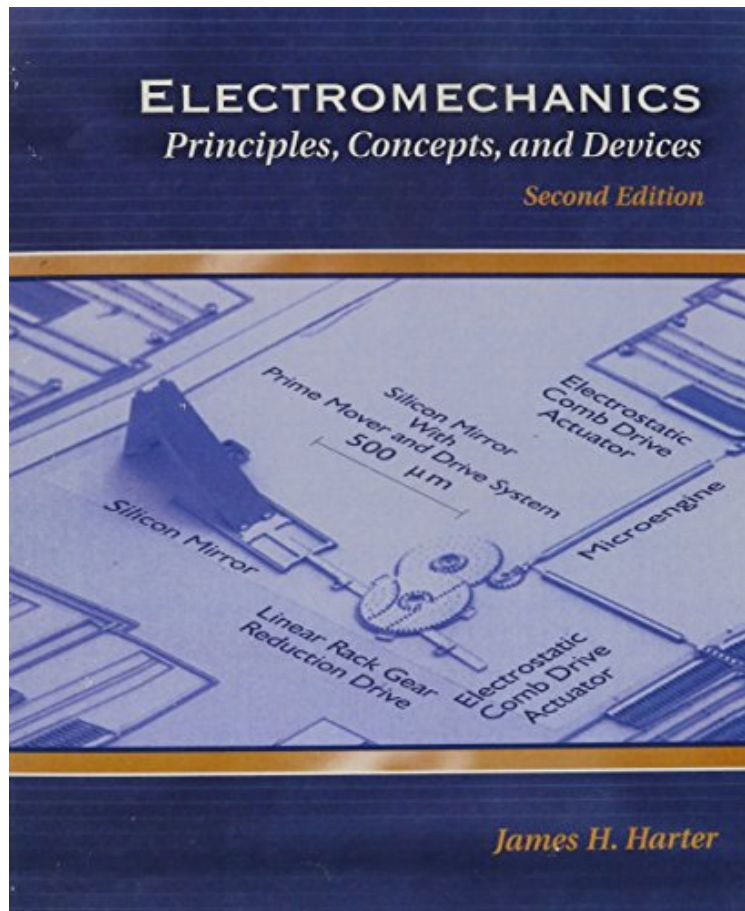


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Electromechanics: Principles, Concepts and Devices (2nd Edition)

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James Harter : Electromechanics: Principles, Concepts and Devices (2nd Edition) before purchasing it in order to gage whether or not it would be worth my time, and all praised Electromechanics: Principles, Concepts and Devices (2nd Edition):

1 of 2 people found the following review helpful. Five StarsBy Damian A. Hamiltonworked out great

This comprehensive introduction to electromechanical devices and their underlying principles of operation gives technicians of manufacturing and processign systems the unified treatment of mechanical and electrical topics so much in demand in today's workplace. Practical, hands-on information related to operating, installing, troubleshooting, and servicing a wide range of electromechanical systems is presented. Chapter topics cover number notation, measurement, and units; linear motion; principles of simple machines and the lever; pulleys, wheel and axle, and the inclined plane; friction, lubrication, and bearings; work, energy, torque, and power; rotational power transmission; rotation, translation, and intermittent motion devices; the electric circuit; electromagnetic circuits and devices; transformers and power distribution; overcurrent protection; sequential process control; alternating current electric

motors; direct-current motors and ac drives; and concepts of automatic control systems. A self-paced study guide for employed technicians and maintenance engineers working independently to upgrade themselves.

