

## The Complete Lab Manual for Electricity

By Stephen Herman



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The Complete Laboratory Manual for Electricity, 3rd Edition is a valuable tool designed to fit into any basic electrical program that incorporates lab experience. This updated edition will enhance your lab practices and the understanding of electrical concepts. From basic electricity through AC theory, transformers, and motor controls, all aspects of a typical electrical curriculum are explored in a single volume. Each lab features an explanation of the circuit to be connected, with examples of the calculations necessary to complete the exercise and step-by-step procedures for conducting the experiment. Hands-on experiments that acquaint readers with the theory and application of electrical concepts offer valuable experience in constructing a multitude of circuits such as series, parallel, combination, RL series and parallel, RC series and parallel, and RLC series and parallel circuits.



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#### The Complete Lab Manual for Electricity By Stephen Herman Bibliography

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#### **Editorial Review**

#### Review

Section 1: MEASURING INSTRUMENTS AND BASIC ELECTRICITY. Measuring Instruments. Ohm"s Law. Series Circuits. Parallel Circuits. Combination Circuits. Resistor Color Code. Section 2: ALTERNATING CURRENT LOADS. Inductance. Resistive-Inductive Series Circuit. RL Parallel Circuits. Capacitance. Resistive-Capacitive Series Circuit. RC Parallel Circuits. Resistive-Inductive-Capacitive Series Circuits. Resistive-Inductive-Capacitive Parallel Circuits. Power Factor Correction. Section 3: TRANSFORMERS AND MOTORS. Transformer Basics. Single Phase Transformer Calculations. Transformer Polarities. Autotransformers. Three Phase Circuits. Three Phase Transformers. Three Phase Motors. Section 4: MOTOR CONTROLS. Start-Stop Push-Button Controls. Multiple Push-Button Stations. Forward-Reverse Control. Sequence Control. Jogging Controls. On-Delay Timers. Off-Delay Timers. Changing the Logic of an On-Delay Timer to an Off-Delay Timer. Designing a Printing Press Circuit. Sequence Starting and Stopping for Three Motors. Hydraulic Press Control Circuit. Design of Two Flashing Lights. Design of Three Flashing Lights. Control for Three Pumps. Oil Pressure Pump Circuit for a Compressor. Autotransformer Starter.

#### About the Author

Stephen L. Herman is a retired electrician and teacher with more than 30 years of experience to his credit. A seasoned author, his reader-friendly textbooks on electricity and mathematics are popular with students and instructors alike. For two decades Mr. Herman was lead instructor for the Electrical Technology Curriculum at Lee College in Baytown, Texas, where he received an Excellence in Education Award from the Halliburton Education Foundation. He also taught at Randolph Community College in Asheboro, N.C., for nine years and helped establish an electrical curriculum for Northeast Texas Community College in Mount Pleasant, Texas. His additional publications include ELECTRIC MOTOR CONTROL, ELECTRICITY AND CONTROLS FOR HVAC/R, INDUSTRIAL MOTOR CONTROLS, UNDERSTANDING MOTOR CONTROLS, ELECTRONICS FOR ELECTRICIANS, ELECTRICAL WIRING INDUSTRIAL, ALTERNATING CURRENT FUNDAMENTALS, DIRECT CURRENT FUNDAMENTALS, ELECTRICAL STUDIES FOR TRADES, ELECTRICAL PRINCIPLES, ELECTRICAL TRANSFORMERS AND ROTATING MACHINES, EXPERIMENTS IN ELECTRICITY FOR USE WITH LAB VOLT EQUIPMENT, THE COMPLETE LABORATORY MANUAL FOR ELECTRICITY, and PRACTICAL PROBLEMS IN MATHEMATICS FOR ELECTRICIANS.

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