Introduction to Computing (SE-101)

Who Am I?

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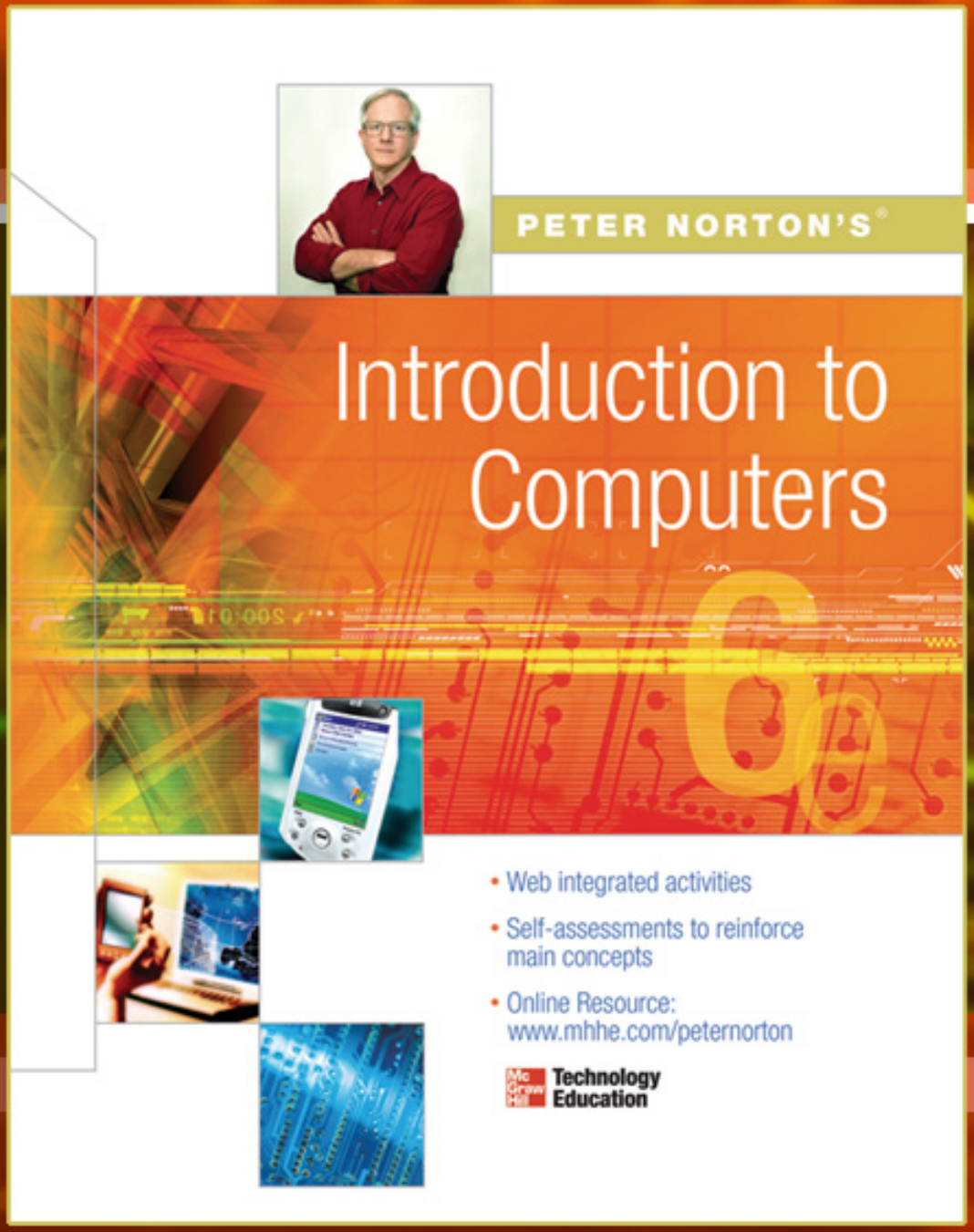
Book



Grading Criteria

Final Exam	40%
Mid Exam	20%
Quiz	10%
Lab Task	20%
Assignments	10%
Total	100%

Course Objectives

- History & Breadth-first coverage of computer science
- Introducing computing environments
- General application software
- Basic computing hardware, OS, Internet
- Software applications and tools, computer usage concepts
- Introducing software engineering and IT within the broader domain of computing
- Social issues of computing

