# Electrical & Security Systems Course No. 17113 Credit: 0.5

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| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes: **Construction & Design (46.0000) - Construction Strand**; Manufacturing (48.0000) - Maintenance Strand

Course Description: An **application level** course designed to provide students with the knowledge and skills needed to install, troubleshoot, and maintain electrical and security systems. (Prerequisite: 17002/Carpentry.)

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 0: The following competencies are to be taught within ALL application level courses offered in your school's approved pathway.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 0.1 | Demonstrate an understanding of industry standards for personal safety including the safe use of tools, equipment, and hazardous materials. |  |
| 0.2 | Demonstrate time management skills. |  |
| 0.3 | Create and utilize employment documents including a resume and portfolio. |  |
| 0.4 | Demonstrate job seeking and interview skills. |  |
| 0.5 | Understand and respond to performance reviews. |  |

## Benchmark 1: Click or tap here to enter text.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Cut, ream, thread, and bend conduit. |  |
| 1.2 | Compute branch circuit loads and explain installation requirements. |  |
| 1.3 | Demonstrate the procedure for safely using a clamp-on ammeter and a voltage tester. |  |
| 1.4 | Demonstrate procedures for installing raceways and boxes. |  |
| 1.5 | Demonstrate ability to correctly pull wire through conduit. |  |
| 1.6 | Select and install appropriate service entrance equipment according to codes. |  |
| 1.7 | Demonstrate the ability to properly ground electrical circuits according to codes. |  |
| 1.8 | Install breakers, plugs, and switches. |  |
| 1.9 | Explain basic characteristics of series and parallel circuits. |  |
| 1.10 | Recognize and install various types of lighting fixtures. |  |
| 1.11 | Describe characteristics and functions of various fire alarm systems. |  |
| 1.12 | Describe characteristics and functions of various security and burglar alarm systems. |  |
| 1.13 | Describe the uses, characteristics, and theory of low voltage systems. |  |
| 1.14 | Demonstrate knowledge of the uses and installation process for Closed Circuit TV. |  |
| 1.15 | Describe the components of and uses for electric lock hardware. |  |
| 1.16 | Demonstrate safe use of electric hand and power tools. |  |
| 1.17 | Understand and interact with LAN systems as a part of an overall security installation. |  |
| 1.18 | Demonstrate ability to install a lightning protection system. |  |
| 1.19 | Troubleshoot and repair problems in lighting fixtures, including ballast replacement. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

pathwayshelpdesk@ksde.org



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

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