

# How to Use the WRE Modules

- **Module Components and Study Tools**
- **Viewing and Printing Text and Graphics**

# Work-Ready Electronics Modules

Work-Ready Electronics (WRE) modules contain concise information on a variety of technical topics. These topics and associated knowledge and skills have been identified by industry employers and electronics faculty as important to technicians. The modules were created, because many of these topics are not well covered or are missing from electronics textbooks. Some of the topics are quite new or “emerging” in the field of electronics and may not be familiar to all electronics instructors. For this reason, instructors may expand their own knowledge by using WRE modules.

Because the instruction is provided in a modular format, instructors can assign all learning activities to students or only specific activities they have time to cover. Students are welcome to complete modules or parts of modules any time they wish, free of charge!

**You can print this tutorial to use later as reference.**

# Information for Faculty

Instructors are encouraged to read the **Faculty Guide for Modules**, located in the **Faculty-Only Materials** on the web site. The Guide provides details on the web site, modules, and learning activities.

To access Faculty-Only Materials, you must be an instructor at a recognized college or learning or training institution. You will need to complete an “Faculty Access” form that is printable and can be faxed to WRE administrators. To access this form, click on the **Modules** menu option from the WRE home page, read instructions, print the form, complete it, and fax it to WRE. You will receive a user name and password within one to two days.

WRE modules address technician-level knowledge and skills—knowledge and skills for students in A.A. and A.A.S. degree programs.

# Information for Students

Whether you have been directed to complete WRE modules by your instructor or are working on your own, WRE provides you with knowledge and skills that are important to companies that hire technicians. The topics that modules cover have been identified by industry experts as key areas that may qualify you for today's best jobs.

The modules are easy to use, but if you need help, a "HELP" option is available in each module as you are studying on the web. You should follow your instructor's directions for completing each module, but all activities have procedures and directions to help you. To get to the modules, all you need to do is fill in the radio buttons and highlight which module you'd like to perform and click the launch button (shown in next slide).

# Module Page

## STUDENT MODULE ACCESS

Introduction to Electronics  
Electronic Circuits  
Electronic Careers  
Switching Power Supplies  
Fourier Theory  
Switching Amplifiers  
Data Conversion Part 1 and Part 2  
Phase-Locked Loops  
Alternative Energy  
Portable Power Technology

Before accessing the Work-Ready Electronics modules, please fill out the form below:

I am a(n):  Instructor  Student  Visitor

I am associated with a(n):  High School  Two-year college  Four-year college  
 Technical institute  Company  Other

I am employed in:  Electronics  Other profession  Not employed

Select the module you would like to launch and press the Launch button.

Electronic Careers [v] [Launch]

– Select –

Introduction to Electronics

Electronic Circuits

Electronic Careers

Switching Power Supplies

Fourier Theory

Switching Amplifiers

Data Conversion, part 1, Digital to Analog

Data Conversion, part 2, Analog to Digital

Phase-Locked Loops

Alternative Energy

## System Requirements

The WRE modules require  
Macromedia [LINK]

If you are using assistive  
technology, please contact us at  
[sysadmin@work-ready.com](mailto:sysadmin@work-ready.com)

## FACULTY-ONLY MATERIALS

[Click here to log in](#) [v]

**Instructors: Get access to answer keys, tests, WRE teaching resources and save up to 20% on Multisim 7:** Download the Faculty-Access form (pdf), print it, and follow directions on the form. Your user name and password will be emailed to you within 1-2 business days. [Click here to download the form.](#)

Students highlight the module here and click launch

Instructors click here to register for user name and password for Faculty-Only Materials

# Description of Module Components

1. When you click on a module link, the **Course Materials** page appears. It contains the first items you should complete in a module.
2. The **Learning Resources** page contains various learning activities that you can complete after the course materials.
3. The **Glossary** provides a small window that contains definitions of new or technical terms found in the WRE modules.
4. The **Notebook** provides a small window that enables you to create and save your own notes when studying module content.
5. The **Exit** option closes the module and returns you back to the main module page where you can choose a different module.

