

# NEW

## EOS/ESD ASSOCIATION, INC. ONLINE ACADEMY COURSE

**October 16th at 11:00AM-12:30PM EST**

### **EOS: A New Focus**

**Instructor: Terry Welscher, Dangelmayer Associates**

Electrical Overstress (EOS) accounts for most of the electrical failures of devices that occur in factories and in the field. One EOS root cause, ESD, has received much attention in technical literature, standards bodies and educational workshops and tutorials. It has been approached in a systematic manner which has resulted in relatively successful practices for design of robust devices and control procedures for the factory. However, the same cannot be said for the effects of the broader categories of electrical stresses that can be the root cause of electrical overstress.

These other root causes (over-voltage, over-current, over-power), when grouped together, are more prevalent causes of failure than ESD by a wide margin because of the lack of a coherent design and mitigation strategy. One of the main reasons for this is that EOS root causes are widely varied and very application dependent. As a result, no simple broad models for EOS have emerged comparable to HBM and CDM for ESD. Common device design practices have not been developed to the same extent, system level approaches tend to be ad hoc and responsibility for controlling potential sources in manufacturing tends to be diffused or non-existent.

In this webinar, we review the current status of work on EOS. This will include recent significant reports in the technical literature, work of standards and industry groups and some recent interesting case histories. We will also explore the definitions of EOS and some related terms and attempt to clarify some common ways these terms are misused in literature and in failure analysis reports. "Rethinking" how we talk about EOS will help Failure Analysis, Design and Manufacturing work together to reduce EOS-induced failures (including ESD).

**October 23rd, 24th at 11:00AM-12:00PM EST (2 Credits)**

### **DT100: HBM Testing Essentials**

**Instructors: Brett Carn, Intel**

**Wolfgang Stadler, Intel Deutschland GmbH**

Certification: D

This tutorial addresses the details of Human Body Model (HBM) qualification testing. This course will help in interpretation of the HBM joint standard JEDEC/ANSI/ESD JS-001 and will include the following details: Waveform verification, understanding of Table 2A (minimum required set of pin combinations) and Table 2B (legacy pin combinations), pin categorization and pin grouping and I/O pin sampling. Stress plan details will be discussed including efficient testing (reduction in pin count) and some debugging options.

Setting the Global Standards for Static Control!

EOS/ESD Association, Inc. 7900 Turin Rd., Bldg. 3 Rome, NY 13440-2069, USA

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# ESDA ONLINE ACADEMY COURSE REGISTRATION

Attendee First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

## NEW COURSES

✓	Dates	Course Title	Cert.	#Credits
	<b>October 16</b>	EOS: A New Focus		0
	<b>October 23,24</b>	HBM Testing Essentials	D	2

## RECORDED ON-DEMAND COURSES

✓	#	Course Title	Cert.	#Credits
	FC363	Advanced ESD/EMI Auditing Techniques		1
	DT300	Advanced HBM – Dealing with Tester Parasitics, High Pin Count and Two Pin Testing	D	1
	DT200	CDM Testing Essentials	D	1
	FC171	Changes to ANSI/ESD S20.20 from the 2007 version to the 2014 version		1
	GP230	Charged Board Events: A Growing Industry Concern		1
	DD200	Charged Device Model Phenomena, Design and Modeling	DD	3
	FC110	Cleanroom Considerations for the Program Manager	PrM	3
	FC211	Compliance Verification: Pitfalls of Auditing		1
	FC180	Controlling ESD in Automated Equipment by Proper Grounding		1
	FC241	Developing a Compliance Verification Program		1
	DT202	Device Stress Testing Standards Update	D-R	1
	FC215	Device Technology & Failure Analysis Overview	PrM	3
	DT230	Device Testing Correlation to Root Cause Failure Analysis		1
	FC261	Electric Fields: Practical Considerations		1
	FC360	Electrical Overstress (EOS) in Manufacturing and Test		3
	FC260	Electrostatic Attraction		1
	FC380	Electrostatic Calculations for the Program Manager (4 Hrs)	PrM	3
	DD104	Electrostatic Discharge Effects In Integrated Circuit Technologies		1
	GP250	EOS-A Big Challenge in Today's Handling of Customer Rejects		1
	DD110	ESD from Basics to Advanced Protection Design	DD	
	DT140	ESD Fundamentals I for Stress Testing	D	1
	DT141	ESD Fundamentals II for Stress Testing	D	1
	GP331	ESD Problem Solving		1
	DD201	ESD Protection and I/O Design		3
	FC210	ESD Standards Overview for the Program Manager	PrM	3

