Advanced Computer Architecture – Fall 2015

Text book:

"Computer Architecture – A quantitative approach", John L Hennessy, David A Patterson, Fourth Edition.

Tentative Course Outline

1. (Week-1) Introduction: Fundamentals of Computer Design (Ch-1)
2. (Week 2,3,4) Pipelining: Basic and Intermediate Concepts (A)
3. (Week 5,6) VLIW and Super-scalar architectures.
4. (Week 7) Computer Arithmetic (I)
5. (Week 8) Instruction-level Parallelism and Its Exploitation (Ch-2)
6. (Week 9) Limits on Instruction-level Parallelism (Ch-3)
7. (Week 10) Multiprocessors and Thread-Level Parallelism(Ch-4)
8. (Week 11) Vector Processors (F)
9. (Week 12) Review of Memory Hierarchy (C) (Chapter-7 ref book)
10. (Week 13) Memory Hierarchy Design (Ch-5),
11. (Week 14) Large-Scale Multiprocessors and Scientific Applications (H)
12. (Week 15) Latest research trends in Computer Architecture

Project

1. Write, test and simulate a pipelined MIPS processor using
    - VHDL/Verilog
    - Protieus (for CS students if they have not studied VHDL/Verilog)

Marks Distribution

Final	50
Mid term	20
Project(s)	20
Quiz + Assignment	10
Total	**100**