# Module Menu Choices

**Course Materials:**  
Content sections to read and study

**Learning Resources:**  
Takes you to other learning activities

**Glossary:**  
Opens window with definitions of terms

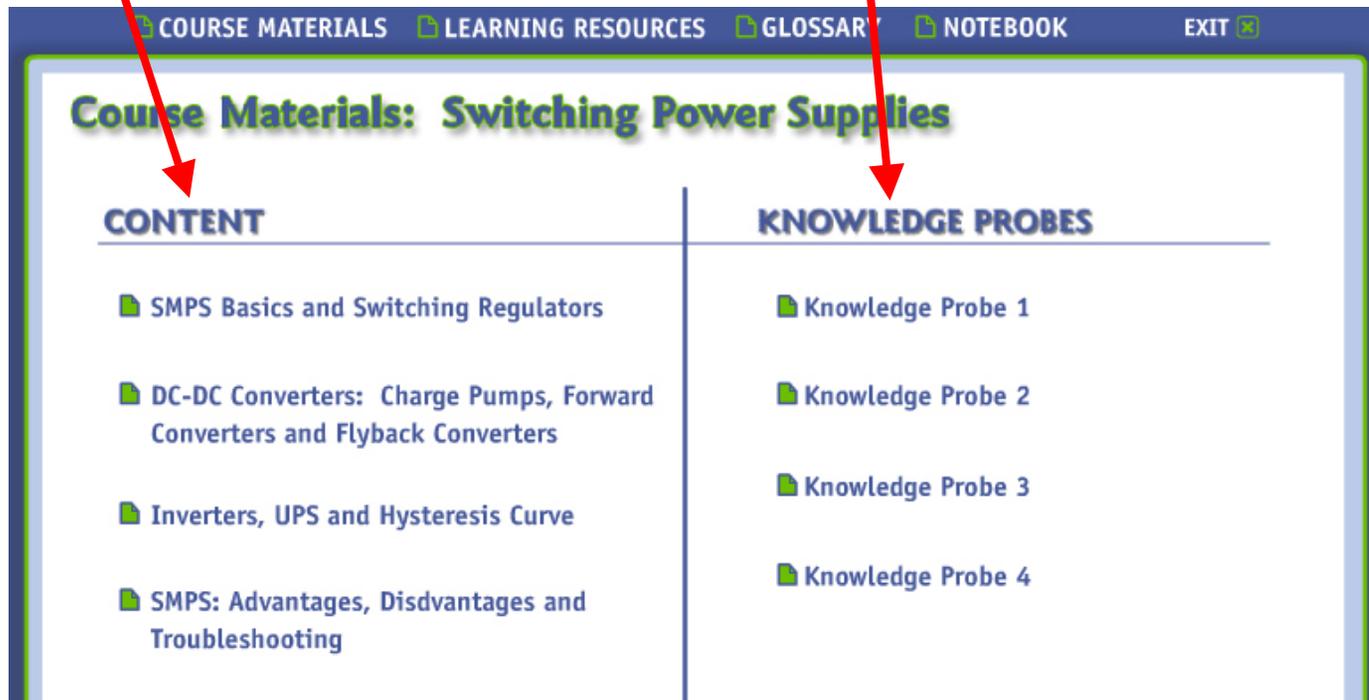
**Notebook:** Opens window that enables you to take notes and save them

**Course Materials: Switching Power Supplies**

CONTENT	KNOWLEDGE PROBES
■ SMPS Basics and Switching Regulators	■ Knowledge Probe 1
■ DC-DC Converters: Charge Pumps, Forward Converters and Flyback Converters	■ Knowledge Probe 2
■ Inverters, UPS and Hysteresis Curve	■ Knowledge Probe 3
■ SMPS: Advantages, Disadvantages and Troubleshooting	■ Knowledge Probe 4

**Content sections** are in order. Each provides a sequence of informational slides (text and graphics) on the module topic. Just click on a title to go to the slides.

After completing the first section of content, click on **Knowledge Probe 1**. Study the learning objectives, and take the quiz. You can go back to any section of the content and re-study as much as you need.



