

ELTR – Electrical Technology

ELTR 1020 - Electrical Systems Basics I
3.000 Credits

Introduces the theory and application of varying sine wave voltages and current. Topics include magnetism, AC wave generation, AC test equipment, inductance, capacitance, and basic transformers.

ELTR 1060 - Electrical Prints, Schematics, and Symbols
3.000 Credits

Introduces electrical symbols and their use in construction blueprints, electrical schematics, and diagrams. Topics include electrical symbols, component identification, print reading and scales and measurement.

ELTR 1080 - Commercial Wiring I
6.000 Credits

This course introduces commercial wiring practices and procedures. Topics include industrial safety procedures, the National Electrical Code, and commercial load calculations.

ELTR 1090 - Commercial Wiring II
6.000 Credits

This course is a continuation of the study in commercial wiring practices and procedures. Topics include transformer connections, an introduction to low voltage systems, conduit design and installation practices, and system design concepts.

ELTR 1110 - Electric Motors
4.000 Credits

Introduces the fundamental theories and applications of single-phase motors. Topics include motor theory/operating principles, motor terminology, motor identification, NEMA standards, motor efficiencies, preventive maintenance, troubleshooting/failure analysis, and NEC requirements.

ELTR 1120 - Variable Speed/Low Voltage Controls
2.000 Credits

Introduces types of electric motor control, reduced voltage starting, and applications. Emphasis will be placed on motor types, controller types, and applications. Includes information on wye and delta motor connections; part wind, autotransformer; adjustable frequency drives and other applications; and oscilloscopes and their operation. Topics include types of reduced voltage starting, reduced voltage motor connections, and adjustable frequency drive.

ELTR 1180 - Electrical Controls
3.000 Credits

Introduces line and low voltage switching circuits, manual and automatic controls and devices, and circuits. Emphasis will be placed on switching circuits, manual and automatic controls and devices, line and low voltage switching circuits, and operation, application and ladder diagrams. Topics include ladder and wire diagrams, switching circuits, manual controls and devices, automatic controls and devices, and application and operation of controllers and controls.

ELTR 1205 - Residential Wiring I
4.000 Credits

Introduces residential wiring practices and procedures. Topics include residential circuits, print reading, National Electrical Code, and wiring materials.

ELTR 1210 - Residential Wiring II
4.000 Credits

Provides additional instruction on wiring practices in accordance with National Electrical Code. Topics include hand and power tools, branch circuits/feeders, residential single family load calculations, residential multifamily service calculations and installations, and equipment installations.

technologies that address voice, video, and data communications and the applicable codes.

ELTR 1220 - Industrial PLCs
4.000 Credits

Prerequisites: ELTR 1110; ELTR 1180

Introduces operational theory, systems terminology, PLC installations, and programming procedures for programmable logic controls. Emphasis is placed on PLC programming, connections, installations, and start-up procedures. Topics include PLC hardware and software, PLC functions and terminology, introductory numbering systems, PLC installation and set up, PLC programming basics, relay logic instructions, timers and counters, connecting field devices to I/O cards, and PLC safety procedures.

ELTR 1250 - Diagnostic Troubleshooting
2.000 Credits

Prerequisites: ELTR 1180

Introduces diagnostic techniques related to electrical malfunctions. Special attention is given to use of safety precautions during troubleshooting. Topics include problem diagnosis, advanced schematics, and sequential troubleshooting procedures.

ELTR 1260 - Transformers
3.000 Credits

Prerequisites: ELTR 1180; ELTR 1190

Provides instruction in the theory and operation of specific types of transformers. Emphasis will be placed on National Electrical Code requirements related to the use of transformers. Topics include transformer theory, types of transformers, National Electrical Code requirements, and safety precautions.

ELTR 1270 - National Electrical Code Industrial Applications
3.000 Credits

Provides instruction in industrial applications of the National Electrical Code. Topics include rigid conduit installation, systems design concepts, equipment installation (600 volts or less) and safety precautions.

ELTR 1520 - Grounding and Bonding
2.000 Credits

Presents the theory and practical applications for grounding and bonding systems. Emphasis will be placed on the use of the requirements of the National Electrical Code. Topics include branch circuit grounding, equipment grounding/ bonding, and earth connections.

ELTR 1525 - Photovoltaic Systems
5.000 Credits

This class introduces techniques and method on how to install residential and commercial photovoltaic systems.

ELTR 1530 - Conduit Sizing
2.000 Credits

Prerequisites: Regular Status

Provides practice in calculating conduit size. Emphasis is placed on use of the requirement of the National Electrical Code. Topics include National Electrical Code, conduits types/trade sizes, and percent of fill.

ELTR 1540 - Wire Pulling and Codes
3.000 Credits

The purpose of this course is for instruction in the installation of cabling systems. Emphasis will be on the types of cabling