

hands-on workshops

The hands-on workshops sell out quickly and enrollment is limited, please check for availability.

Sunday, October 7
9 am - 5 pm

The “hands-on” courses are back! Last year the “hands-on” courses sold out early and were an overwhelming success. IMAPS, in partnership with the National Training Center for Microelectronics (NTCμ) is again offering technical training sessions designed to provide attendees with a “hands-on” learning experience. Enroll early as class size is limited!

S1

Wirebonding (how to) for Operators and Technicians

Enrollment limited to 12 students

Instructor: Thomas J. Green, National Training Center for Microelectronics

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Workshop Summary:

This course is intended as a practical “hands-on” set of laboratory exercises to allow the operators to really understand the wirebonding process. An experienced industry instructor will review the basic manual wirebonder equipment design and setup and explore how machine settings such as power, time, force and stage temperature affect the bonding process. Both ultrasonic wedge and thermosonic ball bonding will be explored using the industry’s latest manual wirebonders. Students will also have an opportunity to perform wire pull and ball shear testing and visually inspect wirebond interconnects to gain further insights into the process.

Benefits:

- Understand the basics of thermosonic and ultrasonic wire bonding.
- Recognize visual defects and how to prevent them.
- Learn how to do wire pull and ball shear testing.
- Know how to set up and use manual wirebonding equipment.

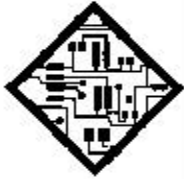
Who Should Attend:

This course is intended as a beginning to intermediate level course for operators, technicians and others with limited wire bonding experience interested in a practical “hands-on” tutorial.

Tom Green has eighteen years experience in the microelectronics industry and presently teaches at the National Training Center for Microelectronics. As a staff engineer with Lockheed Martin he was responsible for the materials and processes used in building custom hybrids and RF microcircuits for space applications. Specific areas of expertise included wirebonding, die attach and seam sealing. As an officer assigned to USAF Rome Laboratories he conducted research on semiconductor failure mechanisms and analyzed numerous microelectronic component failures from Air Force avionics systems. He has published seven technical papers and is a member of the IMAPS National Technical Committee. Tom earned a B.S. in Metallurgy and Materials Engineering from Lehigh University and a Masters in Engineering from University of Utah.

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NTC μ hands-on factory training workshops



The National Training Center for Microelectronics (NTC μ), located in Bethlehem, Pennsylvania, is an extension of Northampton Community College. NTC μ is the recognized leader in microelectronics manufacturing industry training and is known for clear, concise “hands-on” training courses specializing in hybrid, RF and related technologies. All courses carry Continuing Education Units (CEU) which earn credit toward your degree. Website: www.northampton.edu/ntc.

S2

Screen Printing (how to) for Operators and Technicians

Enrollment limited to 10 students

Instructor: David Malanga, Heraeus, Inc., Circuit Materials Division

Workshop Summary:

This course is designed to focus on the concepts of screen printing and firing of thick film materials. An overview of the screen printing process will be given with a “hands-on” demonstration to emphasize printer set up and operation. Screen print process parameters such as snap off, pressure and print speed and how they effect the finished print will be explored in detailed. Each student will have an opportunity to print various types of thick film materials using a variety of different screens. State-of-the-art microscopes and thickness profiling equipment will be available to assess the quality of the wet print. The firing process and its effect on the finished print will be discussed in detail.

Benefits:

- Understand the importance of proper screen printer set up.
- Learn to trouble-shoot screening problems.
- Understand the factors that affect wet print thickness and line resolution.
- Understand the issues with proper furnace set up and atmospheric control.

Who Should Attend:

The course is intended for operators and technicians and others who need to gain a deeper understanding of the thick film printing process.

David Malanga is currently Technical Service Manager for Thick Film Products at Heraeus Inc., Circuit Materials Division. Dave has eleven years at Heraeus working both in R&D formulating materials (resistors, conductors, and dielectrics) and in Technical Service solving processing and application problems directly with customers. Dave earned a B.S. in Ceramic Science and Engineering from Rutgers University and a M.S. in Ceramic Science and Engineering from Rutgers University. In addition, he has published various articles on thick film resistors, conductors, and component metallizations, LTCC materials, and fiber optic materials.

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S3

Introduction to High Reliability Soldering for Operators and Technicians

Instructor: Joel A. Weiner, The Johns Hopkins University Applied Physics Laboratory

Enrollment limited to 12 students

Workshop Summary:

This course will focus on the requirements and techniques for the production of high reliability hand soldered connections. The overview will cover scientific, technical, and practical aspects, and include a “hot-iron” activity. A NASA-certified soldering instructor will cover the metallurgy of solders, required basic bench-level equipment, component preparation, soldering methods, storage, cleaning, electrostatic discharge damage prevention, inspection/test procedures, and criteria for acceptable soldered connections.

Techniques for assembly and soldering of a variety of component types and mounting configurations will be covered. These include soldering of terminals to boards, dual in-line packages, through-hole parts, lapped joints, high voltage components, and connectors. If they wish, students will have an opportunity to solder a variety of components to a printed wiring board.

Benefits:

- Understand the drivers and issues important to high reliability hand soldering.
- Learn what is needed at a work bench that is intended for high reliability soldering.
- Recognize acceptable and unacceptable solder connections.
- Experience the thrill of hand soldering.

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Who Should Attend:

This course is intended for intermediate level soldering operators and technicians; for supervisors responsible for their performance; and for anyone wishing a better understanding of the high reliability hand soldering process.

Special Course Materials:

All attendees will be given copies of NASA-STD-8739.3, “Soldered Electrical Connections,” and the “Student Workbook for Hand Soldering,” NASA, December 1998, as well as course notes.

Joel Weiner has thirty years experience in printed circuit board production, microelectronic assembly, high reliability electromechanical device fabrication, inspection and quality assurance. Presently he is the Quality Assurance and Improvements Manager of the Technical Services Department at the Johns Hopkins University Applied Physics Laboratory. He is a Member of the Principal Professional Staff, and has previously been both the Assistant Group Supervisor of the Microelectronics Group and of the Electronic Services Group. Joel has a B.S. (Brooklyn College, City University of New York) and an M.S. (Rutgers University) in chemistry, and an M.S. in Technical Management (Johns Hopkins University). He has nearly forty publications, presentations and patents in related fields. He is certified by NASA as an Instructor for Hand Soldering.

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