



MONTANA STATE UNIVERSITY
NORTHERN

**Course Descriptions for Related Training
(Electrical)**

Course E1: Safety and Health

13 Assignments

30 Study Hours

Company management established rules and procedures according to regulation that the government has set forth for your industry. Each employee must understand these rules and procedures and the importance of following them. This course follows basic construction related to Safety and Health practices and procedures.

Course E2: Rigging

8 Assignments

25 Study Hours

This course covers basic lifting techniques using hoists, slings, and special lifting devices. The course covers operating practices, twine rope, fiber rope, industrial hoists and cranes, and the safe use of scaffolds and ladders.

Course E3: Practical Math

11 Assignments

100 Study Hours

This textbook presents basic mathematical concepts typically applied in the industrial, business, and craft trade. By combining concise text with illustrated example of math problems, this text offers easy to understand instruction for solving math based problems encountered on the job.

Course E4: Math for Electricians 8th Edition

17 Assignments

100 Study Hours

In order to succeed in the electrical field one must have a substantial background in mathematics. The text teaches basic arithmetic, algebra, and Trigonometry. The problems are designed to encourage the student to logical deduction to arrive at their answers. Basic electrical symbols, circuits, terminology and calculator use is development through the text.

Course E5: Electrical Principles and Practices

26 Assignments

150 Study Hours

This is a comprehensive course that blends concise text, detailed instruction and practical application that cover concepts of electric theory, electrical formulas and calculations, common safety equipment and practice. Test tool operation and procedures along with residential, commercial and industrial circuit design and operation are included in this course.

Course E6: **Electrical Systems**

14 Assignments

80 Study Hours

This course of study is designed for use by journeyman and master electricians, inspectors, contractors, electrical designers and others who use the National Electrical Code in their daily work. The text includes full color illustrations that demonstrate and explain how to apply the National Electrical Code.

Course E7: **Electrical Wiring- Residential**

11 Assignments

90 Study Hours

This course is a comprehensive introduction tool and reference that provides information on installation, trouble shooting and replacing electrical devices and components of residential electrical system.

Course E8: **Electrical Wiring- Commercial**

8 assignments

70 Study Hours

This course provides the basics information on commercial wiring by offering insight into the planning of a typical commercial installation. The text includes building wiring as well as the wiring of equipment and appliances to be used by tenants in a commercial structure.

Course E9: **Industrial Electricity**

12 Assignments

100 Study Hours

This course offers broad coverage of the basics of electrical theory. It begins with the fundamentals of electricity, language, symbols, and drawings. The reader learns about electrical definitions, current, voltage, resistance and power. Advanced materials, including motor controls, instruments and equipment, and basic industrial electronics are thoroughly discussed. The comprehensive resource covers Ohm's Law and circuits, rotating machinery, transformers and lighting.

Course E10: **Electrical Wiring-Industrial**

5 Assignments

70 Study Hours

This course takes the reader step by step through the safe and effective wiring of a commercial building. It offers a hand's on practice in effectively interpreting and applying Code requirements for the installation of electrical service, power and lighting to industrial structure. This course explores changeovers to new systems, planning for growth and increased capacity, and periodic maintenance procedures.

Course E11: **Electric Motor Control**

19 Assignments

50 Study Hours

This course provides the architecture for acquiring the knowledge, and skills required to meet the needs of the advanced manufacturing equipment. It covers basic electrical and motor Theory; this text builds on circuit fundamentals and reinforces comprehension with industrial application and trouble shooting concepts.

Course E12: **Transformers**

5 Assignments

60 Study Hours

This text book addresses basic electrical and magnetic principles that apply transformers as well as the advanced principles of transformer operation. Transformer classification is explained with respect to service, purpose, installation requirements, and phase. Also covered is information on tap changers, transformer connections, auto transformers and reactors.

Course E13: **Electrical Estimating**

5 Assignments

80 Study Hours

This course offers an in depth look at the many aspects of electrical estimating and bidding process. It will help the apprentice to understand how to successfully develop estimate manually or with the assistance of a computer. This book will help determine materials cost, labor cost, the proper application of direct costs, overhead, and profit.

Course E14: **National Electrical Code Blueprint Reading**

7 Assignments

100 Study Hours

This course is designed to enable the student to learn electrical print reading and become familiar with applicable section of the most recent Nation Electric Code Trade.

Course E15: **Journeyman Electrician's Exam**

7 Assignments

125 Study Hours

This Course provides review question for journeyman exam. It provides practice reviewing and answering questions similar to the question on the State Journeyman Electrical Exam.