

## Basic Courses

### 1. AC Theory 101

This course picks up where DC Theory 102 leaves off, building on the fundamentals of DC theory and comparing them to alternating current (AC) theory. Students will explore three-phase systems, making circuit calculations for basic systems and AC and DC generators. Students will compare series and parallel circuitry. 30 contact hours.

**2. AC Theory 102** The student continues their study of AC Theory with topics of inductive reactance, capacitance, capacitive reactance, parallel resonance, filter analysis, and power factor. They will understand the parameters of the varied types of circuits through lab exercises. 30 contact hours.

### 3. Arc Flash Protection

Electrocution and arc flash hazards remain the leading cause of fatalities in the workplace. This course exposes the degrees of risk associated with exposed electrical conductors and presents proper actions and equipment that may be necessary to eliminate or mitigate exposure to electrical shock and arc flash hazards. Voltage-rated gloves and other protective equipment and apparel will be demonstrated for each hazard to prevent shock and protection from arc flash. 8 contact hours.

### 4. Blueprint Reading 101

Having sufficient knowledge and skills relating to electrical wiring is futile unless one can interpret and understand the blueprints illustrated by the architect and designer. This course covers the necessary skills required to interpret and follow blueprint. It begins with the fundamentals of blueprint drawing and recognizing the common scales used on blueprints and then begins to analyze blueprints by understanding and drawing electrical and mechanical symbols used. Various applications of blueprints are practiced, including residential, commercial, and industrial. 24 contact hours.

### 5. Boot Camp

This is an entry-level training module that acquaints unskilled electrical workers with basic electrical knowledge and skills. Successful completion of this module will qualify the student to gain employment or remain employed by one of JAET's affiliate electrical businesses. The module will be *Residential Boot Camp* which will feature content that includes safety standards, tool recognition, AC/DC theory, Ohm's Law, & basic circuitry. 36 contact hours.

## **6. Code and Practices 101**

This is a practical guide of the NEC for Construction Wiremen. The student gains an understanding of how to correctly apply the standards for job specifications. Wiring devices, receptacles, and switch installments and covered per NEC application. 24 Contact hours.

## **7. Computer Basics 101**

Basic program applications are introduced and practiced, including Microsoft Office with Word, Excel, and Access. Internet and Outlook are also covered. The non-recurring cost of the initial computer lab equipment is included in the requested funds. 48 contact hours.

## **8. Conduit Installation 101**

Students will learn principles of electrical wiring requiring rigid and flexible conduit. This hands-on course will allow students to experience and practice the skills involved in bending conduit of various sizes. They will also learn applicable electrical code so that their work will meet legal and professional specifications. Conduit bending is a fundamental skill of commercial and industrial electrical construction. 24 Contact hours.

## **9. Confined Space**

Electrical work often occurs in confined spaces where OSHA has established safety standards and "fatal facts." Course objectives include knowledge of atmospheric and other hazards of confined spaces such as fire and explosions, asphyxiation, electrocution, and rescue standards. The course is offered in a state-of-the-art confined-space lab. 24 Contact hours.

## **10. Construction Wireman 101**

This is an entry-level training module that acquaints approximately one-hundred (100) unskilled electrical workers with basic electrical knowledge and skills. This entry-level opportunity will be offered in September, 2006 and also in February, 2007 to two cohorts of 50 participants each. Successful completion of this module will qualify the student to gain employment or remain employed by one of JAET's affiliate electrical businesses. The module will be Electrical Basics for Construction Wiremen which will feature content that includes OSHA safety standards, tool recognition, AC/DC theory, Ohm's Law, circuitry, construction-based mathematics, and the National Electric Code.

Most participants will already be employed by one of our affiliate contractors. Those who are not employed at the onset of this course, will be placed on the job during the course of this module. Participants will receive up to 280 hours on-the-job training during the day and will attend one class, once per week at night, for approximately ten

## 10. Construction Wireman 101 (con't.)

weeks, or 30 class hours. Employer will pay wages and benefits for on-the-job training. Classes will be held at JAET's facility. Recruitment is achieved primarily via JAET's efforts, advertisement and regional Workforce Florida referrals.

