

# REGIONAL TUTORIALS

Essentials for ESD Programs

Factory: Technologies • Controls • Procedures

ESD Training for Internal Quality Auditors and Supplier Quality Engineers

**May 8-10, 2012**

Teradyne Conference Center 600 Riverpark Drive • North Reading, MA

Lunch and refreshments provided

## **ESSENTIALS FOR ESD PROGRAMS**

**FACTORY: TECHNOLOGIES • CONTROLS • PROCEDURES**

**MAY 8-9, 2012**

Instructors: Ted Dangelmayer, Terry Welsher, Dangelmayer Associates

This two-day seminar consists of concentrated versions of the ten ESDA tutorials which comprise the ESDA Program Manager Certification Program:

- ESD Basics for the Program Manager
- Ionization and Answers for the Program Manager
- Packaging Principles for the Program Manager
- System Level ESD/EMI: Testing to IEC and Other Standards
- Cleanroom Considerations for the Program Manager
- How To's of In-Plant ESD Survey and Evaluation Measurements
- Device Technology and Failure Analysis Overview
- Electrostatic Calculations for the Program Manager and the ESD Engineer
- ESD Standards Overview for the Program Manager
- ESD Program Development & Assessment (ANSI/ESD S20.20 Seminar)

Key concepts and information from the above courses have been selected for this two day seminar. Many of the demonstrations and videos from ESD Basics Tutorial are included in this seminar. Examples of electrostatics and ESD calculations are included where appropriate throughout the seminar.

### **DAY ONE: MAY 8, 2012**

#### **PART I (8:00 AM-Noon)**

This section reviews the fundamentals of electrostatics, charge flow, electric field and voltage. The concept of capacitance and the fundamental relationship,  $Q = CV$ , is introduced and explored with demonstrations and videos. The practical application of these concepts to the measurement of resistance, fields and voltages, and the relevant standards are reviewed and demonstrated.

#### **PART II (1:00 PM-5:00 PM)**

The principles from Part I are then applied to grounding principles and standards, measurement of charge, standard models for ESD (i.e., human-body model and charged device model), and static induction with demonstrations and videos. Very simple and basic ESD protection circuit concepts and relevant failure analysis techniques are introduced and reviewed.

\*This Seminar offers a broad exposure to the essentials of ESD programs. It offers a two day comprehensive set of factory technologies and procedures designed for managers, technicians, and specialists desiring ESD control program training and information. This course serves as a refresher class to those taking the PRM Certification exam. In addition, the course can be used as part of the preparation for those interested in taking the iNARTE Engineering or Technician Certification exam.

Co-sponsored by the Northeast Chapter ESD Association <http://www.nechapter-esda.org>

ESD Association • 7900 Turin Rd Bld 3 • Rome NY 13440

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**DAY TWO: MAY 9, 2012**

### **PART III (8:00 AM-NOON)**

Key ESD technical areas are reviewed such as air ionization, ESD-safe packaging, clean-room principles and electrostatic attraction. Standards relevant to these areas are described.

### **PART IV (1:00 PM-5:00 PM)**

The final section includes charge generation test methods, additional ESDA standards, system-level ESD standards and testing, practical auditing techniques and strategies, and ESD event detection. The tutorial concludes with a review of ESD Protected-Areas (EPAs), ESD Program Management and the application of ANSI/ESD S20.20.

## ESD TRAINING FOR INTERNAL QUALITY AUDITORS AND SUPPLIER QUALITY ENGINEERS

**MAY 10, 2012 8:30 AM - 4:30 PM**

Instructors: John Kinnear, IBM; Ron Gibson, Advanced Static Control Consulting

This class has been designed specifically for those individuals who are responsible for:

- Performing internal company ESD assessments based on ANSI/ESD S20.20
- Conducting a pre-assessment of their facility prior to an external 3rd party assessment.
- Assessing the ESD control programs of their suppliers

This course will use the checklist used by ESDA certified auditors as the basis for the class. However, this class will delve into the meaning behind each of the audit checklist questions in greater detail than is currently found in either the ESD Association registrar certification training or the ANSI/ESD S20.20 ESD program design seminar.

After taking this class the student will be able assess a process and determine whether or not it meets the requirements of ANSI/ESD S20.20-2007.

**Note:** Familiarity with performing assessments is recommended for anyone planning on taking this course.

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## ABOUT THE INSTRUCTORS

**Ted Dangelmayer** is the president of Dangelmayer Associates, L.L.C. and has assembled an ESD consulting team consisting of the foremost authorities in virtually all ESD areas of both product design and manufacturing. He received the "Outstanding Contributor" award, The ESD Association Founders Award, was President of the ESD Association, Chairman of the ESDA Standards Committee, and General Chairman of the EOS/ESD Symposium. He has published two editions of his book, ESD PROGRAM MANAGEMENT numerous magazine articles, and technical papers. Ted holds three patents, is iNARTE Certified, and has successfully completed the ESD Association ANSI/ESDA S20.20 Course for Program Managers and Consultants. He is currently President of the Northeast Chapter of the ESD Association and a member of the national ESD Association's Standards Committee, and Education Committee.

