GREAT PLAINS TECHNOLOGY CENTER
COURSE OF STUDY

Career Cluster: Architecture and Construction (AC)

Career Pathway: Construction

State Program: Electrical Trades (AC0036003)

Local Program: Electrical Level I (AC0030019)

Program Hours: Secondary Students: 1000 Hours
Adult Students: 1000 Hours

Instructor: Name: Bryan Gilland
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Academic Credit: Secondary Students: 3 high school credits per year
Adult Students: Transcript

Prerequisites: None

Program Description:
This program will introduce students to the safety practices, use of hand and power tools/equipment and electrical theory related to the electrical industry.

Program Goals:
Students enrolled in this program will be given the opportunity to develop the skills and attitude needed to successfully enter the electrical field

Related Career Opportunities:
- Entry Level Electrician's Assistant

Program Objectives:
Upon successful completion of this program, the student should be able to:
- Demonstrate knowledge of basic electrical theory as it applies to residential wiring.
- Use test instruments to test and troubleshoot electrical circuits.
- Apply fabrication skills to construct and install wiring circuitry.
- Demonstrate proper use of various residential wiring tools.
- Properly wire residential circuits per N.E.C. specifications.
- Rewire/add new electrical circuits to existing dwellings per N.E.C. specifications.
- Troubleshoot and repair faulty electrical circuits.
- Complete a cost - estimate for a given job.
- Demonstrate proper job applications procedures.

DESCRIPTION OF COURSES

Course #	Course Name	Theory	Lab	Total

TI00771 General Construction Safety and First Aid 60 0 60

This course provides an overview of the electrical trade and discusses the career paths available to electricians. The instruction covers safety rules and regulations for electricians. The course will also discuss the necessary precautions to take for various electrical hazardous found on the job. The course covers the OSHA-mandated lockout/ tag out procedure. A teacher led material recognition study will be a component of this course.

TI00204 Electrical Theory In Construction 30 0 30

The course introduces the student to series, parallel, and series-parallel circuits. Resistive circuits, Kirchhoff's voltage and current laws, and circuit analysis is covered. This course focuses on forces that are characteristic of alternating-current systems and the application of Ohm's law to AC circuits.

TI00775 Commercial Wiring Methods 100 290 390

Commercial Wiring Methods is a comprehensive course within the electrical program designed to equip students with the knowledge and hands-on skills needed for commercial electrical installations. The course covers electrical circuits, the use of test equipment, and essential grounding and bonding principles. Students will explore electrical theories and laws, interpret construction drawings, and learn about various types and applications of conductors. Proper wiring techniques, National Electrical Code (NEC) requirements, and NFPA standards are emphasized to ensure safe and code-compliant installations. Through practical exercises and real-world applications, students gain the foundational skills required for careers in commercial electrical work.

TI00893 National Electrical Code In Construction 125 125 250

This course prepares the student to locate and interpret specific standards in the NFPA National Electrical Code. Instruction includes load calculations, conductor sizing, conduit fill calculations, and standards for wiring practices.

TI00204 Electrical Wiring Installations 50 90 140

During this course, the student will learn the various wiring methods used in different types of structures. The wiring methods include hardware and systems used to mount and support boxes, receptacles, and other electrical components. It covers an introduction to conduit bending and installation. The course will include techniques for using hand operated and step conduit benders, as well as cutting, reaming, and threading conduit. Driven by NEC, the course discusses the selection and size of pull boxes, junction boxes, and handholds. The student will focus on the handling and installation of various types of lamps and lighting fixtures.

TI00206 Electrical Distribution in Construction 30 60 90

This specialized course focuses on the safe and efficient distribution of electrical power. Students will learn proper conductor terminations and splicing techniques, ensuring secure and reliable connections. The course covers the installation of various types of lighting fixtures, emphasizing proper placement, wiring methods, and energy efficiency. Overcurrent protection principles, including the selection and application of circuit breakers and fuses, are also explored to safeguard electrical systems.

TI00776 Motor Theory and Operation in Construction 5 15 20

This course covers AC and DC motors, including the main components, circuits, and connections.

TI00802 Workforce Staging 0 20 20

This course is an integrated component within the courses taken by the individual student. The course is

for the development of leadership, personal development and employability.

Program Total:	**Theory**	**Lab**	**Total**
Secondary Student:*	400	600	1000
Adult Student:	400	600	1000

* High school students may complete this program in an adult enrollment status if necessary. Please see your instructor or counselor for details.

Evaluation Policy:

Employability Grades (100 points per week; 30% of final grade)
The employability skills grade is based on 20 points per day (which may include: attitude, attendance, safety, punctuality, cooperation, participation, clean-up, class preparation, school/classroom rules, and time management). Points will be deducted if these responsibilities are not met at the instructor's discretion. Students will be allowed to make up unearned employability points for **excused** absences only. Full credit will be given for assignments/tests that have been made up due to excused absences only (see Student Handbook).

