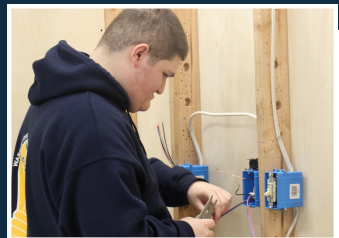


WARREN TECH ELECTRICAL APPLICATIONS

ABOUT THE SHOP

Life in the Electrical Applications Program at Warren County Technical School is both exciting and rewarding. Students are immersed in a rich learning environment where they explore a broad foundation of electrical theory while developing practical, hands-on skills. From wiring circuits to completing real-world projects, every experience is designed to prepare students for success in the ever-evolving electrical industry. With dedicated instructors, modern equipment, and a supportive learning community, students leave the program confident, skilled, and ready to tackle the challenges of a professional electrical career.



CERTIFICATIONS

Students in the Electrical shop can earn multiple industry-recognized certifications, including OSHA 30—an essential credential required by many employers—along with a range of specialized tool-related certifications, giving them valuable hands-on expertise and technical proficiency.

CAREER PATHWAYS

The Electrical Applications Program prepares students for a wide range of postsecondary options and career opportunities in the electrical field. Students learn direct current (DC) and alternating current (AC) theory, Ohm's Law, wiring, drawing, building, and troubleshooting real circuits. The program provides hands-on experience in residential, commercial, and industrial electrical applications, along with exposure to modern technologies such as home automation and green (sustainable) energy systems. Safety practices are emphasized throughout the program. Students who complete the program may qualify for entry into IBEW Local #102 and are well-positioned to apply for New Jersey electrical contracting licenses.

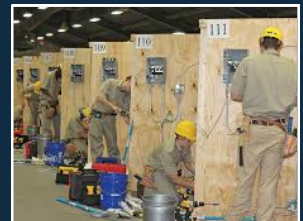
Students who continue to post secondary education combine their technical training with strong academic coursework such as mathematics and physics to prepare for a two- or four-year college program. Many pursue degrees in electrical engineering, electronics technology, or related fields. This pathway can lead to careers as electrical engineers, systems designers, controls engineers, or research and development professionals.

EVENTS/TRIPS

Students in the Electrical Applications Shop attend numerous field trips, Union Workforce Development, and many trade specific events.

GO FOR THE GOLD AT SKILLSUSA!

Electrical students compete at SkillsUSA each year, showcasing their talents across various categories. These include Electrical Construction Wiring, and Basic Residential Wiring. These events offer a valuable opportunity for students to refine their skills, gain recognition, and prepare for successful careers in the Electrical industry.



For More Information

Mr. Ken Wene
wenek@wctech.org

admissions:
admissions@wctech.org



MEET THE INSTRUCTOR

Mr. Ken Wene began his career as an auto/diesel mechanic before discovering his passion for the electrical field while working part-time with a friend. In 1991, he started his journey as an electrical apprentice and attended Somerset County Vocational School for four years. By 1996, Ken had earned his Master Electrician's license and, the following year, founded his own electrical contracting business, which he successfully operated for 27 years.

In 2009, Ken returned to school to become a Career and Technical Education (CTE) teacher, driven by a desire to give back to the electrical community and help prepare the next generation of electricians for success in the trade.



Electrical Applications

Course Outline

ELECTRICAL APPLICATIONS 1

- Electrical theory: Ohm's Law, voltage, current, resistance, and basic circuits
- Introduction to AC/DC systems
- Electrical units, components, and symbols
- Workplace safety: OSHA regulations, PPE, and shop safety rules
- Basic hand tools and equipment usage
- Simple circuit building on breadboards
- Wiring basic outlets and switches in a lab environment

ELECTRICAL APPLICATIONS 3

- Commercial wiring techniques: conduit bending, cable tray, panels
- Three-phase systems, motors, and control circuits
- Transformers, subpanels, and distribution systems
- Advanced troubleshooting techniques
- NEC application in commercial settings
- Installing motor control circuits
- Wiring commercial lighting and small control panels
- Simulating real-world industrial troubleshooting scenarios
- Introduction to industry-standard certifications (e.g., tool-specific, multimeter usage)
- Teamwork and project planning

ELECTRICAL APPLICATIONS 2

- Branch circuits, outlets, lighting, and receptacles
- Service panels, circuit breakers, grounding, and bonding
- Reading and interpreting residential blueprints and wiring diagrams
- NEC 310 & 220 tables: ampacity and load calculations
- Introduction to electrical testing and troubleshooting
- Residential room wiring (lights, outlets, and switches)
- Testing circuits with multimeters and continuity testers
- Tool and equipment proficiency
- Safety and professional workplace habits

ELECTRICAL APPLICATIONS 4

- Advanced residential, commercial, and industrial wiring projects
- Electrical system design and planning
- Advanced troubleshooting and preventative maintenance
- Career pathways and apprenticeship preparation
- Preparing for post-secondary education or industry certifications
- Capstone project: full-scale wiring of residential, commercial, or industrial system
- Simulation of service calls, troubleshooting, and repair scenarios
- OSHA 30-hour certification
- Resume building, interview preparation, and workplace professionalism
- Exposure to apprenticeships and employment opportunities in the electrical trade