**Ron Gibson** is the President of Advanced Static Control Consulting (ASCC). ASCC provides consulting, ESD material and product qualification and develops ESD training programs for clients. Prior to establishing ASCC Ron was a Senior Associate with Stephen Halperin & Associates (SH&A). In this capacity, Ron provided consulting services to SH&A clients on a global basis. From 1994 to 2010 Ron was the corporate ESD program manager for Celestica International, Inc and was responsible for the ESD control programs at all of Celestica's factories worldwide. From 1979 to 1994 Ron worked for IBM. Ron co-authored IBM's initial factory ESD control standards. Ron has been a member of the ESD Association (ESDA) since 1988, and has served as an officer in the positions of president, senior vice president, vice president, secretary, and treasurer. He also served as chairman of the ESDA Standards Committee (STDCOM) for over 10 years and as the first chairman of the ESDA Facility and Program Manager Certification Business Units. Gibson is an iNARTE certified electrostatic discharge control engineer, an ESDA certified Instructor for the Program Manager Certification Program and is a certified Chief ESD Coordinator for the Reliability Center of Japan. Gibson represents Canada on the International Electrotechnical Commission's (IEC) Technical Committee (TC) 101-Electrostatics and is Canada's topic matter expert for six of TC 101's technical working groups.

**John Kinnear** is an IBM Senior Engineer specializing in process & system technology, and facility certification in accordance with ANSI/ESD S20.20. He has a BS degree from University of Buffalo and a MS degree from Syracuse University. John is well known globally for his technical contributions to national and international standards. He has been the IBM ESD Site Coordinator for the Poughkeepsie site since 1989. He is the past chairman of the IBM Inter-divisional Technical Liaison Committee for ESD Protection and is an important member of his company's committee to develop and implement the ESD Corporate program for IBM. John has coordinated the testing of large mainframes for compliance to EMC, Safety, Environmental, Shipping and Volatile Organic Emission standards. He has also been the lead engineer on testing large mainframe systems to EMC emissions and immunity standards for FCC, CE Mark, VCCI and other national requirements. As a member of the ESD Association since 1990, John has served in several Standards Development Committees as well as association management positions. John is the appointed Technical Adviser to the United States National Committee/IEC Technical Committee 101, where he represents the United States to the International Electrotechnical Commission (IEC). In this position he assisted in the evolution of international ESD standards and supports international adoption of ANSI/ESD S20.20. As Chair of the ESDA's Facility Certification (ANSI/ESD S20.20) development program, John played major roles in the program's development and industry launch. In particular, John coordinated the initial development of Lead Assessor training, ISO Registrar Certification, and witness audits. John has served in every ESD Association officer's position, including Vice President, Senior Vice President and President. He is the past Chairman of the EOS/ESD Symposium Technical Program Committee and past General Chairman of the 2004 EOS/ESD Symposium. For his contributions to the ESD Association, John was presented with the Outstanding Contribution Award in September, 2006, from the ESD Association.

**Dr. Terry L. Welsher** is currently Senior Vice President of Dangelmayer Associates. He began his career in Bell Labs in 1978 where he worked on electrolytic corrosion failure mechanisms in electrical interconnection materials. In 1986 he began directing Bell Laboratories' core expertise in electrostatic discharge (ESD). The newly formed group proceeded to produce a string of ground-breaking contributions to the field and played a key role in advancing industry standards. At his retirement from Lucent Bell Labs in 2001, he was Director of the Quality, Reliability and Test Center of Excellence. Dr. Welsher has served as Chairman of the ESDA Standards Committee and Technical Program and General Chair of the EOS/ESD Symposium. He is currently serving as Senior Vice President of the ESDA. He has also been active in the JEDEC Quality and Reliability Committee and Board of Directors and a member of the iNARTE Board of Directors. Most recently he has led the effort to harmonize and merge JEDEC and ESDA device testing standards. He holds a B.S. in Chemistry from Florida State University and Ph.D. in chemical physics from the University of Texas at Austin. Terry and his wife, Karyl, live in Suwanee, Georgia.

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**REGISTER ONLINE AT [WWW.ESDA.ORG](http://WWW.ESDA.ORG)**

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

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

Street: \_\_\_\_\_ City: \_\_\_\_\_

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

Address is (please circle the one that applies) Home or Company

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

## Course Selection

- May 8-9, 2012 Essentials for ESD Programs - two day seminar  
 May 10, 2012 ESD Training for Internal Quality Auditors and Supplier Quality Engineers



	Cost on or before 4/4/12		Cost after 4/4/12	
	Members	Non-Members	Members	Non-Members
Essentials Seminar (2 Days, May 8-9)	\$1510	\$1610	\$1710	\$1710
Training for Internal Auditors (1 Day, May 10)	\$510	\$610	\$710	\$710
Both Courses (Three days, May 8-10)	\$2020	\$2220	\$2420	\$2420

Cancellation & refund requests will be honored if received in writing no later than April 4th 2012, and are subject to a \$50 fee. Any other approved dispositions will also be assessed a \$50 fee.

## 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®, and American Express® and Discover® are accepted.

Amount enclosed \$ \_\_\_\_\_  Check  Credit Card

Credit card type: Visa® Mastercard® American Express® Discover®

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

Name on card: \_\_\_\_\_ Security code: \_\_\_\_\_

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

**Accommodations** Residence Inn by Marriott Woburn  
300 Presidential Way, Woburn, MA 01801  
(781) 376-4000

Courtyard Boston Woburn  
240 Mishawum Road, Woburn, MA 01801  
(781) 932-3200

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