

InfoTracks

Semitracks Monthly Newsletter

ESD Design and Technology

Electrostatic discharge (ESD) costs the semiconductor industry over \$4 billion (USD) a year. This problem is likely to grow in the future, as smaller devices are susceptible to damage at lower static voltages and latchup under more subtle conditions.

Read more, Page 3



Introducing The Semitracks Learning Management System

By Alicia Constant

In the economic downturn, many companies are exploring options to reduce their training costs. The alternatives are limited: either severely downsize on-site training and negatively impact customer experience or find a more cost-effective way to train. One solution to reduce training costs is the Semitracks Learning Management System (LMS).

What is the Semitracks LMS, and how does it save your company money?

The Semitracks Learning Management System is a professional, user-friendly web software interface that enables you to manage training across your organization. You can easily add new content, track student activity, generate reports, and issue completion certificates. Secure access is controlled by ID/password login so that your materials stay protected.

Semitracks LMS saves your company time and money through increased flexibility, decreased travel costs, and standardizing training material so that everyone is on the same page.

First, the Semitracks LMS also allows students the flexibility to work training into their job schedules rather than having to take time off for a short course.

Secondly, Semitracks LMS centralizes administration, eliminating travel expenses for instructors and students. Instead, students can log on to online

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SEMITRACKS, INC.

Semiconductor, Microelectronics, Microsystems, and Nanotechnology Training

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training and immediately access the latest training content from wherever they are. Administrators can assemble and deliver learning content rapidly from anywhere in the world, as long as they have access to a computer with an internet connection.

Thirdly, Semitracks LMS saves time by making sure everyone is on the same page. With different instructors teaching on-site training courses, participants in different parts of the country can get different sets of information. However, with a centralized online training database, each participant gets one set of information, minimizing miscommunications. Additionally, Semitracks can customize and contribute our online semiconductor training content to fit your company's needs, eliminating the need for your instructors to generate more content. Semitracks has over nine years of training experience in the electronics and semiconductor industries.

LMS Features

Despite these advantages, a learning management system can be a detriment to the learning experience if it's not constructed correctly. As a student who has taken online courses on several different platforms, I've found that a learning management system needs several key features:

1. Simplicity

The system must be easy enough for a first-time user to figure out. Flashy features may look appealing. However, if the system has repeated glitches or if students can't figure out how to access learning content that is buried in a maze of links, the system can quickly become frustrating. When students spend more time figuring out how to use the LMS than learning, the system has become too complex. Semitracks LMS combines a streamlined, user-friendly interface with the features you need, making it easy to help your students focus on learning. If necessary, we can custom-build features into the learning system to better meet your needs.

2. Student-teacher interaction

For me, the key to the learning process is student-teacher interaction. In a learning management system format, it's difficult to achieve a balance of communication. A place for students to interact with expert instructors and read other students' questions and comments is

necessary to avoid confusion about training materials. As part of the LMS, Semitracks can create an online forum for student-teacher interaction. The Semitracks LMS allows student-teacher interaction to take place across the globe.

3. Flexibility for different kinds of content

Not everyone learns the same way. LMS systems geared toward one type of multimedia-- whether audio, visual, or written material-- make it harder for different types of learners to absorb the material. The Semitracks LMS offers flexibility for different kinds of content, from written text to videos to multimedia presentations. That way, the content caters to the learning preferences of different students.

In conclusion, the Semitracks LMS not only reduces costs but also fits your company and your students through simplicity, improved student-teacher interaction, and flexibility for different kinds of training content.

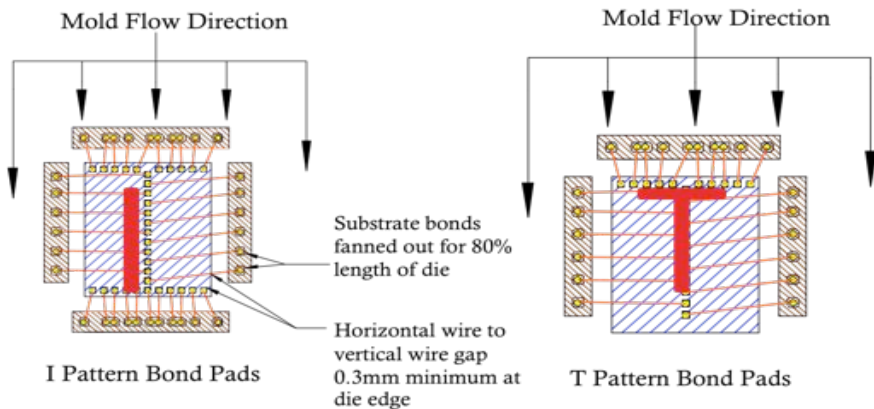
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For more information on LMS, please email info@semitracks.com

The screenshot displays the Semitracks LMS interface. At the top, there is a navigation bar with 'Main Menu' and 'Favorites'. Below this is a 'Up A Level' button. The main content area is titled 'Online Training Overview' and features a search bar, a 'This workspace' radio button, and an 'All Workspaces' radio button. A 'Workspaces' dropdown menu is set to 'Online Training Overview'. Below the dropdown are links for 'Workspace Home' and 'Additional Information', which includes 'Terms and Definitions' and 'Periodic Table'. The 'Introduction' section contains a welcome message and a diagram of a circuit board. The welcome message reads: 'Welcome to Semitracks Online Training! You will find several content areas under the "Workspaces" heading above. Each of these is broken down into Courses (Articulate presentations), Documents (Adobe Acrobat files), Videos (Flash movies), and Discussions where you can post comments about the current topic for others to read and reply to. Please note that you can change your Default Workspace in the "My Account" settings.' Below the welcome message is a diagram of a circuit board and a globe. At the bottom, there is a note: 'Once you have chosen a content workspace, you can then go into the subheadings mentioned above. Each file in those subdirectories will have a title, short description, and will also show your progress on that particular object (slides viewed, grade, complete/incomplete, and so on). There is also an internal search function located in the top right hand corner of the screen.'