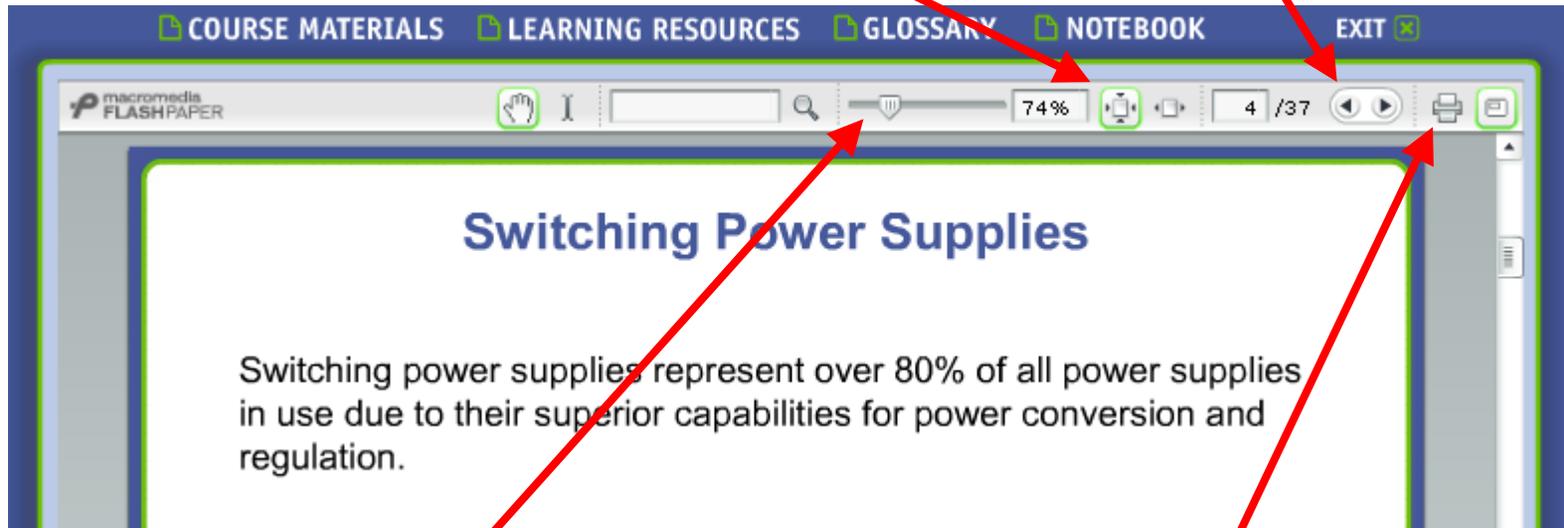
The screenshot shows a web interface for 'Course Materials: Switching Power Supplies'. At the top, there is a navigation bar with links for 'COURSE MATERIALS', 'LEARNING RESOURCES', 'GLOSSARY', 'NOTEBOOK', and 'EXIT'. Below the navigation bar, the main content area is titled 'Course Materials: Switching Power Supplies'. This area is divided into two columns: 'CONTENT' and 'KNOWLEDGE PROBES'. The 'CONTENT' column lists four sections: 'SMPS Basics and Switching Regulators', 'DC-DC Converters: Charge Pumps, Forward Converters and Flyback Converters', 'Inverters, UPS and Hysteresis Curve', and 'SMPS: Advantages, Disadvantages and Troubleshooting'. The 'KNOWLEDGE PROBES' column lists four corresponding probes: 'Knowledge Probe 1', 'Knowledge Probe 2', 'Knowledge Probe 3', and 'Knowledge Probe 4'. Two red arrows point from the text above to the 'CONTENT' and 'KNOWLEDGE PROBES' headers.

CONTENT	KNOWLEDGE PROBES
SMPS Basics and Switching Regulators	Knowledge Probe 1
DC-DC Converters: Charge Pumps, Forward Converters and Flyback Converters	Knowledge Probe 2
Inverters, UPS and Hysteresis Curve	Knowledge Probe 3
SMPS: Advantages, Disadvantages and Troubleshooting	Knowledge Probe 4

Complete each of the content sections and each corresponding knowledge probe. Then, explore the **Learning Resources**.

Click on **Fit-to-Page** tool to automatically re-size content after zooming in on a diagram.

Click on **Turn-Page** buttons to go forward or back in the section.