Upon completion of this module, students will be presented with certificates that designate them as Construction Wiremen, Level 1 (CW-1). After 1000 work-hours, these CW-1 will advance to CW-2 and receive wage increases, retirement plans, and fully paid health benefits that include dental and vision. The health insurance package provides full coverage for their families, at no cost to the employee. Continued employment will qualify CW's for further wage increases, training opportunities, entry into JAET's electrical apprenticeship program, and a college degree opportunity. 30 Contact hours. Certificates of completion and a \$50 gas card will be awarded to those who successfully complete.

## 11. DC Theory 101

Having a fundamental understanding of the direct current (DC) is essential for any electrician. Students will learn basic electricity, Ohm's law, electrical circuits, and resistance. Computations for equations for these scientific principles are practiced in a workbook that will also be used for DC Theory 102.

30 contact hours.

## 12. DC Theory 102

This course completes the construction wireman's understanding of DC circuitry, using the same text materials from DC 101. An in-depth understanding of complex circuits, combinations, of circuits, as well as how current and voltage reacts in DC series circuits and dividers. The course ends with voltage polarity, voltage drop, and Kirchhoff's voltage law. 30 contact hours.

**Diversity Appreciation** Establishing a positive work climate is impossible without an appreciation of the varied sensitivities of America's cultures. Zero tolerance of racial, sex, religious, ethnicity, and age discrimination and harassment will be emphasized. 6 contact hours.

**First Aid/CPR** The Coyne First Aid/CPR Training program provides a basic education in the fundamentals of both CPR and First Aid while following the same priorities of care and as the advanced courses. It prepares the lay person to quickly and competently perform CPR, treat minor injuries, and protect and support a patient with serious medical problems until the arrival or more qualified, professional help. Participants will become certified in Coyne First Aid/CPR and receive cards, effective for one year in CPR and three years in First Aid. OSHA Standards require that at least one person on each job, be certified in First Aid & CPR. 6 Contact hours.

## **15. Hazardous Materials (HAZMAT)**

Electrical workers must know and understand effects and proper handling of hazardous materials in accordance with 40 CFR 1910.120(Q) & (E). This course will include all concepts and skills that will help to ensure the safety of the worker and others when encountering hazardous materials. The duration of this course is 24 contact hours with approximately 2 hours on-the-job reinforcement.

## **16. Leadership 101**

This basic course provides an overview of practical, workplace knowledge of leadership principles for electricians who seek to optimize performance and professionalism. Topics include working with teams, conflict resolution, diversity sensitivities, and time management. Customer satisfaction zero tolerance of racial, gender, religious, ethnicity and age discrimination and harassment is emphasized. 8 contact hours.

## **17. OSHA – 10**

The OSHA 10-hr construction course is basic and standard for all areas of the construction industry, particularly for electrical work. Employers and their customers expect and demand this credential of all electrical employees at any given work project. Learning objectives include application knowledge safety materials, equipment, and practices and OSHA employer/employee safety requirements.

Participants will receive 10 contact hours of formal classroom training by an OSHA certified instructor. It is expected that they will also receive on-the-job reinforcement of concepts learned in class. They will receive an OSHA 10-hr card, certifying this important benchmark, which they will carry on worksites. 10 Contact hours.

**18. Tech Math** This is a basic refresher course for entering apprentices who score lower than 75% on the diagnostic pre-test. Students will gain understanding of mathematical applications for the electrical industry. 45 contact hours.

## **19. Telecom & Data Systems 101**

This course will equip the entry-level worker with the fundamental knowledge and skills for installation of telecommunications and data cabling systems. It begins with a review of electrical properties; then, proceeds to industry standards covering pathways and spaces, structured wiring architecture, unshielded twisted pair cables and apparatus, shielded twisted pair cables and apparatus, and coaxial cables and connectors. Finally, installation steps are presented, along with adapters, cross-connections, and safe work practices. 15 contact hours.