

Curriculum of Computer Science and Technology

Xidian University

**The information below is extracted from the existing curriculum for your reference. The university reserves the right to adjust the curriculum as appropriate. Therefore, please refer to the curriculum used in the year of entry as final curriculum.*

1. Program Overview

University: Xidian University

School: School of Computer Science and Technology

Major: Computer Science and Technology

Duration: 4 Years

Awarding Degree: Bachelor of Engineering

2. Teaching Outcome

Computer science and Technology faces the main battlefield of the world economy, building a top-notch innovative talent training base, insisting on morality and cultivating people, cultivating all-round development of knowledge, ability and quality, strong innovative thinking, engineering practice ability, and strong key in computer-related fields Core technology research and development capabilities, engineering practice capabilities, industry backbones and leaders with an international

perspective.

1. Have good humanistic and professional qualities, and be able to contribute positive energy to the promotion of social progress;
2. Be able to independently engage in the planning, architecture, design and development of computer and application systems in computer-related fields;
3. Be able to play a coordinating, organizing or managing role in a project, product or research team;
4. Be able to continuously learn and update knowledge to improve comprehensive ability and business level.

3. Curriculum

(1) Course Number: CS006001X

Course Name: (Computer Introduction and Programming)

Hours: 64 Credit: 4

Introduction: Through the study of the introduction part, master the basic principles of Turing machines, the basic composition and principles of computers; understand the development history, status quo and development trends of various fields of computer; understand data structures and algorithms, computer networks, operations from the system level Basic knowledge of software systems such as systems and

databases; master the basic operation and application of computers through practical links. Cultivate logical thinking and establish programming ideas through the study of programming part, focusing on cultivating students' ability to analyze problems and use high-level languages for programming to solve practical problems; master the basic knowledge of C language, C language program structure, syntax and function library, basic design methods for simple algorithms and data structures.

(2) Course Number: CS203003X

Course Name: (Data Structures) Hours: 68 Credit: 4

Introduction: Data structure is a professional basic course of computer science. The task of the course is to systematically introduce various basic data structures and algorithms related to computer science to students, so as to lay a solid foundation for further study of related subjects. Through the study of this course, students should master the concepts, implementation methods and basic algorithms of various basic data structures, and be proficient in using these data structures or designing new data structures to solve related application problems.

(3) Course Number: CS203013X

Course Name: (I) (Discrete Mathematics (I))

Hours: 52 Credit: 3

Introduction: Discrete mathematics is a general term for mathematical branches that study discrete quantitative relationships and discrete structural mathematical models. It is not only the most important core basic course for computer science and technology, network engineering and Internet of Things engineering, but also for learning professional theory. Essential math tool. Mathematical logic is to use symbolic methods to study the laws of reasoning. Set theory is the foundation of modern set theory. Graph theory has a wide range of applications in computer science and other disciplines. The main teaching tasks and goals of this course are: to systematically introduce the viewpoints and methods of modern mathematics to students, to enable students to master the necessary description tools and methods for dealing with discrete structures, to cultivate students' abstract thinking and rigorous reasoning, judgment and generalization ability, to learn Analyzing and solving problems by means of mathematical models, laying a solid theoretical foundation for the study of professional basic courses and professional courses.

(4) Course Number: CS203005

Course Name: (Microcomputer Principle and System Design)

Hours: 54 Credit: 3

Introduction: This course is a professional basic course for computer science and technology majors, and is the main course of computer hardware teaching. According to the professional training plan, this course involves related knowledge of microcomputer system and single-chip microcomputer system, with broad knowledge and strong practicality. This course mainly describes the basic structure and working principle of the microcomputer system, the design method of the microcomputer application system, and extends the relevant knowledge to the single-chip microcomputer system. The course focuses on the integration of basic knowledge and new technologies, and the transformation from theory to practice. The goal is to enable students to master the technologies and design methods that should be possessed when using microcomputers and single-chip microcomputers to form application systems, to have systematic engineering practice learning experience, and to understand the frontier development status and trends of this major. This course offers in-class experiment (16 hours) and course design (one week), and its comprehensive experiment is completed by the course "Single-chip Circuit Design and Development".

(5) Course Number: CS203006

Course Name: (Computer Organization and Architecture)

Hours: 88 Credit: 5.5

Introduction: This course is a professional basic course for computer science and technology, network engineering and Internet of Things engineering. According to the professional training plan, the course contents such as computer composition principle and computer system structure are integrated, and the knowledge is broad and the difficulty is relatively high. This course mainly describes the basic composition of computer, the structure and working principle of major components, instruction execution process and CPU micro-architecture, pipeline technology, parallel computer architecture, ways to improve the performance of computer components and the whole machine, advanced computer architecture, etc., the course focuses on the integration of basic knowledge and new technologies, and the transformation from theory to practice. The goal is to cultivate talents with innovative and practical skills, truly understand and master the basic composition and structure of computers, and master the comprehensive design technology of software and hardware of computer systems.

