COMP1003 Computer Organization

Lecture 0 Course Introduction

BNU-HKBU United International College

Course Objective

O This course answers one question: how does a modern computer work?

Instructor and TAs

O Instructor: Prof. Haipeng Guo (Purple group No. 1 – 45）
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O TA1: Mr. Steven Mian Li (red group No. 46 - 90)
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O TA2: Mr. Jeffrey Jingxiong Wang (blue group No. 91 - 135)
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O TA3: Ms. Dina Yitong Liu (green group No. 136 - 180)
   O Office: T3-602-R25-H11
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Lectures and Labs

O Lectures
  O Tuesday 15:00-16:50
  O Venue: T7-105
O Labs/Tutorials
  O Thursday 9:00-9:50 (start from week 2)
  O Venue: T4-302/T8-301/T29-101/T29-201
  O Lab Groups:
    O A: Purple: SN. 1 – 45, T4-302 (Prof. Haipeng Guo)
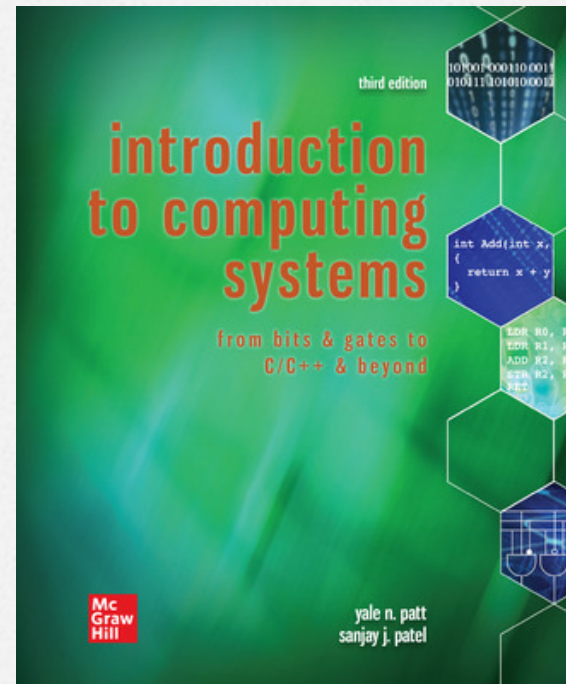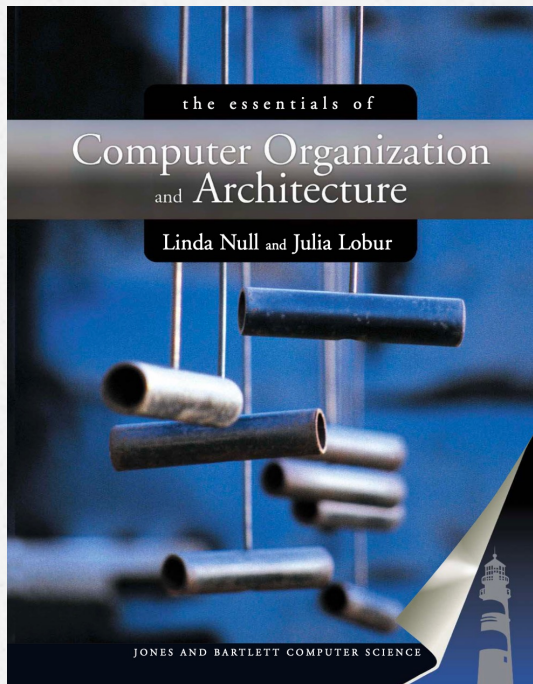   O B: Red: SN. 46 – 90, T8-301 (Mr. Steven Mian Li)
    O C: Blue: SN. 91 – 135, T29-101 (Mr. Jingxiong Wang)
    O D: Green: SN. 136 – 180, T29-201 (Ms. Dina Yitong Liu)

References

O Essentials of Computer Organization and Architecture By Linda Null and Julia Lobur.

O Introduction to Computing Systems: from bits & bytes to C & beyond By Yale N. Patt and Sanjay J. Patel.

