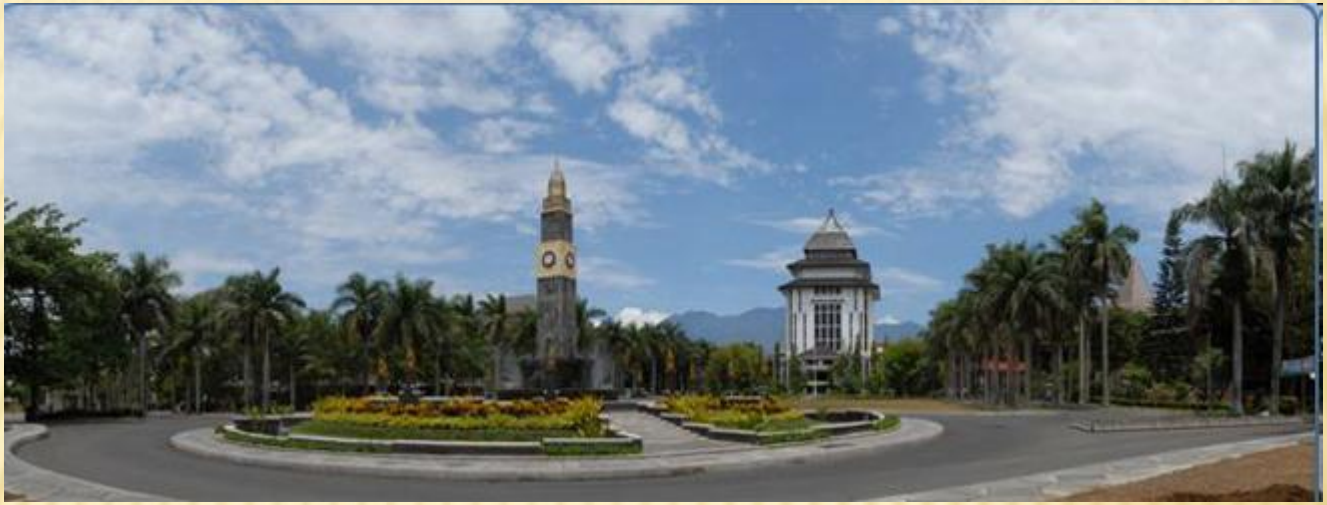

Heru Nurwasito Ir., MT.

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DASAR SISTEM INFORMASI

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DASAR SISTEM INFORMATIKA

- Description
- Mata kuliah Dasar Sistem Informatika memuat konsep dasar dari teknologi informasi yang dapat memberikan gambaran secara umum tentang pertumbuhan dan perkembangan TI dalam kehidupan sehari-hari dan pemanfaatkannya untuk meningkatkan atau memudahkan penggunanya dalam menyelesaikan suatu masalah.

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POKOK BAHASAN

- Pengantar Teknologi Informasi (TI)
- Internet dan World Wide Web
- Sofware: System Software
- Software: application software
- Hardware: CPU and Storage
- Hardware: Peralatan Input dan Output
- Komunikasi, Jaringan, dan Pengamanannya
- Quiz 1
- Teknologi Personal
- Basisdata (Databases)
- E-Busines E-Commerce & Sistem informasi
- Masyarakat dan Teknologi Informasi
- Pengembangan Sistem Informasi
- Pemrograman: Langkah-langkah
- Bahasa-bahasa Pemrograman
- Quiz 2

PUSTAKA

- Williams, B.K, Stacy C. Sawyer (2007). Using Information Technology: *A Practical Introduction to Computers & Communications*. Seventh Edition, McGraw-Hill, New York. ISBN-13: 978-0-07-110768-6

- Evaluasi: Quiz 40%, UAS 45%, Tugas 15%

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PERTEMUAN 1

PENGANTAR TEKNOLOGI INFORMASI

DUNIA DIGITAL

Sumber:
Chapter 1. Introduction to Information Technology

Williams, B.K, Stacy C. Sawyer (2007). **Using Information Technology:** *A Practical Introduction to Computers & Communications*. Seventh Edition, McGraw-Hill, New York. ISBN-13: 978-0-07-110768-6

LEARNING OUTCOMES

Pada akhir pertemuan ini, diharapkan mahasiswa akan mampu:

- Mahasiswa dapat menjelaskan: manfaat komputer; apa yang dimaksud dg teknologi informasi dan pengaruhnya dalam bisnis dan kehidupan
- menjelaskan: jenis-jenis komputer, empat operasi dasar komputer dan arah perkembangan TI

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OUTLINE MATERI

- Practical user
- Information technology & your life
- Infotech is all-pervasive
- The varieties of computer
- Understanding your computer
- Where is information technology headed

WHY BECOME COMPUTER SAVVY?

