

FALL COURSES 2025

# E-CATALOG

## Phoenix Electrical Apprenticeship Program

Phoenix, AZ Since 1943

electrical training  
IBEW - NECA ALLIANCE



# Table Of Contents

## Key



Duration of Course



In Person



Computer Mediated Learning (CML)



Blended Learning



West Campus



Central Campus



## Craft Certification

Courses supporting Craft Certification  
Coming Soon



## CET Courses

Referral by IBEW LU 640 required



## Elective

Optional courses for continued education

# CET Courses

Referral by IBEW LU 640 required

Members in good standing who complete courses successfully may qualify for partial reimbursement of their costs. Please inquire at IBEW Local Union 640 for details (may be required to provide course completion certificate and receipt)

# CET 103

## BRANCH CIRCUITRY

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



Enrollment:  
CW/CE's with referral from  
IBEW LU 640 only

**OBJECTIVE:**

FUNDAMENTALS OF GFCI PROTECTED AND UNPROTECTED CIRCUITS, EMPHASIS ON ESSENTIAL CONCEPTS RELATING TO LO/TO, GROUND FAULT CIRCUIT INTERRUPTER OPERATION AND MITIGATION. INCORPORATING ONE-LINE DIAGRAMS, HANDS-ON INSTALLATION OF BRANCH WIRING AND DEVICE TERMINATION AND TESTING.

**PRICE: \$50.00**

# CET 104

## BRANCH CIRCUITRY

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



Enrollment:  
CW/CE's with referral from  
IBEW LU 640 only

**OBJECTIVE:**

FUNDAMENTALS OF 3 AND 4 WAY SWITCHING, EMPHASIS ON ESSENTIAL CONCEPTS RELATING TO LO/TO, SCHEMATIC AND ONE LINE DIAGRAMS, 3 AND 4 WAY WIRING CONFIGURATION AND HANDS ON INSTALLATION OF BRANCH WIRING AND DEVICE TERMINATION AND TESTING.

**PRICE: \$50.00**

# CET 102

## CONDUIT BENDING

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



Enrollment:  
CW/CE's with referral from  
IBEW LU 640 only

**OBJECTIVE:**

REVIEW AND FABRICATION OF BACK-TO-BACK 90° BENDS  
UTILIZING ½" EMT, EMPHASIS ON ESSENTIAL CONCEPTS AND  
BASIC PRINCIPLES OF MEASUREMENT, SHRINK/GAIN,  
DEDUCT/TAKE UP AND BEND MARK LAYOUT CALCULATIONS.

**PRICE: \$50.00**

# CET 104

## CONDUIT BENDING

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



Enrollment:  
CW/CE's with referral from  
IBEW LU 640 only

**OBJECTIVE:**

REVIEW AND FABRICATION OF PARALLEL OFFSET BENDS  
UTILIZING ½" EMT, EMPHASIS ON 30° & 45° PARALLEL  
OFFSETS, WITH INSTRUCTION ON PRINCIPLES OF  
MEASUREMENT, SHRINK, DEGREE MULTIPLIERS, OFFSET RISE  
AND BEND MARK CALCULATIONS.

**PRICE: \$50.00**

# CET 105

## CONDUIT BENDING

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



Enrollment:  
CW/CE's with referral from  
IBEW LU 640 only

#### OBJECTIVE:

REVIEW AND FABRICATION OF 3 & 4 BEND SADDLES UTILIZING ½" EMT, PUSH THROUGH METHOD WITH EMPHASIS ON SHRINK, DEGREE MULTIPLIERS, OFFSET RISE AND BEND MARK POSITION CALCULATIONS AND ESSENTIAL CONCEPTS AND PROBLEM-SOLVING TECHNIQUES INCORPORATING BASIC PRINCIPLES OF MEASUREMENT.

PRICE: \$50.00

# CET 101

## MOTOR CONTROLS

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



Enrollment:  
CW/CE's with referral from  
IBEW LU 640 only

#### OBJECTIVE:

FUNDAMENTALS OF BASIC MOTOR CONTROLS. EMPHASIS ON ESSENTIAL CONCEPTS RELATING TO LO/TO, HV & LV MOTOR CONNECTIONS, OVERLOAD PROTECTION, BASIC MOTOR CONTROL PRINCIPLES, LADDER DIAGRAMS, MOTOR STARTER OPERATION AND START/STOP STATION OPERATION. HANDS ON INSTALLATION OF LINE/LOAD AND CONTROL WIRING AND DEVICE TERMINATION AND TESTING.

