CSE 112: Computer Organization (Section A)

Instructor: Sujay Deb

Class Room: C101 Meeting: Tue, Thr 12:00 Noon

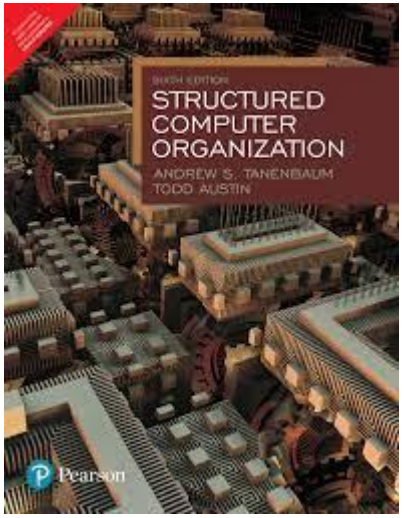
INDRAPRASTHA INSTITUTE *of*
INFORMATION TECHNOLOGY
DELHI

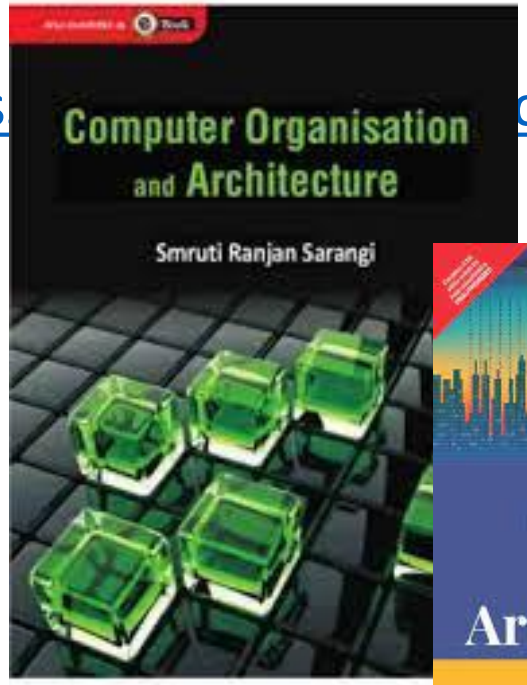
Course Information (Section A)

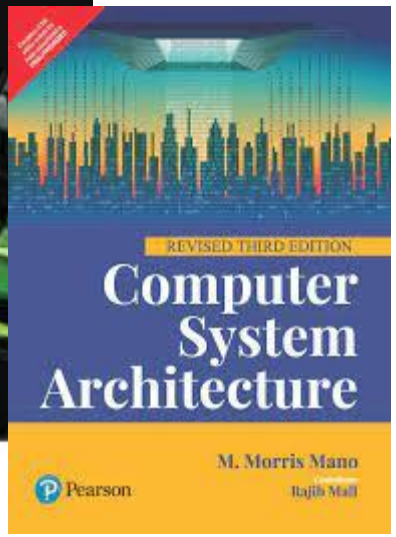
- Instructor:
  - Sujay Deb (sdeb@iiitd.ac.in)
  - Office A- 607 (Office Hours: Thr 3:00 - 4:00 PM)
- TA Support:
- Mentor TA:
  - Each student will have a mentor TA for
  - Tutorials
  - Dedicated Office hours
  - ..

Course Information

- Course web page: We will use Google Classroom for almost everything!
- **Class Code: wugafcs**
- Link: https://clas c/NDg1MTU3NDgyMDUz?cjc=wugafcs
- Textbook:







Grading structure

- Assignment: 10%
- Quizzes: 20%
- Midterm: 30%
- Final: 40%

- Lectures and discussions in class will cover basics of the course
- Tutorials, assignments and practice problems will help you gain a deep understanding of the subject

- Keep yourself in sync with the class, plan to spend at least 10-12 hrs per week on the course
- **Zero tolerance towards violation of Academic Integrity**

Course Objectives

1. Write programs in assembly language for a given machine (e.g., ARM)

2. Ability to analyze pipelines, data-path and interrupts, etc.

3. Simulate and appreciate different memory types, compare performance of cache memory, compare caches with different configuration

Course Description

- Introduction to computer systems
  - general overview of computer abstraction and technology
- Instruction set architecture
  - instruction type
  - format
  - operand
  - addressing mode

Course Description

- Computer arithmetic
  - addition
  - subtraction
  - multiplication and division
  - floating-point representation
- Basics of microprocessor
  - pipeline
  - datapath and control
  - data and control hazards

Course Description

- Parallelism
  - instruction level parallelism
- Memory hierarchy
  - exploiting locality using cache memory
  - virtual memory
- I/O and storage
  - performance of disk and file systems

Let’s Pause and ask ourselves

- Why we should study CSE 112?
  - Innovations are based on Computing platforms
  - Know how about these platforms are essential for appropriate decision making
  - This course will help us understand the functioning of a computer

Fastest Comp

- What is the s
  Computer?

TOP 10 Sites for June 2020

For more information about the sites and systems in the list, click on the links or view the complete list.

1-100 | 101-200 | 201-300 | 301-400 | 401-500

Rank	System	Cores	Rmax (TFlop/s)	Rpeak (TFlop/s)	Power (kW)
1	**Supercomputer Fugaku** - Supercomputer Fugaku, A64FX 48C 2.2GHz, Tofu interconnect D, Fujitsu RIKEN Center for Computational Science Japan	7,299,072	415,530.0	513,854.7	28,335
2	**Summit** - IBM Power System AC922, IBM POWER9 22C 3.07GHz, NVIDIA Volta GV100, Dual-rail Mellanox EDR Infiniband, IBM DOE/SC/Oak Ridge National Laboratory United States	2,414,592	148,600.0	200,794.9	10,096
3	**Sierra** - IBM Power System AC922, IBM POWER9 22C 3.1GHz, NVIDIA Volta GV100, Dual-rail Mellanox EDR Infiniband, IBM / NVIDIA / Mellanox	1,572,480	94,640.0	125,712.0	7,438

- Link: https://www.top500.org/lists/top500/2020/06/
- What is smallest Computer?

https://www.techrepublic.com/article/is-this-the-worlds-smallest-computer-ibm-chip-is-no-bigger-than-a-grain-of-salt/