Learning with
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Learning electronics with Circuit

Powerful features for learning electronics faster

As technology becomes a critical part of education, more and more educators are relying on CircuitMaker for teaching electronics and circuit design. Not only is CircuitMaker highly effective in the classroom, it is also affordable and, most importantly, easy to learn and use. Best of all, students will be using software from a worldwide leader in the desktop Electronics Design Automation.

Fault Injection for trouble shooting exercises

The fault injection tool is perfect for creating meaningful troubleshooting exercises. CircuitMaker 2000 allows you to take a working circuit and place defects in it. Students then use the various CircuitMaker 2000 tools to locate and repair the defects. Fault types include stuck high, stuck low, open, short, wrong value or any combination.

The instructor has complete flexibility and control to provide hints and define which tools can be used for troubleshooting. CircuitMaker 2000 also provides a report of the student's activities during the exercise.

Animated devices bring circuits to life

Another example of CircuitMaker 2000's teaching tools is the animated devices. Observe the countdown to a rocket launch, and the rocket actually lifts off! Or open a window and hear a burglar alarm go off. These and other animated devices show electronics in real-life settings that are fun and interesting. These help students make the connection between theory and real-life application of electronics.

CircuitMaker 2000's animated devices include a rocket, window, race cars, stoplight and a stepper motor. These aid the learning process and make electronics fun.

Fully-interactive digital logic simulation mode

When you want pure logic simulation, CircuitMaker 2000 provides a very fast digital logic simulation mode. Completely interactive, the logic simulation responds immediately to any changes you make. Open or close a switch and see the results as they happen. LED's and seven-segment displays change immediately as logic levels change.

Like a logic analyzer, CircuitMaker 2000 will display an unlimited number of real-time waveforms during simulation. You can set edge or level breakpoints, and the simulation stops when breakpoint conditions are met. This is invaluable for education, because it allows
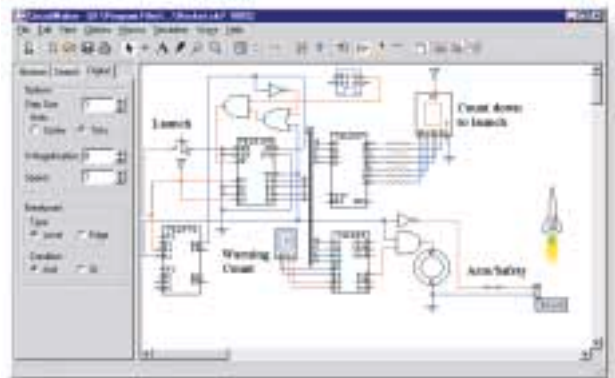
students to examine logic states throughout the circuit at a "frozen" point in time. Then you can use the Step button to advance the simulation in steps, so students can actually see how the logic levels change, giving insights you just can't get from a breadboard.

Debug faster with the unique "Trace" feature

CircuitMaker 2000's unique Trace feature is invaluable for teaching and troubleshooting digital logic circuits. When Trace is activated, the state of every node in the circuit is shown simultaneously in color as the simulation runs. Wires at logic one are shown in red, logic zero in blue, and unknown or tri-state in green. This incredible feature lets you and your students see logic states change throughout the circuit as the simulation runs. No other simulator offers this level of teaching capability for digital logic!

Affordable educational pricing

We have made the support of education a strong company focus, and as such we have in place a generous educational discount policy which offers affordable individual and site licenses on all products, for education

CircuitMaker's digital simulation mode and animated devices make learning electronics easy and fun. Students can click on switches, buttons, etc. and watch as the circuit responds. No other electronic design package offers such an interactive learning environment.

institutional labs and classrooms. These site licenses allow you to install the software on multiple computers, or on a network enabling multiple users at the same time. And best of all, if you decide later to increase the size of your license, we'll give you full credit for what you've already purchased towards the new larger license! Please contact your local Sales & Support Center or Value Added Reseller for educational and multi-user site license pricing.

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CircuitMaker® CBT - the virtual electronics teacher

With more and more educators and students around the world finding CircuitMaker to be the best learning tool for electronics, we have developed an exciting new product that caters to both the beginner and advanced electronics students!

CircuitMaker has teamed with Lab-Volt Systems to produce CircuitMaker CBT, an amazing new interactive learning system. Based on Lab-Volt's award-winning FACET system, CircuitMaker CBT teaches the basics of electronics with troubleshooting, simulation and testing exercises.

More than a computerized textbook

CircuitMaker CBT is not just a computerized textbook, it is a learning environment that allows you to work and experiment in an "indestructible" electronics lab. CircuitMaker CBT moves seamlessly from instruction to simulations in CircuitMaker. As part of the learning process you will actually build, test & trouble shoot circuits in CircuitMaker 2000 as you learn electronic concepts. And a helpful workbook lets you record the results from each experiment.

Accelerate your learning curve with interactive exercises

Each of CircuitMaker CBT's 28 units has interactive exercises, graphic presentations and question-and-answer sections to reinforce the information you are learning. When you answer questions, CircuitMaker CBT immediately highlights your correct answers, and explains why the other choices were incorrect. And at the end of each unit, you are tested on the material, and the program will record test scores and the time spent in each unit. For additional study aid, you can access on-line help anytime to review definitions, tables and formulas on any topic.

Flexible learning methods

CircuitMaker CBT gives you the flexibility to learn at your own pace. The program tracks your study, recording test scores and overall course progress. The programs flexibility makes learning easy by allowing you to go back to previous sections, review and even re-take tests whenever you need to.

Comprehensive support documentation

CBT comes complete with an interactive CD-ROM, student workbook, and answer manual. And an additional study aid can be accessed via the on-line help system to review definitions, tables and formulas on any topic. Whether you need to look up Ohm's Law or see how to measure AC voltage with an oscilloscope, the on-line help menu provides a library of valuable reference material that you can access at anytime.

Feature Highlights

- 4 Major courses with 28 Units covering analog and digital electronics
- Exercises and tests in each unit
- Over 200 interactive CircuitMaker simulations
- Workbook and answer manual
- On-line test grading and progress tracking
- On-line help, formulas and definitions
- Courses covering AC & DC concepts and analog and digital devices

CircuitMaker® CBT Courses

DC Concepts

DC Fundamentals
- Electronics Quantities
- Ohm's Law
- Series Resistive Circuits
- Parallel Resistive Circuits
- Power in DC Circuits

AC Concepts

Magnetism/Electromagnetism
- Magnetism
- Electromagnetism

AC Fundamentals
- AC Measurement
- Inductance
- Inductive Reactance
- Capacitance
- Capacitive Reactance

Analog Device Concepts

Semiconductor Fundamentals
- Diode and Half-Wave Rectification
- Full Wave Rectification
- Transistors Load Lines and Gains

Transistor Amplifier Circuits
- Common Base Circuit
- Common Emitter Circuit
- Common Collector Circuit

FET Fundamentals
- Junction FET's
- JFET Amplifier

Op Amp Fundamentals
- The Operational Amplifier

Digital Device Concepts

Digital Logic Fundmetnals
- Fundmental Logic Elements
- Exclusive OR / NOR Gates
- Open Collector and Other TTl Gates
- Tri-State Output
- Flip-Flops
- JK Flip-Flops

Digital Circuit Fundamentals
- 4-Bit Adder