2013 IEEE EMC Chapter Chair Training Session & Dinner

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The Chicago Chapter Education Program

IEEE EMC Society Chicago Chapter

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Agenda

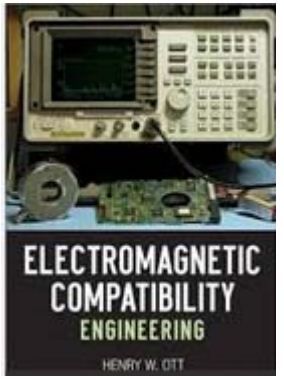
- Motivation
- Summary of the class
- Goal of the Activity
- Lessons Learned
- Measure of Success

Motivation

- More and more colleges are moving towards more computer engineering
  - Less emphasis on electronics: hence less on robust designing
  - “Software can’t cause EMC problems”
- Electromagnetics== Black Magic
  - Step 1: Develop the understanding of why and how
    - Basic principals of *Maxwell Equations Applied*
      - Capacitance and Inductance
  - Step 2: Develop a Model

Summary of the class

- Introductory Class to electromagnetic problems.
  - 4 week class- over 4 Saturdays.
    - 2 hours of lectures
    - 2 hours of hands on lab
- FREE to students -Chicago Chapter underwrote (~90%) the class
  - Approx. $11k for the class with test equipment
- Was co-hosted with Illinois Institute of Technology University Chicago
  - 1.6 Continuing Education Credits (CEUs)
- Summary of Topics
- Henry Ott's latest book "Introduction to EMC"



Goals of Activity

- Two Connected Goals
  - Expected Outcomes for students
    - Describe the motivation and need for electromagnetics regulations and modeling
    - Describe and identify the components an electromagnetics model, and create the electrical schematic of the coupling paths that produce the model
    - Apply grounding techniques & shielding techniques…
    - PCB strategies to minimize radiated emissions and susceptibility
  - Foster Growth among potential IEEE EMC Chicago Members
    - Increase the value of the society and develop a new

Differential mode

Min. ground loops

Proper # ground connections

Common Mode Chokes

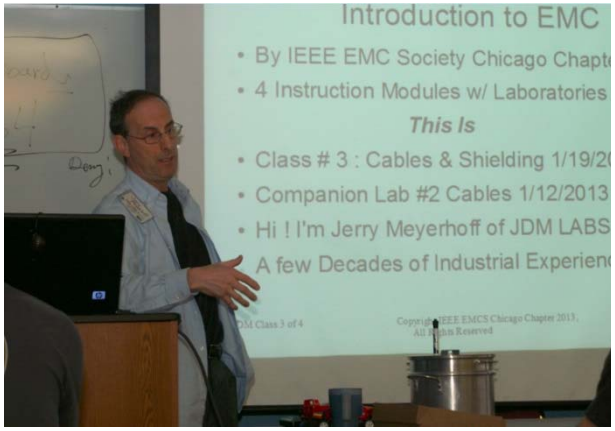
Balanced Circuits

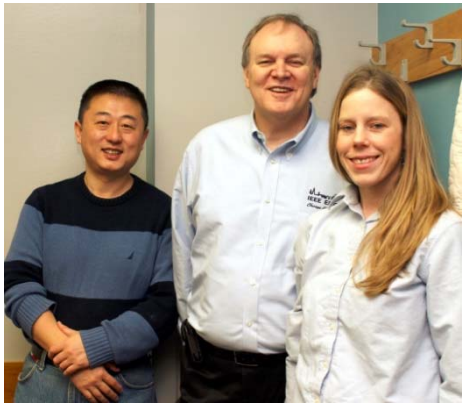
Braided or Shielded cables

Terminations cables and systems

Key Takeaways

- Class offered Free to Students (Chicago Chapter funded the event)
- Class provided 1.6 CEUs to successful candidates
- Hands On Labs
- Co-hosted with an esteemed University (IIT)
- Retention: 25 of the 27





Lessons Learned & Success

- Need to have a cost associated with Class
- Hands On Labs are crucial to this type of Class
  - IEEE is a perfect organization to help facilitate young engineers develop their careers
- Labs need to be designed to be reused effectively
- Develop this class with a university interested in offering CEUs {Professional Education}
- Permanent Lab
- Longer Class 6 – 8 weeks ~ 5 hrs per week

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Success

- Education Committee will be offering the class again
  - Tentative Spring 2014
  - IIT
  - CEUS
  - Longer Class duration (wks and hrs)
  - Extended hands on labs.

Thank You!