1. **Introduction to Computers**
   Students will be introduced to basic computer concepts, such as what a computer is, how it works and what makes it a powerful tool. Students will also learn about the major computer technology developments during the past 72 years.

2. **The Internet and the World Wide Web**
   Students will learn about the Internet, the World Wide Web, browsers, e-mail, FTP, and instant messaging.

3. **Application Software**
   Students will be introduced to a variety of business software, graphics, and multimedia software, home/personal/educational software, and communications software.

4. **The Components of the System Unit**
   Students will be introduced to the components of the system unit; how memory stores data, instructions, and information; and how the system unit executes an instruction.

5. **Input**
   Students will be introduced to the various techniques of input and commonly used input devices. Special attention will be paid to personal mobile device operating systems, built-in personal mobile device software, personal mobile device application software and services, and how to obtain and install personal mobile device software. Students will also be introduced to a personal mobile device buyer’s guide.

6. **Output**
   Students will be introduced to the various techniques of output and commonly used output devices. As a special feature, students will be introduced to using a personal computer, digital camera, and digital video camera to manipulate and distribute photographs and video.

7. **Storage**
   Students will learn about various storage media and storage devices.

8. **Operating Systems and Utility Programs**
   Students will learn about a variety of stand-alone operating systems, network operating systems, and embedded operating systems. Students will also be introduced to the Buyer’s Guide 2009: How to Purchase a Personal Computer.

9. **Communications and Networks**
   Students will be introduced to an overview of communications technology and applications.

10. **Database Management**
    Students will be presented with the advantages of organizing data in a database and they will investigate various types of data.

11. **Computer Security, Ethics, and Privacy**
    Students will learn about computer and Internet risks, ethical issues surrounding information accuracy, intellectual property rights, codes of conduct, information privacy, and computer-related health issues. Time permitting, students will be introduced to the scope of, process, and tools involved in computer forensics work.

12. **Information System Development**
    Students will be introduced to the system development cycle and guidelines for system development.

13. **Programming Languages and Program Development**
    Students will be introduced to the program development cycle, program design methods, and popular programming languages.

14. **Enterprise Computing**
    Students will learn about the special computing requirements used in an enterprise-sized organization. Time permitting, a case study will be used to introduce students to how modern-day enterprises process a customer order.
15. Computer Careers and Certification
Students will be presented with a broad overview of computer-related careers, career development, and certification. Time permitting, students will be introduced to a personal computer as a digital entertainment device.

Course Content

Textbook: Discovering Computers 2009, by Gary B. Shelly, Thomas J. Cashman, and Misty E. Vermaat. The following chapters including the particular sections listed are covered. (See textbook “Contents”)

1. Introduction to Computers
   - World of Computers
   - What is a Computer?
   - The Components of a Computer
   - Advantages and Disadvantages of Using Computers
   - Networks and the Internet
   - Computer Software
   - Categories of Computers
   - Personal Computers
   - Mobile Computers and Mobile Devices
   - Game Consoles
   - Servers
   - Mainframes
   - Supercomputers
   - Embedded Computers
   - Elements of an Information System
   - Examples of Computer Usage
   - Computer Applications in Society

2. The Internet and the World Wide Web
   - The Internet
   - History of the Internet
   - How the Internet Works
   - The World Wide Web
   - E-Commerce
   - Other Internet Services
   - Netiquette

3. Application Software
   - Application Software
   - Business Software
   - Graphics and Multimedia Software
   - Software for Home, Personal, and Educational Use
   - Application Software for Communications
   - Popular Utility Programs
   - Web-based Software
   - Learning Aids and Support Tools for Application Software

4. The Components of the System Unit
   - The System Unit
   - Processor
   - Data Representation
   - Memory
   - Expansion Slots and Adapter Cards
5. **Input**
   What is Input?
   What are Input Devices?
   The Keyboard
   Pointing Devices
   Mouse
   Other Pointing Devices
   Controllers for Gaming and Media Players
   Voice Input
   Input for PDAs, Smart Phones, and Tablet PCs
   Digital Cameras
   Scanners and Reading Devices
   Terminals
   Biometric Input
   Putting It All Together
   Input Devices for Physically Challenged Users

6. **Output**
   What is Output?
   Display Devices
   Flat-Panel Displays
   CRT Monitors
   Printers
   Speakers, Headphones, and Earphones
   Other Output Devices
   Putting It All Together
   Output Devices for Physically Challenged Users

7. **Storage**
   Storage
   Magnetic Disks
   Optical Disks
   Tape
   PC Cards and Expresscards
   Miniature Mobile Storage Media
   Microfilm and Microfiche
   Enterprise Storage
   Putting It All Together

8. **Operating Systems and Utility Programs**
   System Software
   Operating Systems
   Operating System Functions
   Operating System Utility Programs
   Types of Operating Systems
   Stand-Alone Operating Systems
   Network Operating Systems
   Embedded Operating Systems
Stand-Alone Utility Programs

9. **Communications and Networks**
   - Communications
   - Uses of Computer Communications
   - Networks
   - Network Communications Standards
   - Communications Software
   - Communications Over the Telephone Network
   - Communications Devices
   - Home Networks
   - Communications Channel
   - Physical Transmission Media
   - Wireless Transmission Media

10. **Database Management**
    - Databases, Data and Information
    - The Hierarchy of Data
    - Maintaining Data
    - File Processing Versus Databases
    - Database Management Systems
    - Relational, Object-Oriented, and Multidimensional Databases
    - Web Databases
    - Database Administration

11. **Computer Security, Ethics, and Privacy**
    - Computer Security Risks
    - Internet and Network Attacks
    - Unauthorized Access and Use
    - Hardware Theft and Vandalism
    - Software Theft
    - Information Theft
    - System Failure
    - Backing Up – the Ultimate Safeguard
    - Wireless Security
    - Ethics and Society
    - Information Privacy
    - Health Concerns of Computer Use

12. **Information System Development**
    - The System Development Cycle
    - What Initiates the System Development Cycle?
    - Planning Phase
    - Analysis Phase
    - Design Phase
    - Implementation Phase
    - Operation, Support, and Security Phase

13. **Programming Languages and Program Development**
    - Computer Programs and Programming Languages
    - Low-Level Languages
    - Procedural Languages
    - Object-Oriented Programming Languages and Program Development Tools
    - Other Programming Languages
    - Other Program Development Tools
    - Web Page Development
    - Multimedia Program Development
The Program Development Cycle
Step 1 – Analyze Requirements
Step 2 – Design Solution
Step 3 – Validate Design
Step 4 – Implement Design
Step 5 – Test Solution
Step 6 – Document Solution

14. Enterprise Computing
   What is Enterprise Computing?
   Information Systems in the Enterprise
   Enterprise-Wide Technologies and Methodologies
   E-Commerce
   Enterprise Hardware
   Backup Procedures

15. Computer Careers and Certification
   The Computer Industry
   Careers in the Computer Industry
   Preparing for a Career in the Computer Industry
   Certification
   A Guide to Certification