

Schedule of lectures

(right to changes reserved)

(2/9) **Introduction** (Chapter 1)

Historical development of computers. The von Neumann model.

(2/16) **Data Representation in Computer Systems** (Chapter 2)

Integer, floating-point and character representation. Error detection and correction.

(2/23) **Boolean Algebra and Digital Logic** (Chapter 3)

Logic gates. Combinatorial and sequential circuits.

(3/2) **MARIE: An Introduction to a Simple Computer I** (Chapter 4.1-12)

CPU basics and organization. Discussion of assemblers.

(3/9) **MARIE: An Introduction to a Simple Computer II** (Chapter 4.13-14)

Discussion of decoding. Real-World Examples of Computer Architectures.

(3/16) **A Closer Look at Instruction Set Architecture** (Chapter 5)

Instruction formats. Instruction types. Addressing. Real-World examples of ISAs.

(3/23) **Memory and Input/Output** (Chapter 6 and 7.1-5)

Cache memory. Virtual memory. I/O architectures. Data transmission modes.

(3/30) **System Software** (Chapter 8)

Operating systems. Assemblers, link editors, compilers and interpreters.

(4/6) **Alternative Architectures** (Chapter 9)

Flynn's taxonomy. Parallel and multiprocessor architectures.

(4/13) **Network Organization and Architecture I** (Chapter 12.1-5)

ISO/OSI protocol unification. TCP/IP network architecture.

(4/20) **Network Organization and Architecture II** (Chapter 12.6)

Network organization.