

ELECTRICAL TECHNOLOGY (ELPT)

ELPT 1215 Electrical Calculations I 2 Credits (2 Lec, 0 Lab)

This is an introduction to mathematical applications utilized to solve problems in the electrical field. Topics include fractions, decimals, percentages, simple equations, ratio and proportion, unit conversions, and applied geometry. Electrical calculations to solve DC and AC electrical circuits are included.

Course Type: Technical

ELPT 1311 Basic Electrical Theory 3 Credits (2 Lec, 2 Lab)

This course covers the basic theory and practice of electrical circuits. It includes calculations as applied to alternating and direct current, and covers electrical terminology, circuit analysis and mathematical formulas as applied to direct and alternating current circuits.

Course Type: Technical

ELPT 1315 Electrical Calculations I 3 Credits (2 Lec, 2 Lab)

This course is an introduction to mathematical applications utilized to solve problems in the electrical field. Topics include fractions, decimals, percentages, simple equations, ratio and proportion, unit conversions, and applied geometry.

Course Type: Technical

ELPT 1321 Introduction to Electrical Safety and Tools 3 Credits (2 Lec, 2 Lab)

This course is a study of electrical safety rules and regulations. Includes the selection, inspection, use, and maintenance of common tools for electricians.

Course Type: Technical

ELPT 1325 National Electric Code I 3 Credits (3 Lec, 0 Lab)

This is an introductory study of the National Electric Code (NEC) for those employed in the field requiring knowledge of the Code. Emphasis will be on wiring design, protection, methods, and materials; and equipment for general use, and basic calculations.

Course Type: Technical

ELPT 1329 Residential Wiring 3 Credits (2 Lec, 4 Lab)

This is a study of wiring methods for single family and multi-family dwellings that includes load calculations, service entrance sizing, proper grounding techniques, and associated safety procedures.

Course Type: Technical

ELPT 1341 Motor Control 3 Credits (2 Lec, 2 Lab)

This course covers operating principles of solid-state and conventional controls along with their practical applications. Topics for this course will include braking, jogging, plugging, safety interlocks, wiring, and schematic diagram interpretation.

Prerequisite(s): CETT 1302

Course Type: Technical

ELPT 1345 Commercial Wiring 3 Credits (2 Lec, 2 Lab)

This course provides instructions in commercial wiring methods. It includes overcurrent protection, raceway panel board installation, proper grounding techniques, and associated safety procedures. The National Electrical Code (NEC) is used to size branch circuits, feeders, service equipment, outlet and junction boxes, and conduit; and installation of lighting and utilization of equipment. Students gain experience in safe workplace practices, the proper use of hand tools and ladders, interpreting blueprints and specifications, bending and installation of conduit, installation of armored cable, and wiring of devices, load centers and service equipment.

Course Type: Technical

ELPT 1351 Electrical Machines 3 Credits (2 Lec, 2 Lab)

This is a study of direct current (DC) motors, single-phase and polyphase alternating current (AC) motors, generators, and alternators. Emphasis will be on construction, characteristics, efficiencies, starting, and speed control.

Prerequisite(s): CETT 1302 or ELPT 1311

Course Type: Technical

ELPT 1357 Industrial Wiring 3 Credits (2 Lec, 2 Lab)

This course covers wiring methods used for industrial installations. It includes motor circuits, raceway and bus way installations, proper grounding techniques, and associated safety procedures.

Course Type: Technical

ELPT 1371 Commercial Lighting, Fixtures, and Controls 3 Credits (2 Lec, 4 Lab)

This course provides instruction in commercial lighting systems through the study of the theory and application of electrical principles. The course includes principles of electrical voltage control systems, blueprints, and hardware installation. Students will gain experience in the use of appropriate tools and safety, application specific lighting controls, and the installation of conductor terminations in accordance with NEC rules.

Course Type: Technical

ELPT 1380 Cooperative Education - Electrical and Power Transmission Installation/Installer, General 3 Credits (1 Lec, 15 Lab)

This course provides career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component.

Course Type: Technical

ELPT 1429 Residential Wiring 4 Credits (3 Lec, 3 Lab)

This is a study of wiring methods for single family and multi-family dwellings that includes load calculations, service entrance sizing, proper grounding techniques, and associated safety procedures.

Course Type: Technical

ELPT 1440 Master Electrician Exam Review I 4 Credits (4 Lec, 0 Lab)

This is an introductory study of electrical theory, code calculations, and interpretations applicable to becoming a master electrician. It emphasizes residential, commercial, and industrial installations using the current edition of the National Electrical Code (NEC) and local ordinances.

Prerequisite(s): ELPT 2325

Course Type: Technical

ELPT 1441 Motor Control 4 Credits (3 Lec, 3 Lab)

This is study of operating principles dealing with solid-state and conventional controls along with their practical applications. The course includes braking, jogging, plugging, safety interlocks, wiring, and schematic diagram interpretations.

