IPC®

BUILD ELECTRONICS BETTER

Workforce Training for Wiring Harness Operators

David Hernandez, VP Education

Carlos Plaza, Sr. Director Education

ipc.org

IPC Certifications

- Certification Families
  - CIS (Specialist)
  - CIT (Instructor)
  - CSE (Expert)
  - CID (Designer)
  - CEPM (Program Manager)
- Standards
  - 610, 001, 620, 600, 6012, and 7711/21
- Certification Scope
  - Assessment based validation
  - Candidates understanding and utilization of an IPC standard

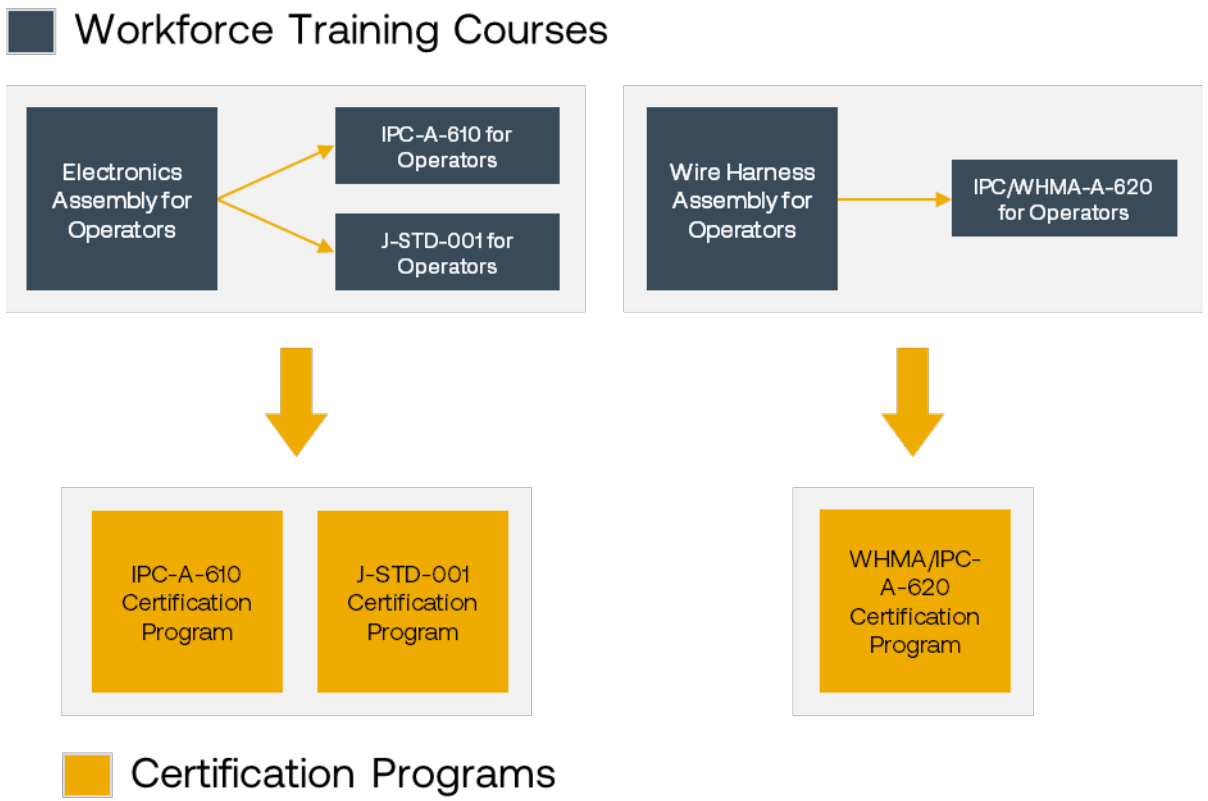
- Offered In:
  - Over 200 Countries
  - 21 Languages
- 2019
  - 108K Certifications Globally
- 2020
  - ~95K Certifications Globally