Performance Grades (35% of final grade)
- Live projects
- Performance or skill tests
- Homework
- Written Assignments

Test Grades (35% of final grade)
- Test grades will be based on a 100-point scale.
- Test grades include written and/or skills tests.
- A test will be given for each unit of instruction.
- Tests are to be taken as a unit is completed.
- Tests must be completed within allotted time.

Final Grade
Semester grade will be calculated by averaging grades in each category and summing each category according to their assigned weight. Progress reports will be sent to home schools at six and twelve-week intervals each semester as required or requested. Grades are accessible on- line at http://sonisweb.greatplains.edu/studsect.cfm

Grading Scale:
The grading scale as adopted by the Board of Education is as follows:

A =	90 – 100	F =	Below 60
B =	80 – 89	W =	Withdrawn
C =	70 – 79	I =	Incomplete
D =	60 – 69	N =	No Grade (Refer to Student Handbook)
		S =	Satisfactory

Make-Up Work Policy:
All Make-Up Work Is The Responsibility Of The Student. Make-up work will be handled as specified in the Student Handbook. Please be sure to read and understand all student policies, especially make-up of assignments, tests and employability due to absences. Students should always arrange for any

make-up work with the instructor as per the Student Handbook. Students should keep track of his or her progress and grades.

Attendance Policy:
For specific information related to attendance and tardiness refer to the Student Handbook. Students should keep a written record of their absences and tardiness.

Course Requirements and Expectations:
The general course requirements and expectations include:

- Teaching methods consist of lecture and "hands-on" projects.
- The student must demonstrate the ability to apply safety to all aspects of the electrical field.
- It is recommended that the student meet with the teacher and their parents at least once per semester.
- All students must adhere to the policies and procedures in the GPTC Student Handbook.
- SkillsUSA is the student organization for the residential electrical field. This club offers an outstanding opportunity to develop leadership and social skills. Students are highly encouraged to participate.
- It is highly recommended that the student have purchased or attained the required tools and equipment for employment as an electrician's assistant. Possessing a valid driver's license will also benefit the student and is recommended.
- Students will be required to purchase tools throughout the program. Instructor will provide advanced notice of required tools as well as most affordable, high-quality options as the program progresses.

Student Behavior Includes:

- Safety precautions prohibit the wearing of tank tops, sleeveless shirts and visible body piercings.
- The required class dress is a program t-shirt with jeans or shorts and work boots or shoes. T-shirts cost $10.00 each and are paid for by the student.
- Students will also be expected to wear their student ID badge appropriately any time they are on campus. This includes break times.
- Student ID badges will not be altered in any way or be required to purchase a new one.
- Students will wear shoes that completely cover the feet.
- Students will wear clear safety glasses at all times while in the shop environment and may not be altered without specific permission of the instructor. Clear prescription glasses will be permitted.

These rules are in addition to the Student Handbook. Students will be provided a wall-locker and lock to secure all items.

NOTE: For additional information or questions regarding the GPTC School policies and procedures, please refer to the Student Handbook and/or the Instructor.

Industry Alignments:

- National Center for Construction Education and Research (NCCER)
- Oklahoma Construction Industry Board (OCIB)

Certification Outcomes:

Certifications Endorsed by Industry Organizations

- ODCTE: Construction Trainee (3001)

Certifications Aligned with National Standards

- ODCTE: Commercial Industrial Electrician's Assistant (3201)

- ODCTE: Residential Electrician's Assistant (3202)
- ODCTE: Electrical Level I (3253)
- OSHA 10-Hour Construction (5303)
- Electrical Apprenticeship

CIP Code and SOC Code Crosswalk:
- CIP Code – 46.0302
- SOC Code – 47-2111.00

OCAS program code:
- 9058 – Electrical Trades
- 9086 – Electrical Trades-Specialized

Instructional Materials:
Students are required to purchase the following list of textbooks and/or supplemental reference materials. The prices listed are approximate and subject to change.

Textbooks:

Benfield, Jack. Benfield Conduit Bending Manual & Workbook (2 set). 2nd ed. 0-87288-510-0. Overland Park: Ec & M Books, 1993. ($54.00)

Hart, George, and Sammie Hart. UGLY'S Electrical References. 4th ed. 978-1-4496-9077-9. MA: Jones & Bartlett Learning, 2014. ($22.00)

National Center for Construction Education and Research (NCCER). Core Curriculum: Introductory Craft Skills, Trainee Guide. 4th ed. 013608637-3. Upper Saddle River: Pearson, 2009. ($67.00)

National Center for Construction Education and Research (NCCER). Electrical Level 1 Trainee Guide. 8th ed. 978-0-13-3829594. Upper Saddle River: Pearson, 2014. ($84.00)

National Center for Construction Education and Research (NCCER). Electrical Level 2 Trainee Guide. 8th ed. 0-13383065-9. Upper Saddle River: Pearson, 2014. ($122.00)

National Center for Construction Education and Research (NCCER). Electrical Level 3 Trainee Guide. 8th ed. 0-13383082-9. Upper Saddle River: Pearson, 2014. ($110.00)

National Electrical Code (NEC). National Fire Protection Association. 978-145590672-7. 2023. ($93.00)