Prerequisite(s): CETT 1302 or ELPT 1311 or department chair approval

Course Type: Technical

ELPT 1445 Commercial Wiring 4 Credits (2 Lec, 6 Lab)

This course provides instructions in commercial wiring methods. It includes overcurrent protection, raceway panel board installation, proper grounding techniques, and associated safety procedures. The National Electrical Code (NEC) is used to size branch circuits, feeders, service equipment, outlet and junction boxes, and conduit; and installation of lighting and utilization of equipment. Students gain experience in safe workplace practices, the proper use of hand tools and ladders, interpreting blueprints and specifications, bending and installation of conduit, installation of armored cable, and wiring of devices, load centers and service equipment.

Course Type: Technical

ELPT 2215 Electrical Calculations II 2 Credits (2 Lec, 0 Lab)

This is a further study of mathematical applications used to solve problems in the electrical field. The course includes fractions, decimals, ratio and proportion, applied geometry, and utilization of right triangles to calculate electrical values. It also includes power factor correction, fault currents, neutral currents, conductor ampacity, and other advanced calculations.

Prerequisite(s): ELPT 1215 or approval of department chair

Course Type: Technical

ELPT 2301 Journeyman Electrician Exam Review 3 Credits (3 Lec, 0 Lab)

This course provides preparation for journeyman electricians with emphasis on calculations and the National Electrical Code (NEC). Special attention is directed toward test taking skills and practice exams as they apply to the local area journeyman exams.

Prerequisite(s): ELPT 2325 or approval of department chair

Course Type: Technical

ELPT 2305 Transformers and Motors 3 Credits (3 Lec, 1 Lab)

This course focuses on the operation of single- and three-phase motors and transformers. It includes transformer banking, power factor correction, and protective devices. Also included are lessons on three-phase power concepts, transformer and motor connections, transformer and motor metering, and transformer and motor troubleshooting theory.

Prerequisite(s): CETT 1302 or ELPT 1311 or approval of the department chair

Course Type: Technical

ELPT 2319 Programmable Logic Controllers I 3 Credits (2 Lec, 2 Lab)

This course covers the fundamental concepts of programmable logic controllers, principles of operation, and numbering systems as applied to electrical controls. It includes history, terminology, typical applications, hardware and software, and incorporates lab and project activities that address operating, monitoring programming, troubleshooting, and repairs of PLC controlled lab trainers as well as actual industrial equipment.

Course Type: Technical

ELPT 2325 National Electrical Code II 3 Credits (3 Lec, 0 Lab)

This course includes in-depth coverage of the National Electrical Code (NEC) for those employed in fields requiring knowledge of the Code, with an emphasis on wiring protection and methods, special conditions, and advanced calculations.

Prerequisite(s): ELPT 1325 or department chair approval

Course Type: Technical

ELPT 2337 Electrical Planning and Estimating 3 Credits (2 Lec, 2 Lab)

This course covers planning and estimating for residential, commercial and industrial wiring systems. Statistical procedures of various methods of estimating are introduced along with a variety of electrical techniques.

Prerequisite(s): ELPT 2325 or approval of department chair

Course Type: Technical

ELPT 2339 Electrical Power Distribution 3 Credits (3 Lec, 1 Lab)

This is a study of design, operation, and technical details of modern power distribution systems including generating equipment, transmission lines, plant distribution, and protective devices. Includes calculations of fault current, system load analysis, rates, and power economics.

Prerequisite(s): CETT 1302 or ELPT 1311, ELPT 2305

Course Type: Technical

ELPT 2343 Electrical System Design 3 Credits (3 Lec, 0 Lab)

This is a course in electrical design of commercial and/or industrial projects, including building layout, types of equipment, placement, sizing of electrical equipment, and all electrical calculations according to the requirements of the National Electrical Code (NEC).

Prerequisite(s): ELPT 2325 or approval of department chair

Course Type: Technical

ELPT 2364 Practicum-Electrical and Power Transmission Installation/ Installer, General 3 Credits (0 Lec, 21 Lab)

This course provides practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. The course may be repeated if topics and learning outcomes vary.

Prerequisite(s): Approval of department chair

Course Type: Technical

ELPT 2423 Transformers 4 Credits (3 Lec, 3 Lab)

This course provides instruction in transformer types, construction, connections, protection, grounding, and associated safety procedures during transformer installation and repair.

Course Type: Technical

ELPT 2449 Industrial Automation 4 Credits (3 Lec, 3 Lab)

This is an advanced study of electrical control systems, applications, and interfacing utilized in industrial automation. Ladder logic diagramming and programmable logic controllers are covered as they apply to electrical controls.

Prerequisite(s): ELPT 1441

Course Type: Technical