

# CS2022

# Computer Architecture I

## Computer Architecture

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# CS2022 CS2022 Exam

▶ 4 Questions

▶ You must answer 3 questions

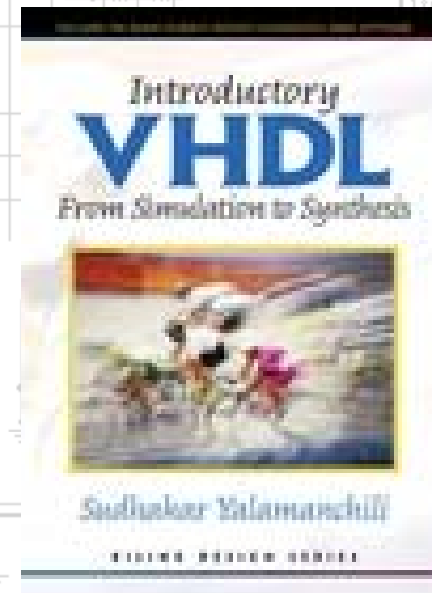
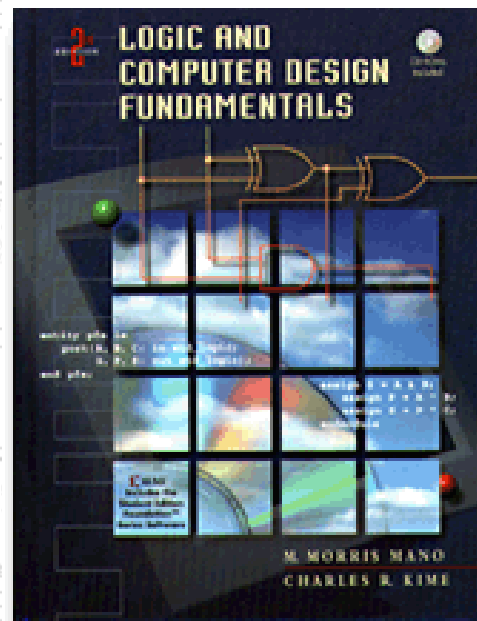
# CS2022 CS2022- Exam

► Questions will seek to establish that you have a good grasp of the following concepts:

- Microoperations
- Datapath
- Busses
- Alu/shift design
- Status bit generation and use
- Control unit design and operation

# CS2022 Course Text:

- ▶ “Introductory VHDL: From Simulation to Synthesis”
- ▶ “Logic and Computer Design Fundamentals” 2<sup>nd</sup> Edition updated, Mano (includes Xilinx Student Edition 4.2i software)





# CS2022 Organisation of the Course

## ▶ Lectures:

- ▶ Relate to chapter 7 and 8 of Mano & Kime textbook

## ▶ Prerequisite:

- ▶ Chapter 1-6 of Mano & Kime textbook

## ▶ Tutorials:

- ▶ Will largely be problems from Mano & Kime textbook and the two projects.

## ▶ Projects:

- ▶ There will be two in which you will be asked to design and simulate key elements of a processor.

# CS2022 Assessment

► By examination and coursework

► Ratio 80% to 20% respectively

# CS2022 Course Objective

▶ The aim is to give you a good understanding of the design and operation of an instruction processing unit and the functional subsystems which execute these instructions.

# CS2022 Von Neumann Architecture

- ▶ This design was first specified by John von Neumann in 1940 and so the resulting architecture is often called the 'von Neumann' architecture.
- ▶ Please see the following web page:
  - ▶ [http://www-gap.dcs.st-and.ac.uk/~history/Mathematicians/Von\\_Neumann.html](http://www-gap.dcs.st-and.ac.uk/~history/Mathematicians/Von_Neumann.html)

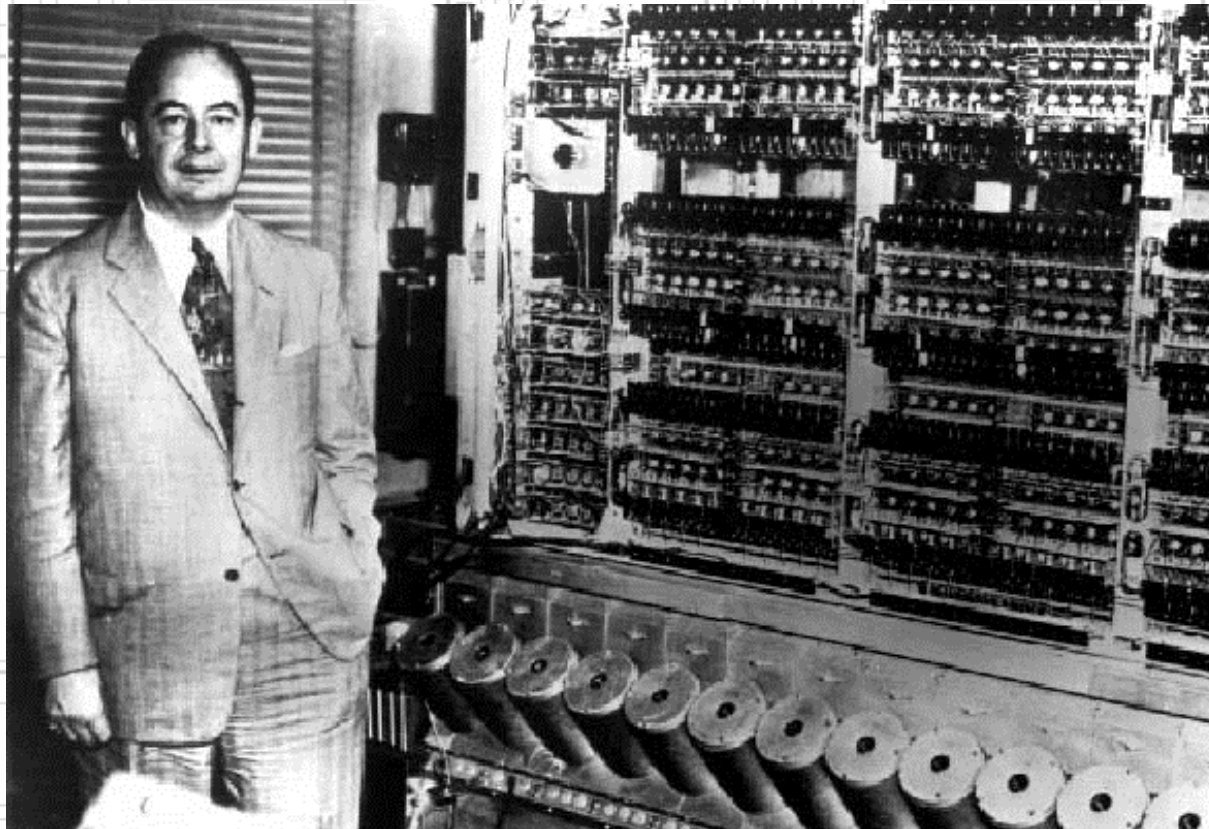


# CS2022

# John von Neumann

**Born: 28 Dec 1903 in Budapest, Hungary**

**Died: 8 Feb 1957 in Washington D.C., USA**



# CS2022 Datapath and Control Unit