Topics

O Fundamentals of Computer System

O Data Representation

O Boolean Logic

O Transistors, Gates and Digital Circuits

O Micro-architecture level

O Instruction Set Architecture (ISA)

O Assembly Programming

O Input/Output Organization

O Memory Organization

Assessment

| Type of Assessment Methods	Weighting	CILOs Addressed	Description of Assessment Tasks
Assignments	15%	1, 3, 4	Assignments will reinforce the principles conveyed in lecture using problems and situations that students will have to map between the computer and the real world in order to solve.
Labs	15%	2, 4, 5	Labs will focus on aspects of hardware and software at various levels of translation. Both digital circuits and programme code will be run in simulators, connecting theoretical concepts to the real world.
Quizzes	30%	1, 2, 3, 4	Quizzes will be used on an on-going basis to assess students' understanding of presented knowledge, and highlight areas of concern.
Final Examination	40%	1, 2, 3, 4	A final exam upon completion of the course will be used to assess students' level of achievement in terms of major learning outcomes.

CILOs

O Course Intended Learning Outcomes

  O Differentiate the computer levels of translation, and identify at which level a concept or technique resides.

  O Map real world concepts to representations in the computer and vice versa.

  O Analyze the execution of machine and assembly language instructions in terms of data flow and control signals for a given computer architecture.

  O Design simple combinational and sequential circuits.

  O Write assembly language programmes of moderate complexity.

1ˢᵗ Week Reading Assignments

O Notes

O Chapter 1 of both books
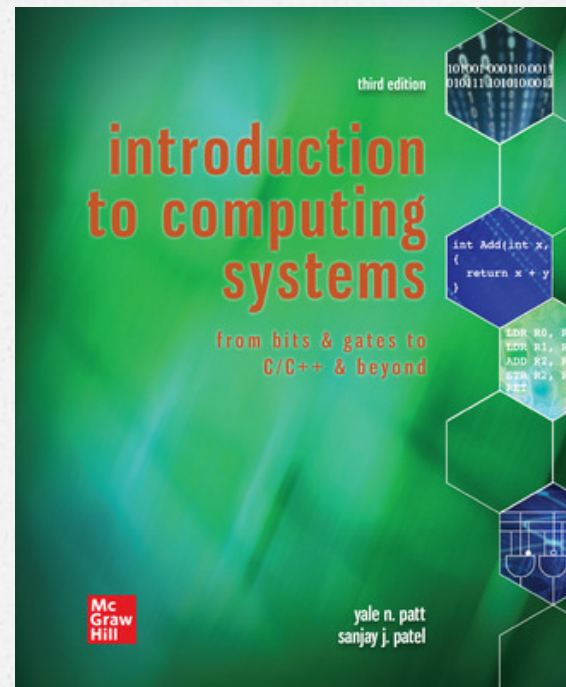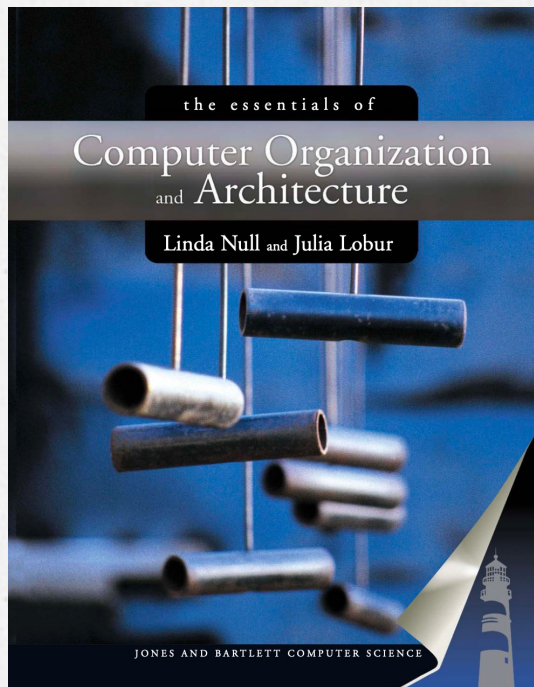
Discussion

O What is computation?

O Is playing a video clip on computers a computation?