From the Publisher A comprehensive introduction to electromechanical devices and their underlying principles of operation, one that gives students the unified treatment of mechanical and electrical topics so much in demand in today's workplace. Practical, hands-on information related to operating, installing, troubleshooting, and servicing a wide range of electromechanical systems is presented. Graded, self-paced chapters progress through mechanical, electrical, and magnetic concepts and principles; to their actual applications in a wide range of electromechanical devices. Numerous examples are presented throughout the text, together with a wealth of problem-solving techniques. From the Back Cover This book provides a comprehensive examination of mechanical and electrical machine elements, as well as their underlying principles of operation. It is intended for technicians, maintenance mechanics, electricians, and manufacturing engineers. The book provides the knowledge base needed to understand the principles, concepts, and applications of electromechanics. Furthermore, it presents problem-solving techniques that will aid technicians in real-world trouble shooting situations. As the title implies, *Electromechanics: Principles, Concepts, and Devices* begins with the basic notions of numbers and units of measure, the nature of motion, simple and compound machines, and the physics of work, energy, torque, and power. From there, chapters progress into more complex concepts of power transmission and motion devices, electric circuits, electromagnetic circuits and devices, transformers and power distribution, overcurrent protection, sequential process control, and ac and dc electric motors. A new chapter 16, "Concepts of Automated Control Systems," covers cutting-edge technology that technicians need to know to prepare for tomorrow's workplace. The book concludes with a technical terms glossary and appendixes featuring reference tables, common symbols, and an overview of maintenance procedures for electromechanical devices and components. Excerpt. Reprinted by permission. All rights reserved. *Electromechanics: Principles, Concepts, and Devices*, Second Edition, has been designed to give the reader an understanding of a broad segment of technology dealing with the interrelationship of electrical and mechanical machine elements and their underlying principles of operation. This book is intended for today's equipment technician, maintenance mechanic, electrician, or manufacturing technician who is responsible (in conjunction with others) for all the know-how beyond the initial design of a machine. This publication supports the technical staff's daily activities by providing an introduction to principles, concepts, devices, and applications related to operating, installing, troubleshooting, and servicing electromechanical systems. The book works equally well as a self-paced study guide for employed technicians and maintenance personnel who are working independently to upgrade themselves or as a text for a course in electromechanics. The graded chapters progress from the concepts and principles of mechanics, electricity, and magnetism to the applications for electromechanical machine elements, finishing with a chapter introducing the concepts of automatic control systems. This text has numerous figures and examples designed to help both teacher and learner. Problem-solving techniques, which are emphasized throughout the text, are presented in a conversational tone. Coupled with problem solving is the helpful technique of dimensional analysis, which is used to determine units for computed quantities. The use of practical design and replacement types of problems throughout the text is a strong motivator for the learner. *Electromechanics: Principles, Concepts, and Devices*, Second Edition, assumes no previous mechanical training or understanding of mechanical units of measurement since it begins with a review of number notation, systems of measurement, and conversion between and within measuring systems. It continues to the principles of linear motion (Newton's laws, time, distance, speed, acceleration, etc.) and then progresses through a series of simple machines and their principles, ending with several applications dealing with lubrication and bearings. Once this series of topics is completed, the study of mechanics continues with the concepts and principles of rotary motion and its application to the transmission of power. Mechanical applications include the study of various radial and axial power-transmission machine elements (such as couplings, gearing, and belt and chain drives), oscillatory-motion mechanisms, and intermittent-motion mechanisms. The mechanical section concludes with the study of motion characteristics constant velocity, constant acceleration, and jerk. The remainder of the book deals with principles of electrical and magnetic circuits and devices, power, work (energy), applications of transformers, overcurrent devices, relays, contactors, starters, and solenoids. The text concludes with the study of sequential process control, ladder diagrams, and motors, both ac and dc as well as adjustable frequency ac drives, stepper motors, and an introduction to automatic control systems. This text uses both the British Engineering System, or BES (English system), and the International System of Units, or SI (metric system), in the study of mechanics (distance, speed, acceleration, work, and power). Both systems are still studied, even today, because many parts suppliers list replacement parts, tools, and equipment in English units, whereas new equipment and products are increasingly specified in metric units. As in the past, technicians who work with mechanical equipment as well as electrical and electronic equipment must be educated in both the SI and BES systems. The author wishes to acknowledge and thank Roger Harlow, for his steadfast support for this project from its inception through its completion; Rosalia Cahill, for her diligence in providing the solutions to the exercises and end-of-chapter questions and problems; Roger Scheunemann, for his preparation of the glossary; Tom Harter, for his creative talents in drawing the first-draft illustrations; and John Bown,

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