Gaps in the IPC Education Framework

- Lack of Basic Skills Training
  - Obtaining New Talent (Entry Points)
  - Retaining Talent (Career Progression)
- Lack of Options for Organizations
  - Standardization of Certifications (One size fits all approach)
  - Operators to engineers taking the same program
- How do Organizations Standardize knowledge and vocabulary?
  - Lack of baseline for job-based knowledge (like certification does for standard's-based knowledge)
- Addressing Future and Emerging Needs

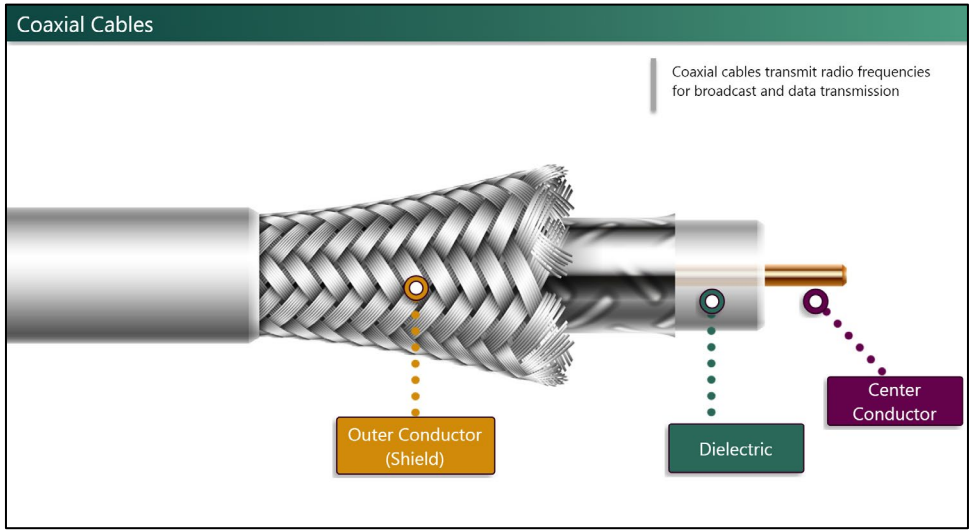
Workforce Development Training Framework

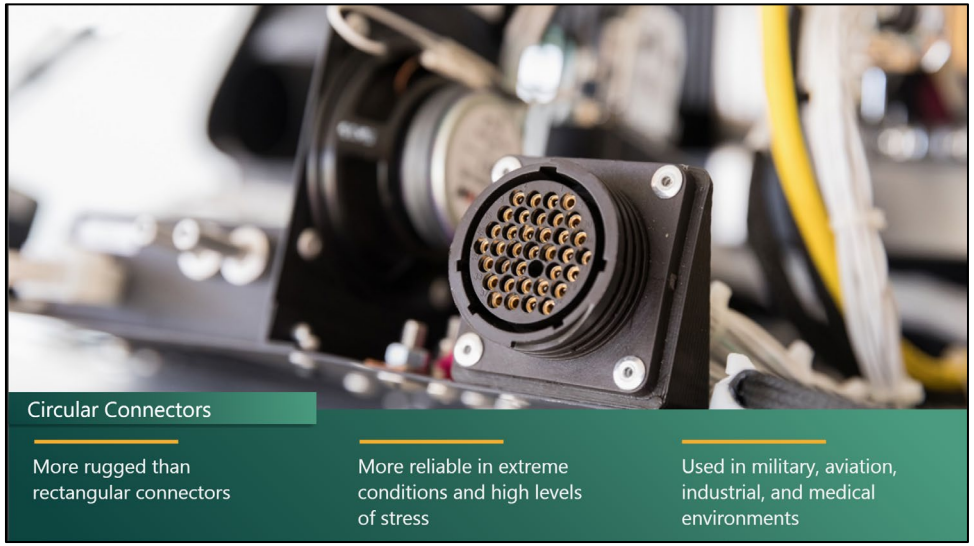
- Job-focused knowledge and skill development training programs
  - Industry and Data Driven
  - Fill existing gaps/ Address industry issues
  - Focus on outcomes
- Goal:
  - Engaging, Efficient, and Effective Training
    - Keep students interested in learning
    - Reduce learning times (and cost)
    - Increase learner retention
- Career training programs integrated with IPC Certification Framework
  - Not every individual is ready for certification