PRICE: \$50.00

# CET 101

## MOTORS

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS**

**REQUIRED:**

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



**Enrollment:**  
CW/CE's with referral from  
IBEW LU 640 only

**OBJECTIVE:**

INTRODUCTION TO 9 LEAD MOTORS. EMPHASIS ON ESSENTIAL CONCEPTS RELATING TO LO/TO, HV & LV MOTOR CONNECTIONS, REVERSING MOTOR DIRECTION PRINCIPLES, INCORPORATING BASIC MOTOR CONTROL WIRING DIAGRAMS AND OPERATION. HANDS ON INSTALLATION OF LINE/LOAD AND CONTROL WIRING AND DEVICE TERMINATION AND TESTING IN AN ELEVATOR PIT TYPE SCENARIO.

**PRICE: \$50.00**

# CET 101

## TRANSFORMERS

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS**

**REQUIRED:**

GLOVES, SAFETY GLASSES,  
WORKSITE ATTIRE



**Enrollment:**  
CW/CE's with referral from  
IBEW LU 640 only

**OBJECTIVE:**

FUNDAMENTALS OF TRANSFORMER PRINCIPLES, EMPHASIS ON MAGNETISM AND ELECTRO-MAGNETISM, OPERATION PRINCIPLES, TRANSFORMER CONNECTIONS, AND REAL WORLD CONNECTIONS. INCORPORATING LINE AND LOAD WIRING, TRANSFORMER AND DEVICE TERMINATION.

**PRICE: \$50.00**



# E Courses

## Optional courses for continued education

Members in good standing who complete courses successfully may qualify for partial reimbursement of their costs. Please inquire at IBEW Local Union 640 for details (may be required to provide course completion certificate and receipt)



# E 500

## BASIC LIFE SUPPORT AND FIRST AID

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

N/A



Enrollment:  
Open

#### OBJECTIVE:

EMPHASIS ON THE ELECTRICAL CONSTRUCTION INDUSTRY.  
LEARN AND PRACTICE LIFE SAVING CPR AND FIRST AID BASED  
ON THE LATEST EVIDENCE BASED GUIDELINES PROMOTED BY  
THE INTERNATIONAL LIAISON ON RESUSCITATION.

PRICE: \$35.00

# E 500

## CODEOLOGY

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

2020 CODEOLOGY  
TEXTBOOK AND 2020 CODE  
BOOK



Enrollment:  
Open

#### OBJECTIVE:

OVERVIEW OF THE 2020 NATIONAL ELECTRICAL CODE.  
EMPHASIS ON ESSENTIAL CONCEPTS RELATING TO THE  
CODEOLOGY METHOD: PLANNING THE INSTALLATION,  
BUILDING THE INSTALLATION, USING THE ELECTRICITY,  
SPECIAL OCCUPANCIES, SPECIAL EQUIPMENT, SPECIAL  
CONDITIONS, COMMUNICATIONS, AND INFORMATIVE  
ANNEXES.

PRICE: \$185.00

# E 501

## CONDUIT SYSTEM FABRICATION 1

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS**

**REQUIRED:**

CONDUIT BENDING AND  
FABRICATION TEXTBOOK



Enrollment:  
Open

**OBJECTIVE:**

THIS COURSE COVERS ESSENTIAL KNOWLEDGE OF VARIOUS CONDUIT SYSTEMS AND THEIR INSTALLATION, FOCUSING ON BASIC TO INTERMEDIATE CONDUIT BENDING TECHNIQUES AND CALCULATIONS, INCLUDING 90-DEGREE BENDS, OFFSETS, KICKS, SADDLES, AND MORE.

**PRICE:** \$235.00

# E 500

## CONSTRUCTING YOUR FUTURE

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS**

**REQUIRED:**

N/A



Enrollment:  
Open

**OBJECTIVE:**

THIS COURSE OFFERS AN OVERVIEW OF CONSTRUCTION TRADES APPRENTICESHIP PROGRAMS, HIGHLIGHTING THE BENEFITS OF DIFFERENT PROGRAMS, EXPLORING VARIOUS CONSTRUCTION TRADES, AND OUTLINING POTENTIAL CAREER PATHS FOR SUCCESSFUL APPRENTICES.

**PRICE:** \$30.00

# E 501

## CONSTRUCTION DRAWINGS

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

CONSTRUCTION DRAWINGS  
TEXTBOOK, COMMERCIAL  
BLUEPRINTS, AND  
ARCHITECTURAL SCALE



**Enrollment:**  
Open

**OBJECTIVE:**

ENHANCE YOUR PROFICIENCY BY GAINING A THOROUGH UNDERSTANDING OF CONSTRUCTION DRAWINGS. THIS COURSE EMPHASIZES THE DESIGN PROCESS, COVERING SCALING, DIMENSIONS, PLAN VIEWS, ELEVATIONS, DETAILS, SECTIONS, SCHEDULES, AND SPECIFICATIONS.