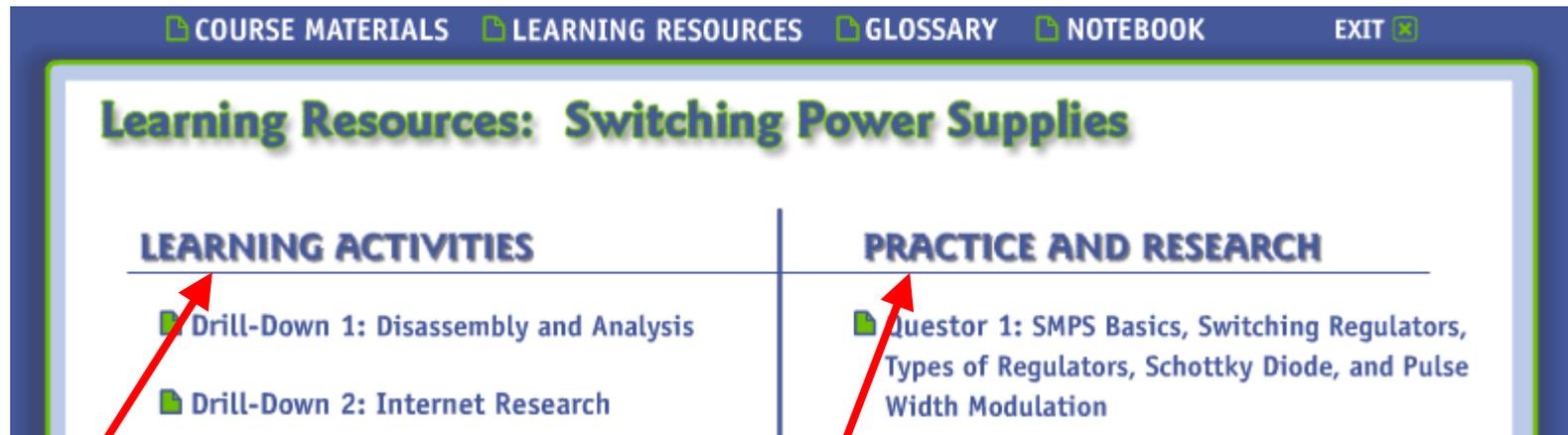


Use **Zoom** slider to increase or decrease size of text and graphics. **This is very useful when you need to study a diagram and read the small labels in diagrams.**

Click on the **Print Button** to print the section. Use only if you want to print all the slides.

# Learning Resources

After completing the content sections and knowledge probes, click on **Learning Resources** to explore a variety of activities that will help you expand your knowledge, and prepare for the Performance Assessment (final test).



The screenshot shows a navigation bar at the top with five items: COURSE MATERIALS, LEARNING RESOURCES, GLOSSARY, NOTEBOOK, and EXIT. Below the navigation bar is a header for "Learning Resources: Switching Power Supplies". The main content is divided into two columns. The left column is titled "LEARNING ACTIVITIES" and contains two items: "Drill-Down 1: Disassembly and Analysis" and "Drill-Down 2: Internet Research". The right column is titled "PRACTICE AND RESEARCH" and contains one item: "Questor 1: SMPS Basics, Switching Regulators, Types of Regulators, Schottky Diode, and Pulse Width Modulation". Red arrows point from the text blocks below to the "Drill-Down 1" and "Questor 1" items.

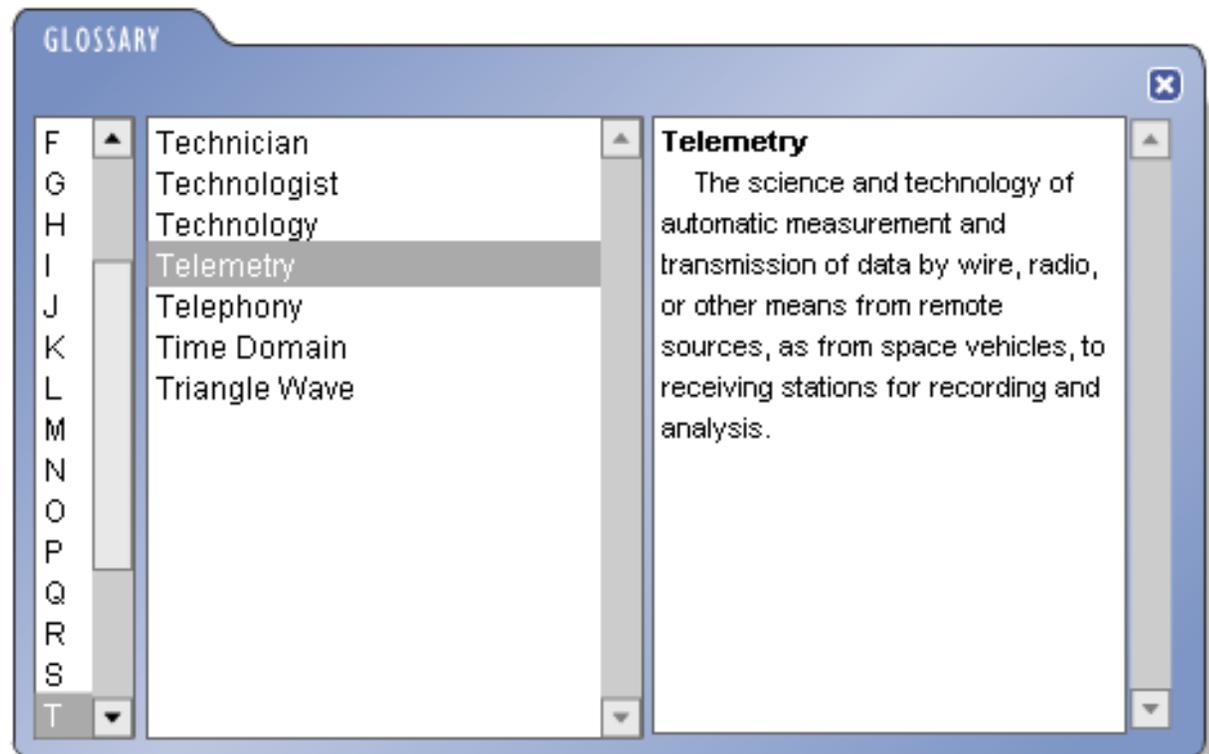
The **Learning Activities** include **labs**, **drill downs**, and sometimes special features like simulations and videos. Be sure to explore these when completing your first module.