Industry Partnerships

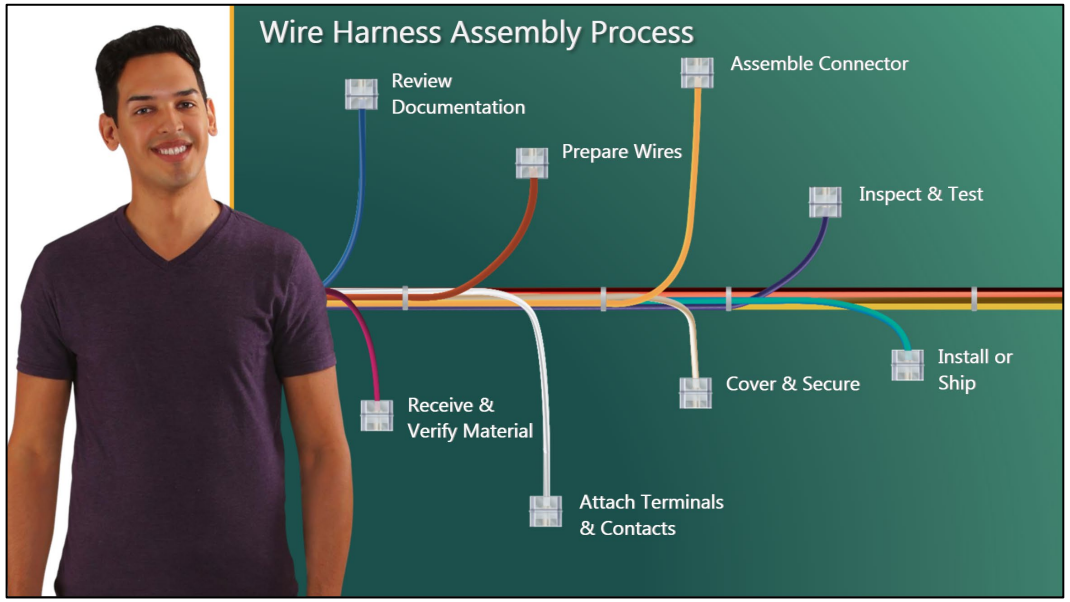
- Designed and build through Industry partnerships
  - Identify knowledge and skills areas needing training (through ongoing customer discovery interviews)
  - Work with volunteer organizations to structure training program
  - Develop a content outline that is validated by industry
  - Jointly develop content for the program with A-Team
  - Reviewed by organization SMEs
  - Beta testing with organizations
    - Instructors and students





