Prepares the technician to troubleshoot and change parameters on Allen Bradley VFD. For the class we use a Powerflex 525 and a Control Logix PLC.

1. Understand the function, parameters, various configuration methods and troubleshooting of an
	Allen Bradley PowerFlex VFD's
2. Safety concerns when operating high voltage 3 phase drives.
	2.1. STO (safe torque off) wiring considerations
	2.2. LOTO (lock out tag out) concerns
3. Review basic principles of AC Induction Motors
	3.1. Faraday and Lorentz Law
	3.2. Difference between RMS and PV
	3.3. Calculating motor rotation speed based on motor poles and input AC frequency
4. Basic principles of inverter drives
	4.1. Bridge rectifiers and DC bus capacitors
	4.2. Operation and understanding of insulated gate bipolar transistors (IGBT)
	4.3 Understanding pulse width modulation (PWM)
		4.3.1. How to adjust carrier frequency and why carrier frequency matters
5. Troubleshooting of solid state equipment with multi-meters
	5.1. Testing input and output diodes
	5.2. Testing D/C capacitors
	5.3. Testing IGBT for failures
6. Common drive faults, failures, and intelligent troubleshooting.
	6.1. How to prevent drive failures.
7. Operating the drive using the human interface module (HIM)
8. Operating the drive using hardwired I/O
9. Configuring the drive to access a network
	9.1. Using the HIM to set IP address
	9.2. Using Allen Bradley BootP
	9.3. Using Allen Bradley Connected Components Workbench
10. Integrating the drive into a Control Logix program
	10.1. Understanding how the drive and plc share data
	10.2. Operating the drive though the PLC program
11. Using GSV and SSV instructions
12. Introduction to Connected Components Workbench (CCW)
13. Understanding firmware revisions and how to flash a drive
14. Configuring the HIM through a USB connection and (CCW)