**Practice and Research** includes a special learning game called **Questor**, **Print References** and **Web References**. Be sure to explore these. Questor and references are very useful for improving and expanding your knowledge.

# Glossary



The **Glossary** is always available to you. Click on it to bring up a window that “floats” so you can move it around while studying. Click on a letter (at the left side of the window) to bring up definitions of terms that start with that letter. You can even highlight a definition with the mouse and copy it to your notes or another document.

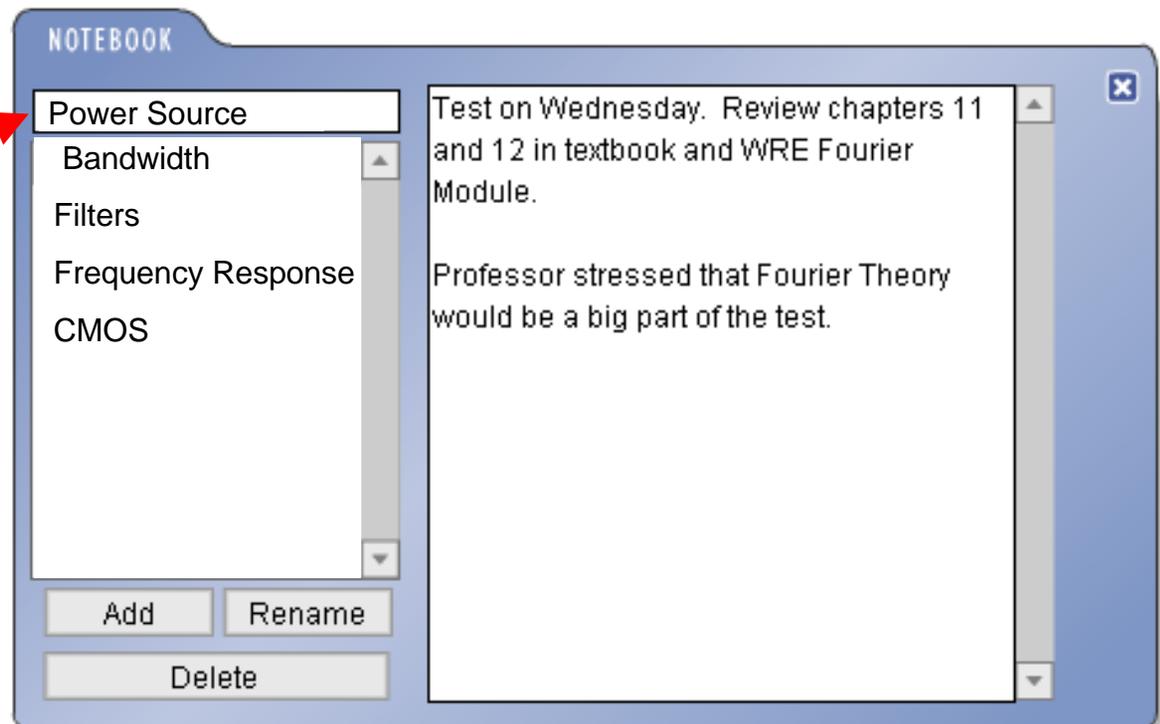


# Notebook



When you click on **Notebook** a window will pop up that is similar to the glossary. To create a note while studying:

1. Click in the field at the upper left side of the Notebook, and enter a title.
2. Click the Add button.
3. Type your notes in the window on the right side of the Notebook. Create as many different notes as you need. You can also copy and paste text into the notes window from other sources.



## End of WRE Tutorial

The tutorial does not describe all of the module components. For example, the Learning Resources (Questor, Drill Downs, Print and Web References, etc.) were not described in detail. However, they are very easy to access and use, and you can discover how best to use them by exploring them yourself. Please feel free to click on links, and explore the modules as needed to meet your learning needs and complete course assignments.