Course Link

- http://web.uettaxila.edu.pk/CMS/AUT2011/seITCbs/index.asp

Introducing Computer Systems

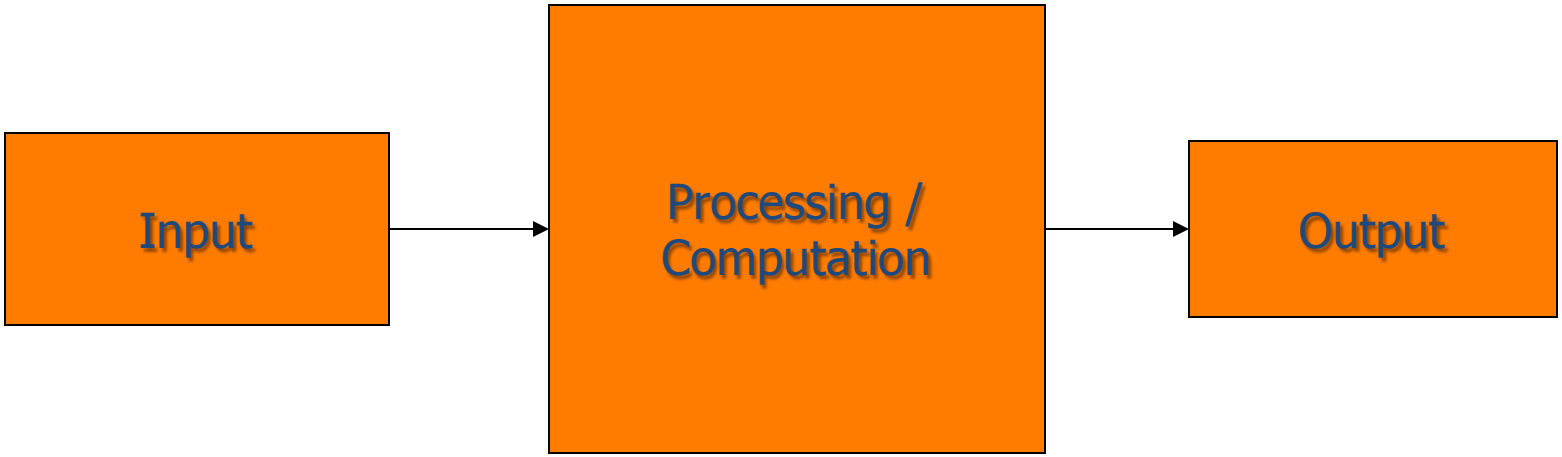
Lecture # 1

29th Nov. 2011

What is a Computer?

- [Norton] *A Computer is an electronic device that processes data, converting it into information that is useful to people*
- [Wikipedia] *A Computer is a programmable device, usually electronic in nature, that can store, retrieve and process data*
- [The American Heritage Dictionary]
    1. A device that computes… especially a programmable electronic machine that performs high-speed mathematical or logical operations or that assembles, stores, correlates, or otherwise processes information
    2. One who computes

What is a computer?



What can computers do?

- A computer does what it is told to do…
- You tell a computer what to do by giving it a list of **precise, unambiguous** instructions, a computer program
- Why are computer programs not written in English?
- Because languages such as English are inherently ambiguous