Technical Tidbit

Avoiding Wire Sweep

One important design consideration is avoiding wire sweep. During assembly, the mold injection process puts stress on the wires. Sufficient flow, coupled with close wire spacing, can lead to shorts. To minimize this problem, designers can implement rules at the package and die level.



Long wire bonds (> 2.0mm) to be as perpendicular to the mold flow as possible.

Consider the two chips in the figure. The chip on the left uses I pattern bonds, where the bond pads mark a letter “I” on the die. The chip on the right uses T pattern bonds, where the bond pads mark a letter “T”. When bonding to such a device, fan out the substrate bonds, or add additional distance between each bond, to reduce the possibility of wires shorting together. Another recommendation or rule might be to establish a minimum horizontal to vertical wire gap, as shown. Finally, long wire bonds should be made as perpendicular to the mold flow as possible to reduce the possibility of wire sweep.

2010

Announcements: International Test Conference (ITC) 2010

October 31-November 1, 2010
Austin, TX, USA

International Test Conference is dedicated to the electronic test of devices, boards and systems-covering the complete cycle from design verification, test, diagnosis, failure analysis and back to process and design improvement. At ITC, test and design professionals can confront the challenges the industry faces, and learn how these challenges are being addressed by the combined efforts of academia, design tool and equipment suppliers, designers, and test engineers. [Find out more.](#)



Course Spotlight: ESD Design and Technology

How do we learn about this growing problem, so it doesn't happen to us? *ESD Design and Technology* is a 3 day course that offers detailed instruction on a variety of subjects pertaining to ESD design and technology. This course is designed for every manager, engineer, and technician concerned with ESD at the I/O design or chip level or supplying ESD tools and simulators to the industry.

1. The different ESD events relevant to the ESD design specifications- HBM, CDM, IEC
2. The methodologies to develop custom ESD solutions from component to chip-PCB design levels in different semiconductor technologies and for different design applications - digital, RF, mixed signal and high-voltage
3. The use of CAD simulation tools to design and optimize new ESD components and circuits

[Please click here to view a full course outline](#)

Ask the Experts



Q: We would like to purchase Liquid Crystal and the FMI compound, but we don't know where we can buy it from. I would appreciate if someone can give me the name of a company that sells LC and FMI.

A: You can purchase both materials from Accelerated Analysis. www.acceleratedanalysis.com.

Q: I am having difficulty etching plastic packages. I have a package that does not etch open using either nitric or sulfuric acid. Are there other acids/chemicals that can be used on such packages?

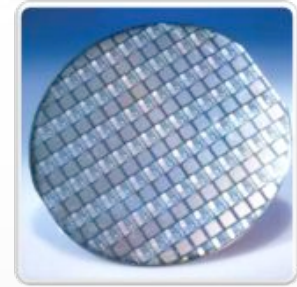
A: Usually, problems experienced with decapsulation of plastic packages can be linked to one of two things:

1. Poor fixturing and/or
2. Wrong recipes

To eliminate the former, replace any gaskets that are worn, etched, or misshapen. You can also use, rather than a stack of gaskets, a single monolithic or pocket gasket that encompasses both the location of the part and an opening that defines the area of etch. Pocket or monolithic gaskets are the best way to define the area of etch and to hold the part. Pocket gaskets are critical with small packages.

We have never run into a plastic package we couldn't open using the proper recipe. Normally one would use a 20% fuming sulfuric acid to open a thermal plastic such as those used with T0-220 packages or some BGAs that give off lots of heat when in use. Some of old encapsulants, like those from Conexant were like cement and took long times to open but would yield to 20% fH₂SO₄ in time and at 230-250 degrees Celsius. Remember, good decapsulation is like good cooking – you need the proper recipe and the proper utensils.

*To post, read, or answer a question, [visit our forums](#).
We look forward to hearing from you!*



Upcoming Courses

[Interconnect Process Integration](#)

October 5, 2010
Austin, TX, USA

[Wafer Fab Processing](#)

October 18-21, 2010
San Jose, CA, USA

[Failure and Yield Analysis](#)

October 18-21, 2010
San Jose, CA, USA

[Semiconductor Reliability](#)

October 25-27, 2010
San Jose, CA, USA

[ESD Design and Technology](#)

November 9-11, 2010
Austin, TX, USA

Feedback

If you have a suggestion or a comment regarding our courses, online training, discussion forums, or reference materials, or if you wish to suggest a new course or location, please call us at 1-505-858-0454 or e-mail us at info@semitracks.com.

To submit questions to the Q&A section, inquire about an article, or suggest a topic you would like to see covered in the next newsletter, please contact Jeremy Henderson by email at jeremy.henderson@semitracks.com.

We are always looking for ways to enhance our courses and educational materials.

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For more information on Semitracks online training or public courses, visit our website!