- Know what computers can do for you
- Know the limitations of computers
- Know how computers can harm you
- Know how to solve computer problems
- Know when & how to get help

Discussion Question: What was your worst computer problem?

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IT & YOUR LIFE: THE FUTURE NOW

Definition: *Information Technology (IT) describes any technology that helps to produce, manipulate, store, communicate, and/or disseminate information*

- Part 1: Computer Technology
- Part 2: Communication Technology

Discussion Question: How many times today did YOU use one of these technologies?

HOW IS IT BEING USED IN EDUCATION?

- 99% of schools have internet access
- 85% of college students own their own computer
- 75% of college students use the internet 4 or more hours per week
- ½ of all college professors require students to use email in their classes
- Many college classes are either taught online or have a class website

Definition: *Distance Learning is online education*

Discussion Question: Have you ever used the computer in your classroom for something other than the work in that class?

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RULES FOR COMPUTERS IN CLASSROOMS

- Problem: Computers in the classroom can be *used* or *misused.*
- *What should they be used for?*
  - Following the lecture slides
  - Working along with the instructor
  - Performing instructor-assigned internet searches
  - Completing assignments for this class
- *What is misuse?*
  - Text messaging or emailing friends
  - Surfing the internet for entertainment
  - Doing assignments for other classes

HEALTH: HIGH TECH FOR WELLNESS

- Telemedicine: Medical care via telecommunications lets doctors treat patients from far away
- 3D Computer models allow accurate tumor location inside a skull
- Robots permit precise microsurgery
- Handheld computers allow patients to measure blood sugar
- Medical implants allow stroke patients to directly control computers to talk for them
- Health websites provide medical information

MONEY: CASHLESS SOCIETY?

- Definition: *Virtual means something that is created, simulated, or carried on by means of a computer or a computer network*
- Virtual airline tickets
- Virtual money
  - Online bill paying
  - PayPal
  - Electronic payroll deposit
  - Micropayments for online music

Discussion Question: How important is security if all your money is virtual?

LEISURE: INFOTECH IN ENTERTAINMENT & THE ARTS

- Videogames
- Downloading
  - Movies
  - Music
  - Term papers?
  - Ethical/legal questions
- Most movies use computer animation
- Digital editing

IT IN GOVERNMENT & DEMOCRACY

- Governments can't control information
- Individuals can find multiple viewpoints on internet
- Email makes it easier to contact the government
- Competing websites promote & criticize politicians
  - www.whitehouse.gov
  - www.whitehouse.org
- Blogs are a tool for political candidates

JOBS & CAREERS

- Hotels: Desk clerks use computerized reservations systems
- Law Enforcement: Officers use computers
  - On patrol
  - To check stolen cars
  - To check criminal records
  - To check arrest warrants
- Entertainment:
  - Office uses like budgets, payroll, ticketing
  - Also virtual set design, 3-D animation, special effects

JOBS & CAREERS

- Office careers: Budget, payroll, letter-writing, email
- Teaching: Automated grading systems, emailing parents
- Fashion: Sales/inventory control systems, ordering, personnel
- Job-hunting:
  - Use word processor to create resumes
  - Post resumes online
  - Online job searches

Discussion Question: Can anyone think of a career that does NOT require computer skills?

THE TELEPHONE GROWS UP

- 1973: First cellphone call
- 2006: Nokia estimates 2 billion mobile phone subscribers
- Today's cellphones:
  - Are mobile
  - Can take and send pictures
  - Can connect to the internet
  - Can send and receive text messages

Discussion Question: Why are cellphones banned in high-security military

INTERNET, WORLD WIDE WEB, & CYBERSPACE

- Internet
  - The worldwide computer network
  - Links thousands of smaller networks
  - Links educational, commercial, military entities, and individuals
  - Originally developed to share only text and numeric data

INTERNET, WORLD WIDE WEB, & CYBERSPACE

- World Wide Web
  - The multimedia part of the internet
  - An interconnected system of servers that support specially formatted documents in multimedia form
  - Includes text, still images, moving images, sound
  - Responsible for the growth and popularity of the internet