(6) Course Number: CS203007X

Course Name: (Operating System) Hours: 68 Credit: 4

Introduction: Operating system is a professional basic course for computer science and technology majors and educational technology majors, and a compulsory course for undergraduate students. In the

computer system, the operating system is the foundation of all software, the foundation of the software, and the core system software in the computer system. It specially controls and manages various software and hardware resources in the computer system, and provides the interface between the user and the computer. Its performance directly affects the work efficiency of the computer system, so the operating system is an important course for computer-related majors. Through the study of this course, students can systematically master the basic concepts, main functions, working principles and implementation technologies of operating systems; have the ability to use and analyze operating systems. Through practice, understand and master the basic working principles of the modern popular Unix, Windows, and Linux operating systems, and lay a solid foundation for the development of various application software or system software on the operating system platform in the future.

(7) Course Number: CS203008X

Course Name: (Computer Communication and Network) Hours:
68 Credit: 4

Introduction: This course introduces the basic principles of computer communication and network based on the TCP/IP architecture of the Internet on the basis of a comprehensive introduction to the basic

knowledge of computer communication and network, the theoretical basis of data communication, data link control, media systematic teaching of access mechanism, network interconnection mechanism, transmission control mechanism, etc., introduction of new technologies such as SONET, xDSL, Gigabit Ethernet, IP multicast technology, 3G mobile communication, etc., and configuration experiments of routers and switches at the same time and protocol design and testing of analytical experiments. Through the study of this course, the students can systematically master the basic concepts and principles of data communication, computer communication and network, understand the relevant theories of OSI and TCP/IP architecture and data communication, and the operating principles and related principles of main protocols of computer communication and network, IEEE local area network standards and their applications, principles of IPv4, IPv6 and network interconnection, network control mechanisms such as transmission control and congestion control, configuration and use of common network equipment, analysis and design of key network protocols, etc., so that students can make full use of and Master advanced network design, analysis, planning and management methods and means, and lay a solid foundation for students to engage in computer network design, analysis, development and management and other related work.

(8) Course Number: CS203009

Course Name: (Database System) Hours: 48 Credit: 3

Introduction: Database system and technology is an important facility for modern computer information processing, and is the basis for research directions such as distributed databases, parallel databases, and data mining. Therefore, mastering the database system and its related technologies is crucial.

(9) Course Number: CS203010

Course Name: (Introduction to Artificial Intelligence)

Hours: 32 Credit: 2

Introduction: Artificial intelligence is a science that studies how to use computers to simulate human intelligence activities such as perception, reasoning, learning, thinking, and planning that the human brain is engaged in, to solve problems that require human intelligence to solve, and to extend human intelligence. Master the basic concepts, basic principles, knowledge representation, reasoning mechanism and solution technology of artificial intelligence, as well as the technical methods of machine learning Master one problem and three major technologies of artificial intelligence, namely general problem solving and knowledge representation technology, search technology, reasoning Technology.

(10) Course Number: CS203011

Course Name: (Software Engineering) Hours: 32 Credit: 2

Introduction: This course is a professional course for computer science and technology, and is one of the core courses in the teaching plan of computer science and technology majors in colleges and universities. Software engineering is an emerging discipline that studies how to better develop and maintain computer software from two aspects of management and technology. Both domestic and foreign software development and application units require it as an essential quality for software professionals. The core content of this course is to expound the basic principles and basic technologies of software engineering, so that students have the basic knowledge of software development process and engineering, and learn software development technologies and methods. Understand the functions and means of software project planning, management, quality assurance and other links, and lay a solid foundation for future software development and technical support.

4. Graduation and Degree Awarding Requirements

Completion of a minimum of 154.5 credits for graduation and compliance with school graduation requirements.

Graduation minimum requirements and credit allocation table

Type		Minimum Graduation Requirements		
		In-class credits	Total credits	Percentage of credits
General Modules	General fundamental Modules	41	26.5%	41
	General Core Modules	5	3.2%	5
	General Optional Modules	8	5.2%	8
General Foundational Modules		23.875	19.5	12.6%
Subject Modules	Subject Core Modules	27.5	17.8%	27.5
	Subject Optional Modules	32	20.7%	32
Concentrated practice session		20	21	13.6%
Improvement		0.5	0.5	0.3%
Total		129	154.5	100%