

## Digital Circuits for Electricians

This four-day introductory course begins with a look at fundamentals of digital electronics. A brief review of digital numbering systems and digital device construction is provided. An overview of basic logic gates is covered. The use of flip-flops, multivibrators, counters and decoders is emphasized. An introduction into the function of a microprocessor is also presented, as well as analog and digital converters. Troubleshooting digital circuits is also included in the course.

### I. Introduction to Digital Electronics

- Analog vs. Digital Devices
- Number Systems
- TTL and CMOS IC's

### II. Basic Logic Gates

- AND Circuit
- OR Circuit
- NOT Circuit
- NAND Circuit
- NOR Circuit
- XOR Circuit
- XNOR Circuit
- Boolean Expressions

### III. Flip-Flops and Multivibrator Circuits

- Data flip-flop
- J-K flip-flop
- R-S flip-flop
- Monostable Multivibrators
- Astable Multivibrators

### IV. Counters and Decoders

- Decade Counters
- Decoders

### V. Solid State Switches and Drivers

- Solid State Switches
- Array Drivers

### VI. Introduction to Microprocessor

- What is a Microprocessor
- Microprocessor Internal Construction
- Microprocessor Uses

### VII. Interfacing Digital and Analog

- OPAMP Circuits
- Analog to Digital Conversion
- Digital to Analog Conversion

### VIII. Troubleshooting Techniques

- Logic Probes and Pulsers
- Multi-Point Logic Testers