Print Date: 7/29/14

Course Objectives/Course Outline
Spokane Community College

Course Title:	**Practical Electricity**
Prefix and Course Number:	**ELMT 131**

Course Learning Outcomes:
By the end of this course, a student should be able to:
Learning/Performance Outcomes:

- design and troubleshoot basic rectifier circuits
- explain the operation of filters and regulators
- troubleshoot basic power supplies
- design and troubleshoot power controller and switches
- effectively utilize diode and transistor data and specification manuals
- utilize simple schematic diagrams

*Two, three, and four credit class content will be determined from input provided by faculty from individual programs which have specific electrical requirements.

Course Outline:

I. Oscilloscope Operation
   A. Setup
   B. Voltage Measurements
C. Frequency Measurements
II. Diodes
   A. P/N Junction Theory
   B. Photocell Operation
   C. Forward and Reverse Biasing Techniques
   D. Uses
      1. rectifiers
      2. switches
      3. limiters
      4. regulators
III. Transistors
   A. Bi-polar
   B. Field Effect
   C. Theory and Uses
      1. DC biasing
      2. switching
      3. identification
      4. troubleshooting
IV. Thyristors
   A. Diacs
   B. Triacs
   C. SCR's
   D. Theory and Uses
      1. controllable rectifiers
      2. power controllers
      3. sequential switching
      4. identification
      5. troubleshooting

E. Symbols and Diagrams

V. Lab Experiments
   A. Semiconductor Material Testing
   B. Diode Testing
   C. Current & Voltage Characteristics of a Diode
   D. Zener Diode Testing
   E. Zener Diode Voltage Regulation
   F. Bipolar Transistor Testing
   G. Transistor Operating Regions
   H. FET Testing
   I. FET Characteristics
   J. SCR Testing
   K. SCR Troubleshooting
   L. SCR Applications
   M. Triac Testing
   N. Triac Power Control
   O. UJT Testing
   P. UJT Characteristics
   Q. LED Testing
   R. LED Operation
   S. Photo-diode Operation
   T. Photo-transistor Operation
   U. Halfwave Rectifier Circuit
   V. Fullwave Rectifier Circuit
   W. Fullwave Bridge Circuit
   X. Oscilloscope Operation/Troubleshooting
   Y. Diagram Interpretation