Chapter	Title	Overview
1	Introduction	• Computer components • Terminology • History • Computer Level Hierarchy • Cloud Computing • The Von Neumann Model • Non-Von Neumann Models • Parallel Computing
2	Data Representation in Computer Systems	• Positional Numbering System • Converting Between Bases o Converting to Decimal o Converting from Decimal • Signed Integer Representation • Floating-Point Representation • Character Codes • Error Detection and Correction
3	Boolean Algebra and Digital Logic	• Boolean Algebra • Logic Gates • Digital Components • Combinational Circuits • Sequential Circuits
4	MARIE: An Introduction to a Simple Computer	• CPU Basics and Organization • The Bus • Clocks • The Input/Output Subsystem • Memory Organization and Addressing • Interrupts • MARIE • Instruction Processing • Example Programs • Assemblers • Hardwired Versus Microprogrammed Control • Real-World Examples of Computer Architectures

Term	Definition
computationally infeasible	An algorithm that requires too much time to run on today's systems. An algorithm that has exponential or greater time complexity.
computer organization	The study of how control signals, signaling methods, memory types, and computation are integrated into a computer system.
computer architecture	The study of the structure and behavior of a computer from a programming perspective. Computer architecture includes the specification of instruction sets, data types, registers, I/O mechanisms, and memory.
instruction set architecture (ISA)	The interface between all software that executes on the machine and the hardware that implements the ISA.