✓	#	Course Title	Cert.	#Credits
	DD220	ESD Test Simplification with Approved Sampling Methods in HBM	D-E	1
	DT143	Essentials for Controlling the ESD Work Area	D	1
	DT142	Fundamentals of Failure Analysis	D	1
	DT130	Fundamentals of System Level Testing	D-E	1
	FC231	Grounding in an Electrostatic Protected Area <b>Chinese</b>		
	FC231	Grounding in an Electrostatic Protected Area		1
	DT100	HBM & MM Testing Essentials	D	1
	DT211	High Speed Digital Oscilloscope Fundamentals	D	1
	FC181	Highlights and key concepts of Footwear/Flooring Standards		1
	FC181	Highlights and key concepts of Footwear/Flooring Standards <b>Korean</b>		1
	FC181	Highlights and key concepts of Footwear/Flooring Standards <b>THAI</b>		1
	DT131	HMM – System Level Testing of Components	D-E	1
	DD103	Integrated Circuit ESD Fundamentals		3
	DD231	Integrated ESD Device and Board Level Design		2
	FC120	Ionization Issues and Answers for the Program Manager	PrM	3
	DD112	Latch-up Fundamentals	DD	1
	DT201	Latchup Testing and Troubleshooting	D-E	1
	DD102	On-Chip Protection in RF Technologies	DD	1
	GP330	Overview on Efficient and Reliable System-Level ESD		1
	FC200	Packaging Principles for the PrM	PrM	3
	DD222	Practical Aspects of Latch-Up for Low Voltage CMOS: Design Rules, Layout Floor Planning, and Test		1
	DD132 FC132	Susceptibility Testing of Devices and Systems		1
	FC140	System Level for the Program Manager	PrM	3
	DD117	TCAD Fundamentals		1
	DD205	TCAD Methodologies for Industrial ESD Design		1
	DD210	TLP Fundamentals–Understanding the Equipment Options	D-E	1
	FC361	Ultra-sensitive (Class 0) Devices: ESD Controls and Auditing Measurements		3
	GP241	Ultra-Sensitivity Trends and CDM		1
	FC122	Use of Digital Sampling Oscilloscope for ESD Measurement		3
	DT212	VF-TLP, An Introduction to Capabilities and Applications	D-E	1

(PrM) (DD) Taking this online class will fill the requirement for the full length tutorial that is a requirement of the ESDA Certification Program curriculum. Details on the Professional Certification Programs offered by ESDA are on our website at [www.esda.org/certification.html](http://www.esda.org/certification.html).

(D)Core class (D-E)Elective (D-R)Renewal class - Device Stress Testing Certification Courses-required and elective courses of the ESDA Device Stress Testing Certification curriculum. Details on the Professional Certification Programs offered by ESDA are on our website at [www.esda.org/certification.html](http://www.esda.org/certification.html).

Total # Credits \_\_\_\_\_ x \$195 = \_\_\_\_\_

-OR-

Total # Bundles of Ten Credits \_\_\_\_\_ X \$1,755 = \_\_\_\_\_

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# ESDA ONLINE ACADEMY PAYMENT FORM

Course attendee information:

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Home Street: \_\_\_\_\_ City: \_\_\_\_\_  
 Work

State/Province: \_\_\_\_\_ Zip/Postal Code: \_\_\_\_\_ Country \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

***\$195.00 USD per person, per 1 Credit***  
***Purchase a bundle of 10 ESDA Online Academy credits for \$1,755.00***  
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- **Submit one budget request for multiple employees/courses.**
- **Meet training requirements without travel expenses.**
- **Bring new employees up to speed.**
- **Learn new technologies.**
- **Achieve Device Stress Testing Certification completely online.**
- **Program Manager Certification online courses**

To register for one or more of ESDA Online Academy credits please complete the below form. To select courses please complete side two of this form or watch the ESD Association Website for new online course offerings.

## Payment Information

Payment is required at time of registration. Only checks drawn in U.S. currency on a U.S. bank that is a member of the Federal Reserve will be accepted; make checks payable to ESD Association. Visa®, Mastercard®, Discover® and American Express® are accepted.

Amount enclosed \$ \_\_\_\_\_  Check  Credit Card: Visa® Mastercard® Discover® American Express®

Credit card number: \_\_\_\_\_ Expiration date: \_\_\_\_\_

Name on card: \_\_\_\_\_ 3 digit code on back: \_\_\_\_\_  
(Amex - 4 digit code on front)

Cardholder's signature: \_\_\_\_\_

Billing address: \_\_\_\_\_

**email or mail this form with payment to:**

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