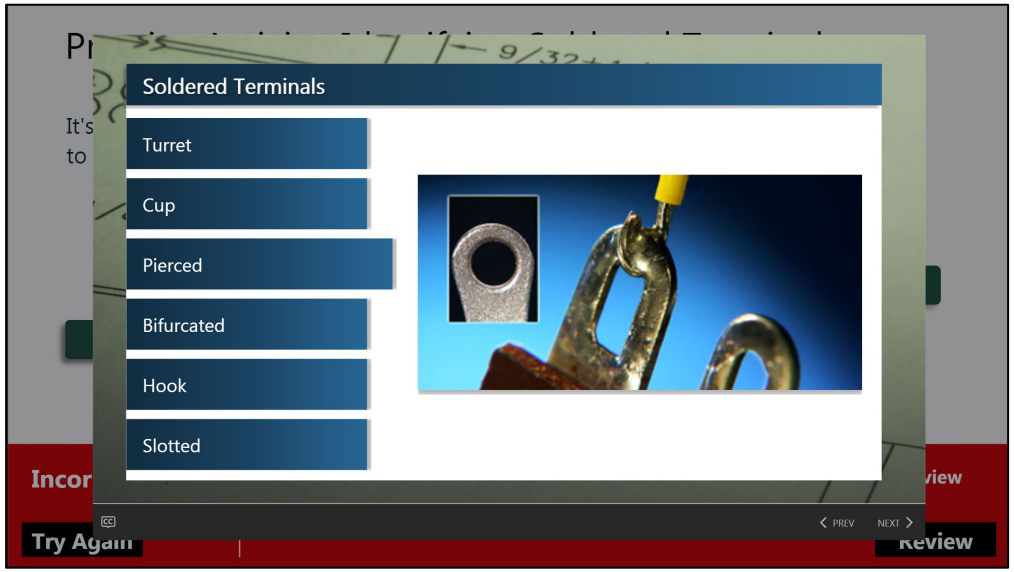
Flexibility

- Implementation Modalities
  - Asynchronous Program
    - Self-Paced
    - Students complete program instruction online
  - Instructor-Led Program
    - Materials provided to live instructor
    - Students complete activities as a group and online
    - Students complete assessments online
  - Hybrid Approach
- Customized to organization's needs
  - Required/ Optional Modules
    - Required: General Knowledge
    - Optional: Job Focused Knowledge



