

Electrical Wiring - Student Learning Outcomes

EWIR 110	Electrical Principles	1. Describe conditions likely to affect severity of electrical shock while maintaining safety during installation. (ILO1, ILO2, ILO3, ILO4)
		2. Define and explain the difference between direct current and alternating current. (ILO2, ILO4)
		3. Apply the basic power formula to power, voltage, and current. (ILO2, ILO3, ILO4)
		4. Select essential tools for residential wiring and be able to discuss basic principles of tool use and care. (ILO2, ILO3)
EWIR 115	Electrical Wiring and Protection	1. Recognize the different conductor systems used in residential and light commercial wiring in accordance with the codes and authorities for installation. (ILO1, ILO2, ILO4)
		2. Use the NEC to adjust conductor ampacity based on ambient temperature and number of conductors of raceway systems. (ILO2, ILO4)
		3. Explain the causes of overcurrent conditions and describe electrical circuit overcurrent protective devices (OCPDs). (ILO1, ILO2, ILO3, ILO4, ILO5)
		4. List the components of the service entrance, service drop clearances specified in the NEC, and eight basic guidelines when locating a residential service entrance. (ILO2, ILO4, ILO5)
EWIR 125	Electrical Feeder Service & Circuits	1. Learn the four common box shapes, how to remove knockouts and pryout, mounting systems, and connectors that fasten wiring to boxes. (ILO1, ILO3, ILO4)
		2. Discuss the rating systems for Overcurrent protective devices, equipment grounding, the operation of ground-fault circuit interrupters and arc-fault circuit interrupters. (ILO1, ILO2, ILO3, ILO4)
		3. Learn the four common box shapes, how to remove knockouts and pryout, mounting systems, and connectors that fasten wiring to boxes. (ILO1, ILO3, ILO4)
		4. Discuss the rating systems for Overcurrent protective devices, equipment grounding, the operation of ground-fault circuit interrupters and arc-fault circuit interrupters. (ILO1, ILO2, ILO3, ILO4)
EWIR 135	Electrical Equipment and Special Conditions	1. Design and describe the installation of an electrical power distribution system for a farm, including the loads and circuits required for various farm buildings and operations. (ILO1, ILO2, ILO4)
		2. Demonstrate familiarity with NEC requirements for mobile home park electric service and wiring, mobile home circuit loads, and code requirements for motorhomes. (ILO1, ILO2, ILO3, ILO4)
		3. List the rules for bonding metal fixtures and parts around swimming pools, explain grounding requirements for swimming pool wiring, and demonstrate wiring techniques required for the installation and wiring of underwater lighting fixtures. (ILO1, ILO2, ILO3, ILO5)
		4. Demonstrate wiring techniques for installing telephone and computer cabling in new and existing dwellings, discuss the installation and operation of standby power systems, transfer switches, and uninterruptible power supplies. (ILO1, ILO2, ILO4, ILO5)
EWIR 151	Solar Electrical Systems	1. understand photovoltaic system wiring, size wires, protection and grounding to NEC standards. (ILO2, ILO3)
		2. understand grid-tied photovoltaic system, with and without battery. (ILO2, ILO3)
		3. install photovoltaic systems, mounding and trackers. (ILO2, ILO3)
		4. demonstrate installation safety, maintenance, and troubleshooting. (ILO2, ILO3)