INTERNET, WORLD WIDE WEB, & CYBERSPACE

- Cyberspace
  - Term coined by William Gibson in *Neuromancer* (1984)
  - Described a futuristic computer network people "plugged" into directly with their brains
  - Now means
    - The web
    - Chat rooms
    - Online diaries (blogs)
    - The wired and wireless communications world

EMAIL TIPS

- Always put a subject line in your message
  - For short messages, that's all you need
- Send attachments only when necessary
  - Every recipient gets a copy –
  - For 500 people that's 500 copies!
  - For a short attachment, copy the text to the email itself instead of sending the attachment
- Don't open attachments unless you know the sender
  - It could contain a virus or malware

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EMAIL TIPS

- Use discretion about sending emails
  - Emails aren't secret
  - They can be easily forwarded to others
- Check grammar, spelling to bosses, customers
- Don't use email to express criticism or sarcasm
- Email received at work is the property of your employer
- Deleting email messages does not remove them everywhere
- Don't neglect real personal contact

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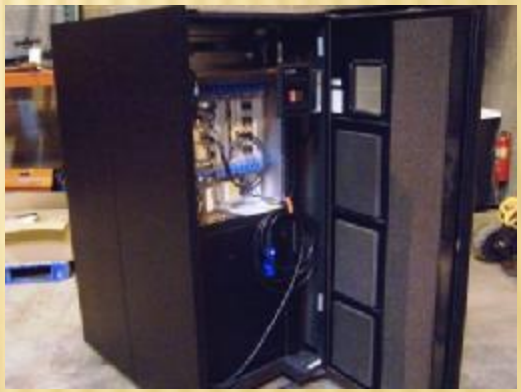
5 COMPUTER TYPES

- Supercomputers
  - Priced from $1 million to $350 million
  - High-capacity machines with thousands of processors
  - Multi-user systems
  - To learn more about one, go to http://www.llnl.gov/asci/platforms/bluegenel/
- Mainframe Computers
- Workstations
- Microcomputers
- Microcontrollers

5 COMPUTER TYPES

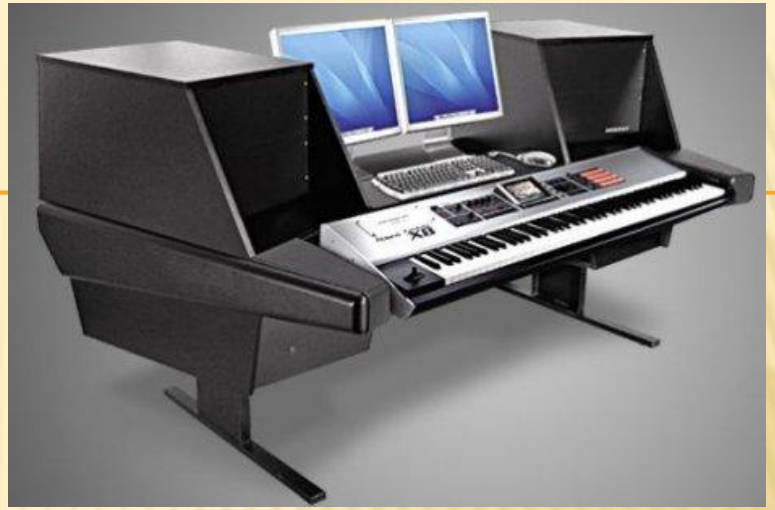
- Supercomputers
- Mainframe Computers
  - Until late 1960's, the only computer available
  - Cost $5,000 - $5 million
  - Multi-user systems; accessed using a terminal
  - Terminals only have a keyboard and monitor; can't be used alone
  - To see one, go to

http://www-03.ibm.com/servers/eserver/zseries/



- Workstations
- Microcomputers
- Microcontrollers

5 COMPUTER TYPES



- Supercomputers
- Mainframe Computers
- Workstations
  - Introduced in early 1980s
  - Expensive, powerful personal computers
  - Used for scientific, mathematical, engineering, computer-aided design (CAD), computer-aided manufacturing (CAM)
  - A less-expensive alternative to mainframes
  - To see some examples with current pricing, go to

    http://www.mce.com
- Microcomputers
- Microcontrollers

5 COMPUTER TYPES

- Supercomputers
- Mainframe Computers
- Workstations
- Microcomputers
  - Personal computers that cost $500 to $5000
  - Used either stand-alone or in a network
  - Types include: desktop, tower, notebooks, or Personal Digital Assistants (PDAs)
- Microcontrollers

