2.3 INFORMATION COMMUNICATION TECHNOLOGIES – COMPUTERS AND ELECTRONICS

IoT Security Technician Skill Zone – CSSIA.ORG

2. Information Communication Technologies

2.3 Computers and Electronics

1. Explain the vulnerabilities related to computers and electronics.
2. Describe the purpose and operation of computer components including the CPU, Memory and Input/output devices.
3. Identify the tools and explain the steps to secure the hardware and peripheral equipment of a system.
4. Describe circuit analysis as related to system security.
5. Describe the use and security vulnerabilities related to the following communication protocols; ZigBee, Modbus, M-Bus, and IEC 62056.


Computers and Electronics

Computers and Electronics can be defined as the basic electronic principles including voltage, electrical current, resistance, power, frequency, inductance and capacitance. The IoT security technician must have a working knowledge of these principles and the ability to measure and troubleshoot electronics and electrical circuits. Other critical knowledge and skills would include the understanding of computer circuitry including CPU’s, data and address busses, input/output circuitry and memory.

Technicians must also have the ability to calculate power requirements, troubleshoot power supplies and other electronic circuits. Finally, security technicians must understand the vulnerabilities in security controls necessary to protect computer electronics.
Existing Course Cross Reference

Cisco Networking Academy Courses
IT Essentials
Introduction to IoT

Cisco Partner Courses
IoT and ICS Security Controls (CSSIA.ORG)
ICS and SCADA Security (CSSIA.ORG)

Non-Cisco Partner Courses
Internet of Things - Innovation Labs - Wyliodrin IoT Summer School
Introduction to the Internet of Things and Embedded Systems - Coursera

Curriculum Resources

Videos
YouTube.com – Introduction to Breadboarding
YouTube.com – Breadboarding Part 2
YouTube.com – Ohms Law
YouTube.com – Multimeters
YouTube.com_Tutorial 01 for Arduino: Getting Acquainted with Arduino (15) Videos

Web Links
Configuration Management: Best Practices
White Paper
SANS Institute InfoSec Reading Room, Secure Configuration Management Demystified
NIST Special Publication 800-82 Section 6.2

Textbooks
Raspberry Pi Networking Cookbook
Chapter 1, 2, 3, 4, 5, 6, 7

IoT: Building Arduino-Based Projects
Chapter 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Assessment Resources

Labs
None

Quizzes/Exams
CSSIA CISSP Course
Security Operations – Chapter Exam

Quizlet.com
Ohms Law Flashcards
Solving Ohms Law Problems Flashcards
Breadboarding
Multimeters
Connecting an Arduino