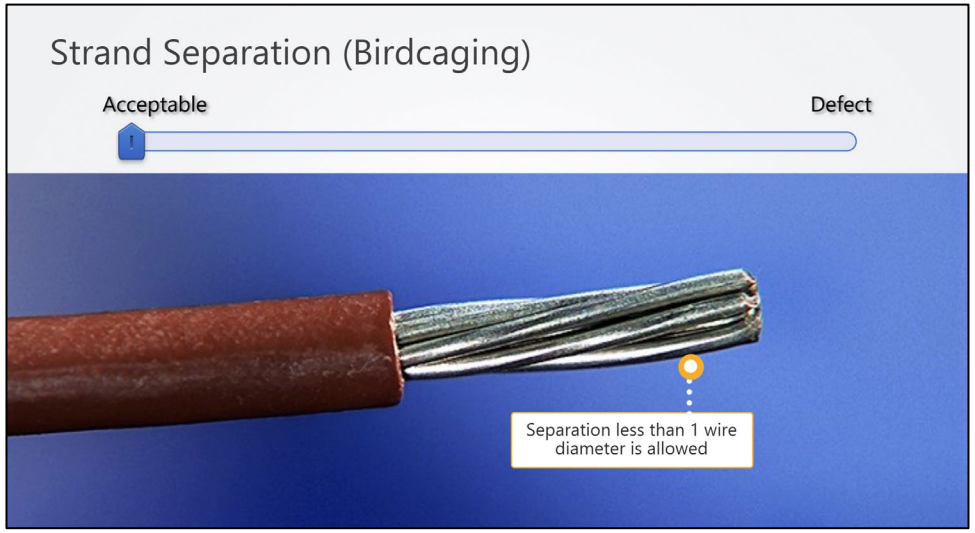
Features

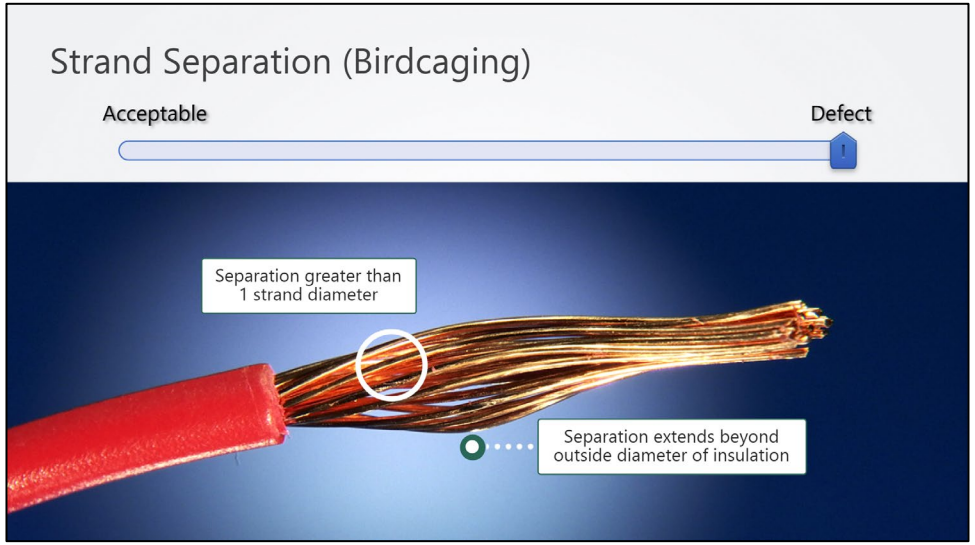
- Engaging content delivered in an efficient manner
  - Micro-Learning approach
  - Videos, Interactives, Animations, etc.
  - Professionally narrated (Voice Actors)
  - Industry Supplied Visuals
- Pre- and post assessments to measure learning
  - Instant user feedback
  - Retraining (when necessary)
- Optional Hands-on Activities
- Available 24/7
  - Almost all internet connected devices with browser



User-Centric Learning

- Focused on the individual student vs group
  - Students progress at their individualized pace
  - Only progress to next section once learning has occurred
- Active vs Passive Learning
- Identify existing user knowledge
  - Focuses student time on areas of weakness
- Internal instructor provides:
  - Guidance and Context
  - Individualize support to students
  - Organization specific knowledge

