Introduction to IC Test
ECE 575 / 675
Mechanics

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http://ece.pdx.edu/~ecex75

Essentials

- Instructor: W. Robert Daasch, daasch@ece.pdx.edu, FAB 160-14
  - Meeting: FAB 40-09 TR 10:00am-11:50am
  - Office Hours: MW 12:30PM-2:30 PM or by appointment
- URL: http://ece.pdx.edu/%7Eecex75, PDF notes available from there
- Required Textbook: VLSI Test Principles and Architectures, Wang, Wu, Wen
- Prior Textbook: Essentials of Electronic Testing, Bushnell, Agrawal
- Chapters 1, 2, 4, 5(light), 6 (light), 7, 8-9, time permitting selected sections from 3, 10, 11, 12.
Robert Daasch, A Quick Bio

- Professor Electrical and Computer Engineering
- Founder and Director of Integrated Circuits Design and Test Laboratory
- PSU ECE faculty since 1986
- Prior academic appointment Illinois Institute of Technology
- Courses taught: Computer networks design and modeling, parallel computing, scientific computation, digital circuits, linear circuits, semiconductor devices and integrated circuit design and test
- Research: Design and test of digital and analog integrated CMOS circuits

Class Organization

- Generally I prefer a small class like EE 575/675 be organized with a seminar and discussion format
  - Reading assigned from textbook *VLSI Test Principles and Architectures*, Wang
  - Lecture notes available from WWW [http://ece.pdx.edu/~ecex75](http://ece.pdx.edu/~ecex75)
- Homework assignments are problems from textbook (1/3)
- Literature reading assignments (1/3)
- Written final exam (1/3)
Resources for IC Component Test

- **SynTest Software** [http://booksite.elsevier.com/9780123705976/?ISBN=9780123705976]

- **Design for Testability**
  - *Diagnosis and Reliable Design of Digital Systems*, M. Breuer and A. Friedman. Classic in the field from 1976 and continues to be a useful reference.
  - *High-Level Test Synthesis of Digital VLSI Circuits*, M. Lee. HDL synthesis of testable FSM.
  - *Design and Analysis of Fault Tolerant Digital Systems*, B.W. Johnson. The emphasis is on fault tolerance and its requirements in digital Systems.

- **Automatic Test Equipment and VLSI Test**
  - *Introduction to VLSI Testing*, R. Feugate, S. McIntyre. This is often referenced in VLSI Test courses but is unfortunately out of print.
  - *Introduction to $I_{DDQ}$ Testing*, S. Chakravarty, P. Thadikraran.
  - *$I_{DDQ}$ Testing for CMOS VLSI*, R. Rajsuman.
Resources for IC Component Test


- **Journals, Conferences and Magazines**
  - *International VLSI Test Symposium*, IEEE.

- **Local Vendor of Component Test**

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Resources for IC Component Test

- Mentor Graphics Corp, Wilsonville, OR, CAD vendor
  - http://www.mentor.com