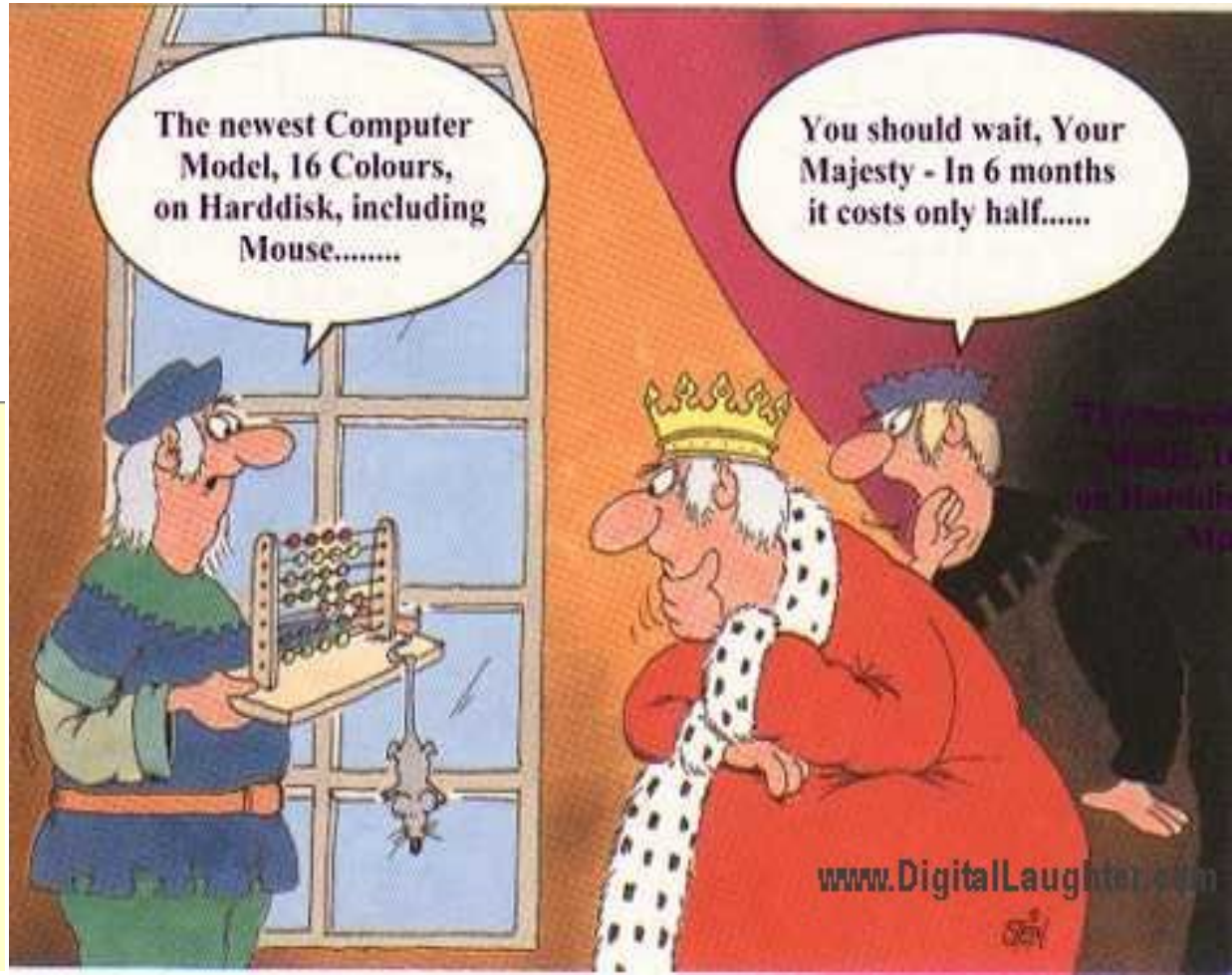
A bit of Computer history

- Computer was there 2000 years ago!!
- Abacus
- Charles Babbage (19th Century) worked on two mechanical devices
- the *Difference Engine* and the far more ambitious *Analytical Engine* (a precursor of the modern digital computer)

Is the Abacus a Computer?

Not really a computer, but rather a computing aid

The Abacus Today: A store clerk in Beijing, China uses the abacus to settle accounts. (Sep. 1997, courtesy Peter Wouda)



Jacquard Loom – A Real Computer?

http://**65.107.211.206/technology/jacquard.html**

Digital vs Analog

- Modern computers are digital
  - Two digits combine to make data
- Older computers were analog
  - A range of values made data

Five Computer Categories

- Supercomputers
- Mainframe computers
- Minicomputers
- Workstations
- Microcomputers, or personal computers

Computers For Individual Use

- Desktop computers
  - The most common type of computer
  - Sits on the desk or floor
  - Performs a variety of tasks
- Workstations
  - Specialized computers
  - Optimized for science or graphics
  - More powerful than a desktop

Computers For Individual Use

- Notebook computers
  - Small portable computers
  - Weighs between 3 and 8 pounds
  - About 8 ½ by 11 inches
  - Typically as powerful as a desktop
  - Can include a docking station

Computers For Individual Use

- Netbook computers
  - Smaller portable computers
  - Less expensive
  - Longer battery time
  - Less powerful than Notebooks
  - Reduced features than Notebooks
  - e.g., no cd/dvd drive

Computers For Individual Use

- Tablet computers
  - Newest development in portable computers
  - Input is through a pen
  - Run specialized versions of office products

Computers For Individual Use

- Handheld computers
  - Very small computers
  - Personal Digital Assistants (PDA)
  - Note taking or contact management
  - Data can synchronize with a desktop
- Smart phones
  - Hybrid of cell phone and PDA
  - Web surfing, e-mail access

Computers For Organizations

- Network servers
  - Centralized computer
  - All other computers connect
  - Provides access to network resources
  - Multiple servers are called server farms
  - Often simply a powerful desktop

Computers For Organizations

- Mainframes
  - Used in large organizations
  - Handle thousands of users
  - Users access through a terminal

Computers For Organizations

- Minicomputers
  - Called midrange computers
  - Power between mainframe and desktop
  - Handle hundreds of users
  - Used in smaller organizations
  - Users access through a terminal

Computers For Organizations

- Supercomputers
  - The most powerful computers made
  - Handle large and complex calculations
  - Process trillions of operations per second
  - Found in research organizations

Computers In Society

- More impact than any other invention
  - Changed work and leisure activities
  - Used by all demographic groups
- Computers are important because:
  - Provide information to users
  - Information is critical to our society
  - Managing information is difficult

Computers In Society

- Computers at home
  - Many homes have multiple computers
  - Most American homes have Internet
  - Computers are used for
    - Business
    - Entertainment
    - Communication
    - Education

Computers In Society

- Computers in education
  - Computer literacy required at all levels
- Computers in small business
  - Makes businesses more profitable
  - Allows owners to manage
- Computers in industry
  - Computers are used to design products
  - Assembly lines are automated

Computers In Society

- Computers in government
  - Necessary to track data for population
    - Police officers
    - Tax calculation and collection
  - Governments were the first computer users

Computers In Society

- Computers in health care
  - Revolutionized health care
  - New treatments possible
  - Scheduling of patients has improved
  - Delivery of medicine is safer

Questions?

If you have any query please feel free to ask

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