**Computer Architecture and Organization**

1. Introduction to computer systems,
2. Bits & Bytes,
3. Compilers,
4. Instruction Cycle,
5. Cache Memory,
6. Storage Devices,
7. Operating Systems,
8. Networks,
9. Representing and Manipulating Information,
10. Information Storage,
11. Integer Representations,
12. Integer Arithmetic,
13. Floating Point Representations,
14. Machine-Level Representation of Programs,
15. Program Encodings,
16. Data Formats,
17. Accessing Information,
18. Arithmetic and Logical Operations,
19. Control,
20. Procedures,
21. Array Allocation and Access,
22. Heterogeneous Data Structures,
23. Pointers,
24. gdb Debugger,
25. Out-of-Bounds Memory References and Buffer Overflow,
26. x86-64: Extending IA32 to 64 Bits,
27. Machine-Level Representations of Floating Point Programs,
28. Processor Architecture,
29. The Y86 Instruction Set Architecture,
30. Logic Design and the Hardware Control Language HCL,
31. Sequential Y86 Implementations,
32. General Principles of Pipelining,
33. Pipelined x86 Implementations.

**1.** Computer Systems: A Programmer's Perspective by Randal E. Bryant and David R. O’Hallaron, Pearson; 3rd Edition. (2015). ISBN-13:978-0134092669, ISBN-10:013409266.

**2.** MIPS Assembly Language Programming by Robert Britton, Pearson; 1st Edition. (2003). ISBN-13: 978- 0131420441, ISBN-10: 0131420445.

**3.** Computer System Architecture by M. Morris R. Mano, Pearson; 3rd Edition. (1993). ISBN-13: 978-0131755635, ISBN-10: 0131755633.