

Thaddeus Stevens College of Technology

Electronics Technology Department

Program Focus

- ❖ **Electronic Component Characteristics**
- ❖ **Circuit Analysis Techniques**
- ❖ **Common Circuit Analysis**
- ❖ **Schematic Capture and Simulation (MultiSim/EWB)**
- ❖ **Circuit Prototyping (Protoboard, Discrete Component Construction, Wire Wrap, Circuit Board Layout)**
- ❖ **Logic Gates and Boolean Representation of Circuits**
- ❖ **74 Series Digital Logic ICs and Other Technologies (CMOS, BiCMOS)**
- ❖ **Functional Logic Circuits (Combinational Logic Circuits, Sequential Logic Circuits, Multiplexers, Encoders, Decoders, Counters, Registers, Timers, Arithmetic Circuits, . . .)**
- ❖ **Digital Circuit Analysis (Truth Table, Boolean Expressions, Logic Circuits, State Diagrams)**
- ❖ **Programmable Logic Devices (PALs, GALs, CPLDs, FPGAs: Programming and Application)**
- ❖ **Microprocessor/Microcontroller-Based Systems (68HC11, Microchip PIC families, Basic Stamp , Interfacing, PC-Related, Machine/Assembly Language Programming)**
- ❖ **System and Circuit Troubleshooting (Component Level!)**
- ❖ **Surface Mount Technology (SMT)**
- ❖ **Programmable Logic Controllers (PLCs: Allen-Bradley, Koyo, & Siemens)**
- ❖ **PLC Ladder Logic and IEC 61131-3 Languages (RSLogix 500, RSLogix5000, Simatic Step 7, LD, FBD, IL, ST, and SFC introduction)**

- ❖ **Industrial Automation and Networking** (ASi, DeviceNet, DH+, Ethernet/IP, Hubs, Switches, Routers, Network Analysis)
- ❖ **Analog and Digital Transducers** (Proximity, Ultrasonic, Vision, Strain Gage, LVDT, Thermocouple, RTD, Humidity, Laser)
- ❖ **Motion Control** (Motor Controllers, Steppers, Servo Controllers, and Robotics)
- ❖ **Industrial Telecommunications**
- ❖ **Process Control** (PID Loop Control)
- ❖ **Data Acquisition** (SoftWire and LabVIEW, PC and Network-Based)
- ❖ **Project Based Capstone**