PROGRAM: **Electrical and Power Transmission Technologies**

PROGRAM CIP CODE: **46.0300**

DESCRIPTION: The **Electrical and Power Transmission Technologies** is a program that generally prepares individuals to apply technical knowledge and skills to install indoor and outdoor residential, commercial, and industrial electrical systems and associated power transmission lines. Includes instruction in electricity, safety procedures, wiring, insulation and grounding, schematic blueprint interpretation, equipment operation and maintenance, and applicable codes and standards. The program is comprised of a core curriculum and two options: Option A (Residential Electrician) and Option B (Industrial Electrician.) The program is designed and delivered as a coherent sequence of experiences using technical instruction, academic foundations, experiential learning, supervised occupational experience and leadership and personal development through the Career and Technical Student Organization, SkillsUSA.

RECOMMENDED PROGRAM SEQUENCE OF COURSES:

Career Preparation The following describes the recommended courses developed from industry-validated skills necessary for initial employment or continued related education.

46.0300.10 **Electrical Fundamentals:** This foundation course will prepare students to use a wide variety of tools and equipment and maintain a safe work environment. The student will develop an understanding of construction math, reading blueprints, install, operate, repair electric apparatus and systems such as residential, commercial and industrial electric power wiring; DC and AC motors controls, electrical distribution panels, and techniques. The student will develop skills in oral and written communication as they relate to the electrical industry. This course is designed to help students develop an enhanced understanding of teamwork, employability skills and career opportunities in the electrical field.

-and-

At least one Career Prep option course (.20 or .30) must be included as part of the instructional sequence for this program:

Option A

46.0300.20 **Residential Electrician:** This course prepares the individual to apply and demonstrate advanced technical knowledge and skills to install, operate, maintain and repair electrical apparatus and systems such as residential electric power wiring; AC and DC motors, controls and electrical distribution panels. Includes instruction in principles of electronics and electrical systems, wiring, power transmission, safety, job estimation, electrical testing and inspection and applicable codes and standards.

-or-

Option B

46.0300.30 **Industrial Electrician:** This course prepares the individual to apply and demonstrate advanced technical knowledge and skills. This lab based course will provide the students an opportunity to participate in maintaining and repairing local, long distance and rural electric power cables and communication lines, erect and construct pole and tower lines; install underground lines and cables, which will include installation and repair, fibre-optic technology, trenching, mobile equipment and crane operation, high voltage installations, maintenance and inspection, safety, remote communications, and applicable codes and standards. The planning, design and completion of project based activities. This course prepares students for advanced technical knowledge and skills using a variety of techniques and equipment.

And program may elect to add:

46.0300.75 **Electrical and Power Transmission Technology - Internship:** This course provides CTE students an opportunity to engage in learning through participation in a structured work experience that can either be paid or unpaid and does not necessarily require classroom instruction that involves the application of previously developed Electrical and Power Transmission Technology knowledge and skills.

-or-

46.0300.80 **Electrical and Power Transmission Technology - Cooperative Education:** This course utilizes a cooperative education methodology to combine school-based and supervised work-based learning experiences, directly related to the standards identified for the Electrical and Power Transmission Technology program.

TEACHER CERTIFICATION REQUIREMENTS FOR THE ELECTRICAL AND POWER TRANSMISSION TECHNOLOGIES PROGRAM

CAREER PREPARATION: The instructor must be vocationally certified according to the following table:

Electrical and Power Transmission Technologies	CERTIFICATES
	Types: PCTI, PCTIEP, SCTI, SCTIEP

Note:

- **Electrical and Power Transmission Technologies, 46.0300.70** may be a part of the sequence and the teacher must hold a Cooperative Education Endorsement (CEN).
- Teacher/Coordinator **46.0300.75** is not required to have a Cooperative Education Endorsement (CEN).
- Teacher/Coordinator **46.0300.80** is required to have a Cooperative Education Endorsement (CEN).

CERTIFICATE ABBREVIATIONS FOR THE ELECTRICAL AND POWER TRANSMISSION TECHNOLOGIES PROGRAM

Certificate Types	
PCTI	Provisional Career and Technical Education Industrial Technology
PCTIEP	Provisional Career and Technical Education Industrial and Emerging Technologies
SCTI	Standard Career and Technical Education Industrial Technology
SCTIEP	Standard Career and Technical Education Industrial and Emerging Technologies