Digital Design with the Verilog HDL

Chapter 0: Introduction

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Instructor

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- Feel free to discuss to me :))
  - Room: 611H6
  - Time: 13:00 - 14:00, Wednesdays

Digital Design

What is HDL?

- A: Hardware Description Language used to describe hardware components.

HDL (cont)

Definition

- Computer language (not a programming language)
- Describe structure and operation of a digital circuit
- Simulate and verify a digital circuit

Advantages:

- Manage large and complex circuits easily
- Portable and technology-independence
- Reuse predefine modules
- Automated synthesized circuit

Verilog^{TM} & VHDL

- IEEE standard
- Supported by synthesis tools for both ASICs and FPGA

The Course

Contents

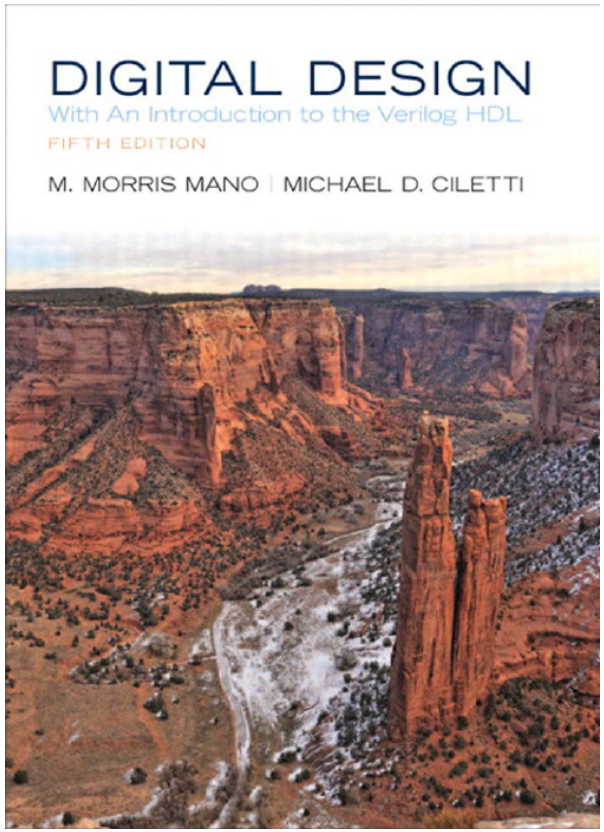
- Combinational circuits design with the Verilog HDL
- Sequential circuits design with the Verilog HDL
- Simulation and errors check
- State transaction machine
- Digital circuits design with the Verilog HDL
- Memory design with the Verilog HDL
- Clock generation

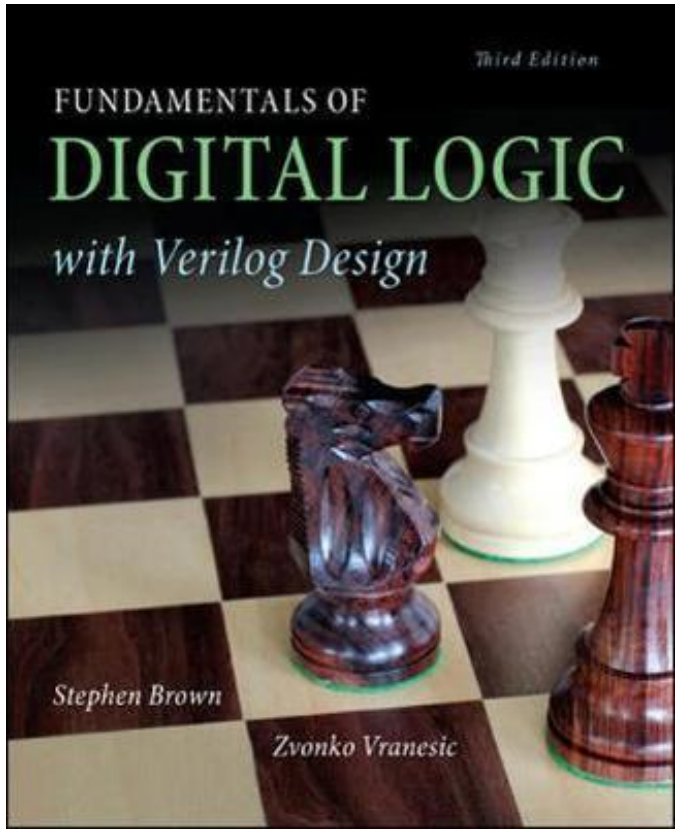
Course Outcomes

- Using the Verilog HDL to design combinational and sequential digital circuits
- Analyzing and modeling problems by state-transaction-machine
- Using simulation and synthesis tools to verify designed circuits

Learning Materials

- Lectures: download on bk LMS(LEARNING MANAGEMENT SYSTEM)'s site
- Textbooks:





- Links for Verilog tutorial: (see on bk LMS's site)

Assessment

- Mini Project + (Quiz or Exercises): 30%
- Experiments: 10%
- Mid-term: 20%; Multiple choices.
- Final exam: 40%; Multiple choices.

Bonus

- Max +2 for final exam :))
  - if you obtain an international award in Math/Computer competition (at least third prize) or
  - if you get a certificate from well-known online courses.
- Max +1 for midterm
  - if you obtain an award in a Computer/Math competition.
- Note: whenever you take quiz, midterm, problem set, exercises, final exam etc .. (for online courses), you have to record your screen.
  - Submit your works (record links, certifications) before the last class of week 18.
  - +1 for 50% pass, 1.5 for 60%, 2 for 70%, 2.5 for 80%, and 3 for 90-100%
- If you want to obtain the bonus, email me first.

Q & A