Global Electronics Association™

Train the Trainer: Teaching for Impact in Electronics Manufacturing
SYLLABUS

INSTRUCTOR INFORMATION

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PROGRAM DESCRIPTION

This course equips subject-matter experts (engineers, technicians, CITs/MITs) with the instructional knowledge, pedagogical and andragogical principles, and facilitation skills necessary to effectively teach operators, technicians, and engineers in electronics manufacturing.

The Train-the-Trainer course is designed for individuals who are either entering a professional training role or integrating training responsibilities into their existing job. The course emphasizes the importance of preparation and the ability to create a learning environment that fosters comfort and engagement among participants. Through effective facilitation, trainers can foster deeper understanding and demonstrate how skilled facilitation enhances the quality of any meeting or learning experience. Participants will gain practical tools and techniques to deliver dynamic and impactful workshops. Key areas of focus include conducting needs analyses, managing challenging topics, and mastering facilitation skills—all essential for those looking to become confident and capable trainers.

Taught by a certified industry expert with 25+ years of experience in the field, this two-week program utilizes interactive webinars, on-demand recordings, and job-specific exercises to develop a solid grasp of the concepts necessary for success as a Trainer.

LEARNING AND PERFORMANCE OBJECTIVES

Clear learning goals accelerate understanding and retention. By the end of this course, participants will be able to:
- Apply principles of adult learning (andragogy) to training in electronics manufacturing.
- Design with the goal in mind: (Backward design) What business metric are you trying to improve?
- Design learning objectives using Bloom's Revised Taxonomy.

- Develop structured lesson plans and course outlines aligned with company and IPC standards.
- Use instructional strategies (lecture, demonstration, guided practice, group discussion) to maximize learning transfer.
- Deliver technical content clearly, confidently, and with learner engagement.
- Assess learner performance using effective questioning, observation, and practical evaluations.
- Provide constructive feedback to learners to improve performance.
- Evaluate the effectiveness of training using Level 1–3 of the Phillips ROI/ Kirkpatrick model.

COURSE STRUCTURE

- Instructor and participants meet online twice per week from the comfort of their own home.
- Participants can view recorded online sessions to review course content and class discussions.
- Course materials are accessible 24/7 on the ElectronicsU Learning Management System.
- Participants can access the course virtually on any device with an Internet connection and a major web browser, including Chrome, Firefox, Safari, Edge, and Internet Explorer.

SUPPLEMENTAL MATERIALS

- [Policies & Procedures for Certified IPC Specialists and Trainers](#)
- Make It Stick: The Science of Successful Learning. Peter C. Brown, Henry L. Roediger III, Mark A. McDaniel
- Understanding How We Learn. Yana Weinstein, Megan Sumeracki, Oliver Cavigliolo
- How We Learn: The Surprising Truth About When, Where, and Why It Happens. Benedict Carey
- How People Learn: Brain, Mind, Experience, and School. Unknown author
- How People Learn II: Learners, Contexts, and Cultures. Medicine National Academies of Sciences, Engineering, Division of Behavioral and Social Sciences and Education

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The course is structured around six modules plus a capstone activity. Each module is delivered in a 90-to 120-minute online instructor-led session, supplemented with activities, practice assignments, and peer discussions.

MODULE 1 – FOUNDATIONS OF TEACHING IN ELECTRONICS MANUFACTURING

- The role of trainers (CIT/MIT) in workforce development
- Difference between subject-matter expertise and instructional expertise (justification)
- Principles of andragogy (Knowles' 6 assumptions) vs. pedagogy
- Key adult learner motivators in manufacturing settings (relevance, experience, immediate application)
- The 6Ds of Breakthrough Learning: Design for outcomes, not activity

Activity

MODULE 2 – CURRICULUM DESIGN AND LEARNING OBJECTIVES

- ADDIE & backward design in technical training
- Translating **job tasks/standards (IPC, SOPs)** into training objectives
- Writing measurable objectives using Bloom's Revised Taxonomy
- Chunking and scaffolding complex technical procedures (e.g., soldering, inspection, equipment setup)
- Designing competency-based training aligned to company/industry goals

Activity

MODULE 3 – INSTRUCTIONAL METHODS & TRAINING STRATEGIES

- Lecture vs. demonstration vs. guided practice
- Active learning strategies (case studies, think-pair-share, problem-solving)
- Simulation & hands-on methods in electronics (practice boards, equipment demonstrations)
- Encouraging learner participation & managing disengagement
- Adapting delivery for operators vs. engineers (novices vs. advanced learners)

Activity

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MODULE 4 – FACILITATION & PRESENTATION SKILLS

- Voice, clarity, pacing, and body language in online and in-person settings
- Use of visuals (schematics, photos, videos, live demos)
- Questioning techniques (open vs. closed, Socratic questioning, wait time)
- Managing group dynamics and handling challenging participants
- Culturally responsive training in a global electronics workforce

Activity

MODULE 5 – ASSESSMENT & FEEDBACK

- Principles of fair and valid assessment (knowledge vs. performance vs. attitude)
- Writing effective quiz questions (avoid trick/faulty questions)
- Using observation checklists for hands-on skills (e.g., solder joint inspection)
- Giving **constructive, actionable feedback** using SBI model (Situation–Behavior–Impact)
- Remediation strategies for learners who fail assessments

Activity

MODULE 6 – EVALUATING TRAINING EFFECTIVENESS

- Kirkpatrick/Phillips Levels 1–3 (Reaction, Learning, Application)
- Linking training to performance metrics (FPY, rework, downtime)
- Gathering feedback (surveys, observation, supervisor input)
- Continuous improvement in training materials & delivery
- Role of trainers in sustaining learning transfer

Capstone: Microteaching Demonstration

- Each participant designs and delivers a **15-minute lesson** on a technical topic (e.g., soldering, inspection, cleaning process, safety).
- Peers and instructors provide structured feedback on:
    - Clarity of objectives
    - Engagement methods
    - Assessment strategy
    - Facilitation style