**PRICE:** \$165.00

# E 500

## ELECTRIC VEHICLE CHARGING SYSTEMS

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

N/A



**Enrollment:**  
Open

**OBJECTIVE:**

ELECTRICAL VEHICLE CHARGING EQUIPMENT ADVANCED LOAD CALCULATIONS BASED ON THE NEC, SITE ASSESSMENT, COMMISSIONING, AND TROUBLE SHOOTING.

PLEASE EMAIL [WEBSERVICES@PEJATC.ORG](mailto:WEBSERVICES@PEJATC.ORG) TO GET INFORMATION ON THE EVITP COURSES.

**PRICE:** \$135.00

# E 501

## ELECTRICAL JOB INFORMATION 1

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

N/A



Enrollment:  
Open

### OBJECTIVE:

THIS COURSE COVERS THE BASICS OF TYPES OF CONSTRUCTION, CONDUCTORS, HAND TOOLS, MATERIALS, FASTENERS, ANCHORS, SAFETY, SIZING WIRE, AND MORE—EMPHASIZING ESSENTIAL KNOWLEDGE FOR THE ELECTRICAL WORKER.

PRICE: \$80.00

# E 501

## ELECTRICAL THEORY 1

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

DC THEORY TEXTBOOK,  
BUILDING A FOUNDATION  
IN MATH TEXTBOOK, TEST  
INSTRUMENTS TEXTBOOK



Enrollment:  
Open

### OBJECTIVE:

THIS COURSE DELVES INTO THE FUNDAMENTAL PRINCIPLES OF DIRECT CURRENT THEORY AND CIRCUIT OPERATION, WITH A FOCUS ON INTERPRETING THE DYNAMICS OF SERIES, PARALLEL, AND COMBINATION CIRCUITS.

PRICE: \$400.00

# E 500

## FOREMAN DEVELOPMENT 1&2

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

N/A



Enrollment:  
CW/CE's and Journey level  
workers only

**OBJECTIVE:**

MODULE 1

SUBJECT MATTER COVERED IN THIS MODULE IS AS FOLLOWS:  
THE ROLE OF THE FOREMAN

MODULE 2

SUBJECT MATTER COVERED IN THIS MODULE IS AS FOLLOWS:  
PROJECT START-UP

**PRICE: FREE**

# E 500

## FOREMAN DEVELOPMENT 3&4

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

N/A



Enrollment:  
CW/CE's and Journey level  
workers only

**OBJECTIVE:**

MODULE 3

SUBJECT MATTER COVERED IN THIS MODULE IS AS FOLLOWS:  
MATERIAL MANAGEMENT

MODULE 4

SUBJECT MATTER COVERED IN THIS MODULE IS AS FOLLOWS:  
LABOR RELATIONS

**PRICE: FREE**

# E 500

## FOREMAN DEVELOPMENT 5&6

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

N/A



Enrollment:  
CW/CE's and Journey level  
workers only

**OBJECTIVE:**

MODULE 5

SUBJECT MATTER COVERED IN THIS MODULE IS AS FOLLOWS:  
UNDERSTANDING THE ESTIMATE

MODULE 6

SUBJECT MATTER COVERED IN THIS MODULE IS AS FOLLOWS:  
LABOR-LOADING PROJECT

**PRICE: FREE**

# E 500

## HARASSMENT PREVENTION

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

N/A



Enrollment:  
Open

**OBJECTIVE:**

THIS SESSION PROVIDES A REVIEW OF HARASSMENT,  
INCLUDING ITS DEFINITION, PREVENTATIVE MEASURES, AND  
APPROPRIATE STEPS TO TAKE IF AN INCIDENT OCCURS.

**PRICE: \$20.00**

# E 501

## INSTRUMENTATION

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**  
APPLIED SCIENCE OF  
INSTRUMENTATION  
TEXTBOOK



**Enrollment:**  
Open

**OBJECTIVE:**

INTRODUCTION TO THE "APPLIED SCIENCE OF INSTRUMENTATION" TEXTBOOK, COVERING THREE MODULES. I & C TOPICS INCLUDING: FUNDAMENTALS, DIAGRAMS, COMPONENTS, CALIBRATION PROCEDURES, PRINCIPLES OF PRESSURE, LEVEL, FLOW AND TEMPERATURE, ANALYTICAL MEASUREMENT AND PROCESS CONTROLLERS.

