

## Course Descriptions

### 1.Introduction to computers

This course including basic knowledge of computer systems (composition, working principle, the number and coding, basic arithmetic, logic algebra and logic circuits), computer system hardware (Central processor, memory, input/output system, the whole structure, system structure), computer systems software (algorithms and data structures, programming languages, database systems, compiler theory, operating systems, software engineering), computer system application (computer networks, multimedia, virtual reality, artificial intelligence, computer control systems, computer information security and ethics), Introduction to Computer Science labs, and professional study guides.

### 2.Computer Operating Practice

This course progressive introduction to the Windows XP operating system, Word 2003 word processing software, Excel 2003 spreadsheet software, PowerPoint 2003 presentation software, IE browser, image processing software Photoshop and web authoring software FrontPage 2003 applications.

### 3.Program Design Basics

The course consists of four parts, Part 1 introduces the concepts of the programming and the running environment of program, Part 2 describes the basic data types, operators and expressions, Part 3 describes the sequence of process-oriented program, the branch selection and loop three control structures, Part 3 introduced the concept of array and pointers, structures, and other data types, functions and call, Part 4 introduced the "mini address book query system" and "student performance management system," the design process and code studying.

### 4.Priciples of Database System

This course consists of five parts. Part 1 describes the basic concepts and architecture, relational database systems, security and integrity of the database. Part 2 describes the basic steps and design methods of database design, entity - relationship model and extended entity - relationship model, functional dependency theory of relational database. Part 3 describes the physical storage structure of the database, data dictionary, relational algebra operation algorithms, query optimization technology and transaction processing technology. Part 4 describes the new generation of database technology and applications, extended relational database systems, object-oriented and object-relational database systems, distributed database systems and parallel database technology. Part 5 describes the new progress in the field of database, including data warehousing and online analytical, data mining, web information retrieval and web data management technology.

### 5.Communications Network Theory

This course introduced the concept of communication network and the basic composition of the network, network traffic analysis and queuing theory principles, multiple access systems analysis, communication network structure, communication network traffic optimization, communication network reliability.

## 6. Digital Signal Processing

This course is presented: transfer the motion of things into a string of numbers, extract useful information by a calculation method, in order to meet the needs of our practical application.

## 7. Microcomputer Principle and Interface Technology

This course take Intel 8086CPU as main line, introduced a microcomputer system's basic components, working principle, instruction set. And presented assembly language programming, semiconductor memory technology, hardware interface technology, bus technology, PC software system. Letting students have a solid grasp of the principles and hardware interface technology of microcomputer, establish the whole concept of micro computer system.

## 8. Computer Network

This course according to the network protocol model (physical layer, data link layer, network layer, transport layer, session layer, presentation layer and application layer) describes the basic principles of computer networks. During telling each network layer, it is also integrated into the rapidly developing network technologies in recent years, such as Internet, SONET, ADSL, CDMA, WLAN and Bluetooth.

## 9. Principle of communication

Communication system as a practical system, is designed to meet the needs of society and individuals. Its purpose is transmitting a message (data, voice and images, etc.). Development of communication technologies, especially in the past 30 years, formed the main theoretical system communication principle, namely, information theory, coding theory, the theory of modulation and demodulation, synchronization and channel multiplexing and so on. This course focuses on the introduction of digital communication systems basic theory and method of generating, transmission and demodulation of communication signals, so that students understand and are familiar with the basic theory and analysis of communication systems, and lay a good foundation for the follow-up courses.

## 10. Single-Chip Microcomputer Technology Course Design

Design a real Single-Chip Microcomputer system by using the knowledge which studied from the course 'Single-Chip Microcomputer Technology'. Design the circuit by Protel, and program by Keil C51.

## 11. Communication Principles Course Design

Make ideal channel time-multiplexed digital baseband communications system, 2DPSK communications system and 2FSK communications system by digital signal source modules, digital terminal module, bit synchronization module, frame synchronization module, digital modulation, 2DPSK demodulation, carrier synchronization and 2FSK demodulation. And observe each system by oscilloscope.

## 12. Enterprise Operation Sand table simulation practice

Through the entire process of production and operation simulation, learning-related business

management knowledge procurement management, strategic management, financial management, production and operations management, marketing management, human resources management, master management skills and improve the quality of management and the integrated use of knowledge management capacity. Simulation of business activities through the team, feel team communication, the need for effective coordination, teamwork, interpersonal communication skills and conflict coordination.

### 13. Networking Technology and Equipment

The course consists of four parts, Part 1 introduces IP address and network interconnection. Part 2 introduces base of router, static routing and dynamic routing, distance vector routing protocol, OSPF routing protocol, access control lists, WAN link technology. Part 3 introduces switches and VLAN, spanning tree protocol. Part 4 introduces IPv6 technology, route optimization, network address translation, backup technology, OSPF over frame relay.

### 14. Single-Chip Microcomputer Technology

This course introduced the MCS-51 microcontroller hardware architecture, instruction set, assembly language programming, interrupt system, system expansion and other theoretical knowledge, and explain in detail with examples single-chip microcontroller application system design, development, debugging process.

### 15. Modern Switching Technology

In communication network, switching technology is a key technology, which determines the performance of the network and what services to provide. This course describes the theory, related protocols and applications of various switching technology in modern communication network. This course including circuit-switched technology in telephony, telecommunication network signaling system, packet switching technology and frame relay technology in data communication, ATM technology in broadband switching, layer switching, IP switching and MPLS technology in computer network, optical switching technology.

### 16. Local Access Network Technologies

The access network is an important part of the telecommunications network. This course introduced the basic knowledge of the access network, copper access technology, cable modem access technology, Ethernet access technology, optical fiber access technology, wireless access technology, access network interface technology and access network management technology.

### 17. SDH Principle and Technology

This course systematically introduces SDH rate and frame structure, multiplexing structure, mapping method and pointer adjustment technology, packaging technology and implementation of MSTP, SDH equipment functional description, SDH network protection and recovery technology, SDH network synchronization structure and timing mode, optical interface and technical requirements, the performance of SDH transmission network and SDH network management functions.

### 18. DWDMO & Optical Networking Technologies

This course introduces DWDM(dense wavelength-division multiplexing) technology and systems. Explain the function of each component in DWDM system. It introduces transmission network of optical fiber.

#### 19.Communication System Comprehensive Applying

This course introduces telephone PBX configuration, fiber weld technology, outdoor fiber installation.

#### 20.Mobile Communication Technology

This course introduces the overview of mobile communications, radio propagation and interference in mobile channel, network technology, GSM digital mobile communication system, CDMA mobile communication system, the third generation mobile communication system (3G).