REQUIRED SKILLS AND KNOWLEDGE – UEENEEH111A		
KS01-EH111A **Single phase input d.c. power supplies**		
Topic and Description	**NIDA Lesson**	**CARD #**
T1. power supplies operating principles and applications • Power supply function • Block diagram identifying each sub-system • Expected waveforms in a power supply • Constant Voltage • Constant Current	5021-518-130 Introduction to Power Supplies and Diode Rectifiers . . . . . --- ▪ Describe the purpose of power supplies. ▪ Describe the sections of a typical power supply. ▪ Identify half-wave rectifiers. ▪ Identify full-wave rectifiers. ▪ Identify bridge rectifiers.	
T2. D.C. rectification circuits • Junction diode characteristics • Transformer turns ratio and losses • Half wave and full wave rectifiers • Dual rail supply	5021-518-160 Full- and Half-Wave Rectifier Operation ▪ Identify full- and half-wave rectifier circuits. ▪ Identify the purpose of individual rectifier components. ▪ Describe rectifier operating characteristics. ▪ Measure the input and output waveforms of half and full-wave rectifiers. ▪ Recognize normal operation of half and full-wave rectifiers. 5021-518-190 Bridge Rectifier Operation ▪ Identify bridge rectifier circuits. ▪ Identify the purpose of individual bridge rectifier components. ▪ Describe bridge rectifier operating characteristics. ▪ Measure the input and output waveforms of a bridge rectifier. ▪ Recognize normal operation of a bridge rectifier.	23 24
T3. Filter circuits • Capacitive and inductive filters • Ripple	5021-316-430 RL Filters ▪ Identify RL filter circuits. ▪ Describe RL filter circuit characteristics. ▪ Calculate RL filter circuit values. ▪ Measure RL filter circuit values. ▪ Compare measured RL filter circuit values with calculated circuit values. 5021-318-490 RC Filters .	16B 14A,

	▪ Identify RC filter circuits. ▪ Describe RC filter circuit characteristics. ▪ Calculate RC filter circuit values. ▪ Measure RC low pass filter circuit values. ▪ Compare measured RC low pass filter circuit values with calculated circuit values. ▪ Measure RC high pass filter circuit values. ▪ Compare measured RC high pass filter circuit values with calculated circuit values.	14B

T4. Zener diode regulator • Zener shunt regulator circuit • Load and line regulation definitions • Operating parameters and data sheets •	5021-518-250 Zener Diode Operation . ▪ Identify a zener schematic symbol. ▪ Identify the purpose of a zener diode. ▪ Describe the operation of zener diodes. ▪ Recognize the proper method of using a multimeter to verify zener diode operation. ▪ Predict the voltage drop of a reverse biased zener diode. ▪ Measure the voltage drop of a reverse biased zener diode. ▪ Recognize normal operation of a zener diode.	22B
T5. Three terminal regulator circuits • Need for regulation • Three terminal regulator characteristics • Short circuit protection • Line and load regulation • Regulated power efficiency • Remote voltage sensing •	5021-518-220 Introduction to Voltage Regulators . ▪ Describe the purpose of series voltage regulators. ▪ Describe the operation of basic series voltage regulator circuits. ▪ Describe the purpose of parallel voltage regulators. ▪ Describe the operation of basic parallel voltage regulator circuits.	

T6. Electronic testing and measuring devices and techniques
• Test/measuring devices and their application - analogue and digital multimeters, voltage and digital testers, signal generators and oscilloscopes
• Connection of test/measuring devices into a circuit encompassing:
  • safety procedures
  • circuit arrangement of test/measuring devices
• Taking readings
• Storage, maintenance and care of test/measuring devices		

T7. D.C. power supply testing and fault finding • Rectifier diode faults	5021-518-910 Power Supplies Post-Test (Theory)	

• Zener diode faults • Three terminal regulator faults		
T8. OH&S Apply safe working practices and relevant Standards, Codes and Regulations		

Performance tests available for this Competency:

5021-518-960 Power Supplies Post-Test (Performance) . . . . . .Cards: 23W, 25W, 26W