5 COMPUTER TYPES

- Supercomputers
- Mainframe Computers
- Workstations
- Microcomputers
- Microcontrollers
  - Also called embedded computers
  - Tiny, specialized microprocessors inside appliances and automobiles
  - They are in: microwaves, programmable ovens, blood-pressure monitors, air bag sensors, vibration sensors, MP3 players, digital cameras, e-pliances, keyboards, car engine controllers, etc.

*Discussion Question: **Now,** how many of you would say you have NOT used a computer today?*

SERVERS

- Are central computers
- May be any of the 4 larger computer types.
- “Server” describes a function
  - Hold data (databases) and programs
  - Connect to and supply services for clients
  - Clients are other computers like PCs, workstations, other devices

UNDERSTANDING YOUR OWN COMPUTER

- 3 key concepts
  - Purpose of a computer
    - Turn data into information
    - Data: the raw facts and figures
    - Information: data that has been summarized and manipulated for use in decision making
  - Hardware vs. Software
    - Hardware is the machinery and equipment in the computer
    - Software is the electronic instructions that tell the computer how to perform a task

UNDERSTANDING YOUR OWN COMPUTER

- 3 key concepts (continued)
  - The basic operations
    - Input: What goes in to the computer system
    - Processing: The manipulation a computer does to transform data into information
    - Storage:
      - Temporary storage: Memory is *primary storage*
      - Permanent storage: Disks and media such as DVDs and CDs are *secondary storage*
    - Output: What comes out
      - Numbers or pictures on the screen, printouts, sounds
    - Communications: Sending and receiving data

BUILDING YOUR OWN PC

- What would you need?
  - Keyboard & Mouse
  - Inside the system cabinet
    - Case and power supply
    - Processor chip – the Central Processor Unit (CPU)
    - Memory chips – Random Access Memory (RAM)
    - Motherboard – the system board
      1. Memory chips plug in
      2. Processor chip plugs in
      3. Motherboard attaches to system cabinet
      4. Power supply is connected to system cabinet
      5. Power supply wire is connected to motherboard
  - Storage Hardware: Floppy, Hard Drive, Zip, CD/DVD, U

BUILDING YOUR OWN PC

- Storage Hardware: Floppy, Hard Drive, Zip, CD/DVD, USB
  - Storage capacity is represented in bytes
    - 1 byte = 1 character of data
    - 1 kilobyte = 1,024 characters
    - 1 megabyte = 1,048,576 characters
    - 1 gigabyte = over 1 billion characters
    - 1 terabyte = over 1 trillion characters
    - 1 petabyte = about 1 quadrillion characters
  - Permanently installed: floppy drives, hard drives, Zip drives, CD/DVD drives, USB ports
  - Removable media: floppy disks, Zip disks, CD DVDs, flash drives

BUILDING YOUR OWN PC

- Output hardware
  - Video and sound cards
  - Monitor
  - Speakers
  - Printer
  - Joystick
- Communications hardware
  - Modem (internal or external)
  - Network Card

SOFTWARE

- System Software (Operating System)
  - Must be installed before application software
  - Operating System (OS) options for the PC
    - Linux
    - Windows
    - Unix
  - Operating System (OS) options for the Mac
    - Mac OS
- Application Software
  - Install after the OS
  - Application depends on OS, for example
    - Linux applications won't work on Windows
    - Windows applications won't work on Linux

FUTURE OF INFORMATION TECHNOLOGY

- 3 directions of Computer Development
  - Miniaturization
  - Speed
  - Affordability
- 3 directions of Communications Development
  - Connectivity
  - Interactivity
  - Multimedia

CONVERGENCE, PORTABILITY, & PERSONALIZATION

- Convergence: the combination of
  - Computers
  - Consumer electronics
  - Entertainment
  - Mass media
- Portability
- Collaboration: software that allows
  - People to share anything instantly
  - People to enhance the information as they forward it

ETHICS

- Definition: *Ethics is the set of moral values or principles that govern the conduct of an individual or group*
- Is ethics relevant for Information Technology?

DISCUSSION

- How important is ethics if all your personal information, health information, AND virtual money is stored on computers?

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