

COURSES

ELECTRICAL

ELC-112 DC/AC Electricity

Lec 3 Lab 6 Clinic 0 Credit 5

This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion, students should be able to construct, verify, and analyze simple DC/AC circuits.

Co-Requisites: None

Pre-Requisites: None

Competencies: Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course. Demonstrate appropriate use of test equipment, evaluate circuit performance and apply appropriate troubleshooting techniques to electrical circuits. Construct and analyze series, parallel and combination circuits using appropriate components. Use appropriate laws and formulas to perform circuit calculations. Interpret electrical schematics. Describe the characteristics of various power sources.

ELC-113 Residential Wiring

Lec 2 Lab 6 Clinic 0 Credit 4

This course introduces the care/usage of tools and materials used in residential electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical print reading; planning, layout; and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with residential electrical installations.

Co-Requisites: None

Pre-Requisites: None

ELC-114 Commercial Wiring

Lec 2 Lab 6 Clinic 0 Credit 4

This course provides instruction in the application of electrical tools, materials, and test equipment associated with commercial electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion, students should be able to properly install equipment and conduit associated with commercial electrical installations.

Co-Requisites: None

Pre-Requisites: None

ELC-115 Industrial Wiring

Lec 2 Lab 6 Clinic 0 Credit 4

This course covers layout, planning, and installation of wiring systems in industrial facilities. Emphasis is placed on industrial wiring methods and materials. Upon completion, students should be able to install industrial systems and equipment.

Co-Requisites: None

Pre-Requisites: None

ELC-117 Motors and Controls

Lec 2 Lab 6 Clinic 0 Credit 4

This course introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion, students should be able to properly select, connect, and troubleshoot motors and control circuits.

Co-Requisites: None

Pre-Requisites: None

ELC-118 National Electrical Code

Lec 1 Lab 2 Clinic 0 Credit 2

This course covers the use of the current National Electrical Code. Topics include the NEC history, wiring methods, overcurrent protection, materials, and other related topics. Upon completion, students should be able to effectively use the NEC.

Co-Requisites: None

Pre-Requisites: None

ELC-119 NEC Calculations

Lec 1 Lab 2 Clinic 0 Credit 2

This course covers branch circuit, feeder, and service calculations. Emphasis is placed on sections of the National Electrical Code related to calculations. Upon completion, students should be able to use appropriate code sections to size wire, conduit, and overcurrent devices for branch circuits, feeders, and service.

Co-Requisites: None

Pre-Requisites: None

ELC-121 Electrical Estimating Lec 1 Lab 2 Clinic 0 Credit 2
This course covers the principles involved in estimating electrical projects. Topics include take-offs of materials and equipment, labor, overhead, and profit. Upon completion, students should be able to estimate simple electrical projects.

Co-Requisites: None

Pre-Requisites: None

ELC-125 Diagrams and Schematics Lec 1 Lab 2 Clinic 0 Credit 2
This course covers the interpretation of electrical diagrams, schematics, and drawings common to electrical applications. Emphasis is placed on reading and interpreting electrical diagrams and schematics. Upon completion, students should be able to read and interpret electrical diagrams and schematics.

Co-Requisites: None

Pre-Requisites: None

ELC-128 Introduction to Programmable Logic Controller Lec 2 Lab 3 Clinic 0 Credit 3
This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to understand basic PLC systems and create simple programs.

Co-Requisites: None

Pre-Requisites: None

ELC-130 Advanced Motors and Controls Lec 2 Lab 2 Clinic 0 Credit 3
This course covers motors concepts, construction and characteristics and provides a foundation in motor controls. Topics include motor control ladder logic, starters, timers, overload protection, braking, reduced voltage starting, SCR control, AC/DC drives, system and component level troubleshooting. Upon completion, students should be able to specify, connect, control, troubleshoot, and maintain motors and motor control systems.

Co-Requisites: None

Pre-Requisites: One: ELC-111, ELC-112, ELC-131, or ELC-138

ELC-131 Circuit Analysis I Lec 3 Lab 3 Clinic 0 Credit 4
This course introduces DC and AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC and AC principles, circuit analysis laws and theorems, components, test equipment operation, circuit simulation, and other related topics. Upon completion, students should be able to interpret circuit schematics; design, construct, verify, and analyze DC/AC circuits; and properly use test equipment.

Co-Requisites: None

Pre-Requisites: None

ELC-131A Circuit Analysis I Lab Lec 0 Lab 3 Clinic 0 Credit 1
This course provides laboratory assignments as applied to fundamental principles of DC/AC electricity. Emphasis is placed on measurements and evaluation of electrical components, devices and circuits. Upon completion, the students will gain hands-on experience by measuring voltage, current, and opposition to current flow utilizing various meters and test equipment.

Co-Requisites: ELC-131

Pre-Requisites: None

ELC-215 Electrical Maintenance Lec 2 Lab 3 Clinic 0 Credit 3
This course introduces the theory of maintenance and the skills necessary to maintain electrical equipment found in industrial and commercial facilities. Topics include maintenance theory, predictive and preventive maintenance, electrical equipment operation and maintenance, and maintenance documentation. Upon completion, students should be able to perform maintenance on electrical equipment in industrial and commercial facilities.

Co-Requisites: None

Pre-Requisites: None

ELC-229 Applications Project Lec 1 Lab 3 Clinic 0 Credit 2
This course provides an individual and/or integrated team approach to a practical project as approved by the instructor. Topics include project selection and planning, implementation and testing, and a final presentation. Upon completion, students should be able to plan and implement an applications-oriented project.

Co-Requisites: None

Pre-Requisites: None