**PRICE:** \$225.00

# E 500

## INTRO TO BUILDING INFORMATION MODELING

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**  
N/A



**Enrollment:**  
Open

**OBJECTIVE:**

AS MODERN TECHNOLOGY BECOMES INTEGRAL TO CONSTRUCTION SITES, A WORKING UNDERSTANDING OF BUILDING INFORMATION MODELING (BIM) IS INCREASINGLY ESSENTIAL. THIS INTRODUCTION TO BIM EQUIPS ELECTRICIANS WITH THE NECESSARY KNOWLEDGE FOR NAVIGATING THE DEMANDS OF CONTEMPORARY CONSTRUCTION PROJECTS.

**PRICE:** \$115.00



# E 501

## MOTOR CONTROLS

RECOMMENDED  
PREREQUISITES:

N/A

MATERIALS

REQUIRED:

FUNDAMENTALS OF MOTOR  
CONTROL TEXTBOOK



Enrollment:  
Open

**OBJECTIVE:**

THIS COURSE COVERS BASIC TO ADVANCED FUNDAMENTALS, OPERATION, WIRING, AND TROUBLESHOOTING ON A VARIETY OF TOPICS FROM PILOT DEVICES TO PLC'S.

HANDS ON: DESIGN, WIRING, AND TROUBLESHOOTING.

**PRICE:** \$165.00

# E 501

## NFPA 70 E

RECOMMENDED  
PREREQUISITES:

N/A

MATERIALS

REQUIRED:

N/A



Enrollment:  
Open

**OBJECTIVE:**

RECOGNITION AND UNDERSTANDING OF ELECTRICAL SAFETY CULTURE, ELECTRICAL HAZARDS, LO/TO, FAULT CURRENT CALCULATION BASICS, AND THE DEFINITION OF AN ELECTRICALLY SAFE WORK CONDITION.

**PRICE:** \$25.00

# E 500

## OSHA 10

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

N/A



Enrollment:  
Open

#### OBJECTIVE:

COURSE COVERS WORKPLACE HAZARDS, EMPLOYEE RIGHTS, IMPROVING SAFETY CULTURE, AND OTHER KEY TOPICS TO PREPARE PARTICIPANTS FOR IDENTIFYING HAZARDS ON ELECTRICAL CONSTRUCTION JOBSITES.

PRICE: 40.00

# E 500

## READING COMPREHENSION

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

N/A



Enrollment:  
Open

#### OBJECTIVE:

MASTERING WORKPLACE READING SKILLS IS CRUCIAL FOR SAFETY AND JOB SUCCESS. THIS COURSE IS DESIGNED TO TEACH EFFECTIVE STRATEGIES FOR CAPTURING THE MOST PERTINENT INFORMATION WITHIN A TEXT.

PRICE: \$30.00

# E 500

## SIGNIFICANT CODE CHANGES TO THE 2023 NEC

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

N/A



Enrollment:  
Open

#### OBJECTIVE:

SIGNIFICANT REVISIONS AND REQUIREMENTS ASSOCIATED WITH THE 2023 NFPA 70 NEC. INCLUDING UPDATES OF THE 2023 NEC BY REVIEWING CHANGE SUMMARY, CODE LANGUAGE, AND KNOWLEDGE CHECKS ON THE CHANGES THROUGHOUT THE COURSE. THIS COURSE HAS SEVEN TOPICS THAT COVER CODE ARTICLES AND ASSOCIATED CHANGES. INCLUDES COMPLETION CERTIFICATE AND COURSE SURVEY.

PRICE: \$60.00

# E 500

## TECH MATH

### RECOMMENDED PREREQUISITES:

N/A

### MATERIALS REQUIRED:

BUILDING A FOUNDATION  
IN MATHEMATICS  
TEXTBOOK



Enrollment:  
Open

#### OBJECTIVE:

THE TECH MATH COURSE OFFERS A COMPREHENSIVE REVIEW OF ESSENTIAL MATHEMATICAL SKILLS, WITH A SPECIFIC EMPHASIS ON THOSE REQUIRED FOR INDIVIDUALS IN THE ELECTRICAL INDUSTRY.

PRICE: \$160.00

# E 501

## TRANSFORMERS

**RECOMMENDED  
PREREQUISITES:**

N/A

**MATERIALS  
REQUIRED:**

TRANSFORMERS PRINCIPLES  
AND APPLICATIONS  
TEXTBOOK



**Enrollment:**  
Open

**OBJECTIVE:**

TRANSFORMER PRINCIPLES AND APPLICATIONS I – CML PROVIDES A THOROUGH UNDERSTANDING OF TRANSFORMERS OPERATION, CLASSIFICATIONS, AND SINGLE-PHASE AND 3-PHASE CONNECTIONS. THOUGH THE LESSONS FOCUS ON 480V SERVICES AND BELOW, THIS COURSE INCLUDES MEDIUM-VOLTAGE DISTRIBUTION TRANSFORMERS AS WELL.

**PRICE:** \$200.00