without solutions.

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Today in an industrialized country more than 65% of the generated electrical energy is consumed by electrical drives.

Other recent books written by Prof. J.F. Gieras:

Gieras J.F. **Linear induction drives**, Clarendon Press, Oxford, 1994, GBP 55.00

Gieras J.F. and Wing. M**.: Permanent magnet motors technology: design and applications**, 2nd edition, Marcel Dekker Inc., New York, 2002, US$ 185.00

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