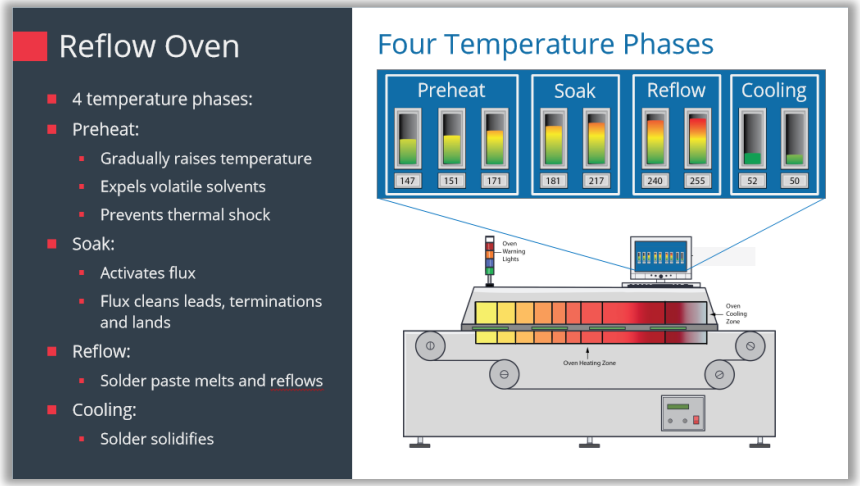


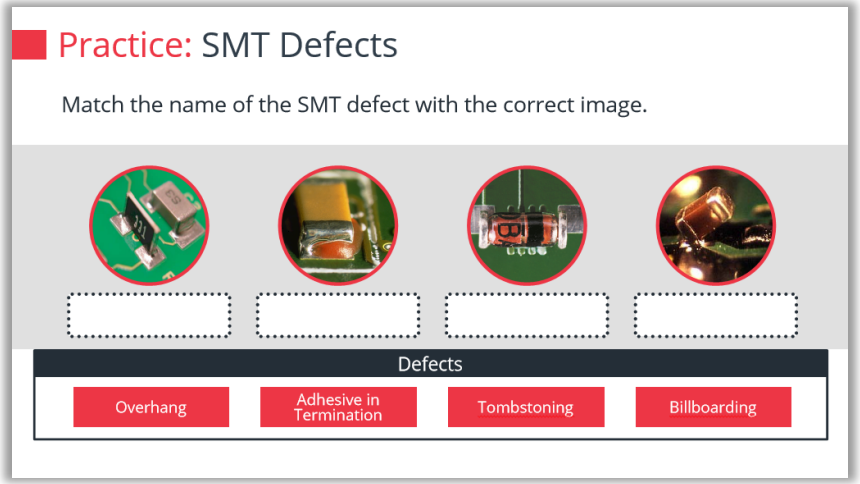


Workforce Development Training

- Operator Level Training
  - Electronics Assembly for Operators*
  - Wire Harnesses for Operators*
  - 610, 001, and 620 for Operators Programs
  - Soldering Fundamentals I
- IPC Design Training Curriculum
  - Live-Online Training (Project Based)
- Coming Soon:
  - PCB, Assembly, and Wire Harness Inspector and Tester programs

*Will be available in English and Spanish





Electronics Assembly for Operators

Mandatory	Optional (Required to add at least one module)
1. Intro to Electronics Industry 2. Introduction to Printed Circuit Board Assembly 3. Overview of the Electronics Assembly & Soldering Processes 4. Safety 5. ESD & Product Handling 6. Component Identification 7. Drawings, Specifications & Measurements 8. Basic PCA/PCB Defects 9. IPC Standards	10. Hand Soldering 11. SMT Technology 12. TH Technology 13. Wire and Cable Preparation 14. Wires & Terminals Technology 15. Cables and Harness Technology 16. Hardware 17. Conformal Coating 18. Press Fit
16 – 20 Hours of Training	16 – 20 Hours of Training

Wire Harness Operator

Mandatory	Optional (Required to add at least one module)
1. Introduction to Wire Harness Assembly 2. Safety 3. Engineering Documentation 4. Materials and Components 5. Tools and Equipment 6. Wire Preparation and Processing 7. Inspection and Testing	8. Crimp Terminations 9. Soldered Terminations 10. Splicing 11. Connector Assembly 12. Coaxial Cable 13. Labeling, Securing, and Covering 14. Finished Assembly Installation
12– 16 Hours of Training	12– 16 Hours of Training

WHO Beta Testing Update

- Beta running through end of February/ Beginning of March
- 11 Organizations Participating in Beta Testing Program
  - Supervisors/ Instructors and Operators
- WHMA member companies that attend this virtual conference live will receive a complimentary course registration (one per company) so one of their employees can experience this new program firsthand.

- Feedback from Users:
  - "I have been working with wire harnesses for 3.5 years and this was extremely informative and taught me things I didn't know. The info is very useful and answered questions I've had but couldn't get answered."
  - "Narrator is clear and concise. Explanations and examples used are relative to daily life. Interactives keeping student's alert."
  - "I really like the safety module that you have added, This is a great thing for employees that are just getting into the wire harness business, I believe that this is very helpful. I have enjoyed the videos and the ability to check your progress or answers in the first 2 modules."

Wire Harness Operator Certificate

Certificate not Certification (Similar to a Diploma)

User's Name

Only Lists Modules Completed

Valid for Two Years/ Refresher or CE Training

Unique ID/ Validation

IPC

CERTIFICATE
OF QUALIFICATION

User41 Lastname4

having successfully completed the IPC Assembly Operator Training Program is hereby designated a:

Qualified IPC Wire Harness Assembly Operator

Completed Required Modules

1: Introduction to Wire Harness Assembly
2: Safety
3: Engineering Documentation
4: Materials and Components
5: Tools and Equipment
6: Wire Preparation and Processing
7: Inspection and Testing

Completed Optional Modules

8: Crimp Terminations
9: Soldered Terminations
13: Labeling, Securing, and Covering
14: Finished Assembly Installation

February 3rd, 2021
Completion date

February 2023
Expiration date

Professional Development Hours 22

VP of Education

WHAO-21020346521

Live Demo

Contact Information

If you have any questions or if you would like to participate in future programs, please contact us:

David Hernandez

VP, Education IPC

davidhernandez@ipc.org

Carlos Plaza

Sr. Director, Education

carlosplaza@ipc.org

Thank you!

Stay up to date at ipc.org