Computer Science Programs in China

Tsinghua University

Peking University

Beihang University

Tsinghua University

- http://www.cs.tsinghua.edu.cn/EnglishVersion/index.htm
- Founded in 1958
- 110 faculty members (41 professors and 35 associate professors)
- 660 undergraduate students, 800 graduate students, and 27 post-doc
- Young researchers (under the age of 45) take up 53% of all faculty members
- 1 member of the Chinese Academy of Science
- 2 members of the Chinese Academy of Engineering
- 1 fellow of the IEEE

Institutes and Labs

The department consists of four institutes and a state key laboratory :

- *Institute of Computer Networks*
- *Institute of Computer Software*
- *Institute of High Performance Computing*
- *Institute of Human-computer Interaction and Media Integration*
- *State Key Laboratory of Intelligent Technology and Systems*

Research Projects

- Every year the department undertakes nearly 200 projects from the National Natural Science Foundation, the National 863 High-tech Program, international cooperative projects, etc.
- 10 instructional laboratories and 8 joint laboratories in collaboration with MNCs such as Intel, IBM, Microsoft and SUN.

Tsinghua University – Research Areas

Institute of Computer Networks

- Computer Networks and Protocol Testing
- Traffic Control and Performance Evaluation of Computer Networks
- Information Security on Network
- Computer Supported Cooperative Work (CSCW)
- Information System
- Broadband Switching and Communication Technology

Tsinghua University – Research Areas

Institute of Computer Software

- Software Engineering
- Database Technology
- Electronic Design Automation
- Computer Graphics & Visualization
- Knowledge Engineering

Tshinghua University – Research Areas

Institute of High Performance Computing

- Clustering Computation Group
- CPU Design Group
- Grid Computation Group
- Network storage Group

Tshinghua University – Research Areas

Institute of Human-computer Interaction and Media Integration

- Graphics and Geometric Computing Group
- Pervasive Computing Group
- Computer Vision Group

Tshinghua University – Research Areas

State Key Laboratory of Intelligent Technology and Systems

- Natural Language Processing Group
- Pattern Recognition and Information Retrieval Group
- RoboSoccer Group
- Center for Speech Technology
- Embedded System Group

Peking University

- http://www.ss.pku.edu.cn/en/index.html
- http://eecs.pku.edu.cn/eecswww/index.action#
- Under school of Electronics Engineering and Computer Science
- Institute of Computational Linguistics
- Institute of Software
- Institute of Network
- Institute of Information Science

Institute of Computational Linguistics (PKU)

- founded in 1986
- the fundamental researches and applications of language information processing
- The research of ICL covers a wide range of areas, including Chinese syntax, language parsing, computational lexicography, semantic dictionaries, computational semantics and application systems.

Institute of Software (PKU)

The SEI's research is sponsored by the P.R.C Government, primarily the National Basic Research Program, the National key Technologies R&D Programme, The National High Technology Research and Development Program and the National Natural Science Foundation, and many international cooperative programs.

It's research areas include:

- 1) Fundamental Theories of Software Engineering
- 2) Technologies and Systems of Industrial Software Production
- 3) Software Reuse and Software Component Technology
- 4) Object-Oriented Method and Technology
- 5) Operation Systems and System Software
- 6) Middleware Technology
- 7) Internetware Software and Feature Interaction
- 8) Program Comprehension Technology and Reverse Engineering
- 9) Software Process Management etc.

Computer Network and Distributed Systems Lab (PKU)

- On Demand Transformation Technology
- mobile computing and wireless network
- Web Based Information Architectures
- Distributed Systems
- International e-Learning Program with UWE(Sophomore)
- Computer Networks(Senior, non major)
- Lab for Computer Networking(Senior, an Intel IXA project)
- Parallel Processing(Graduate)
- High Speed Networks and Mobile Computing(graduate)
- Introduction to Computing(A), Introduction to Computing(B)
- Basic Elements of Computer Application
- Introduction to Internet and Web Technologies
- Assembly Language
- Principle of Computer Networks

School of Software and Microelectronics

- In 2001, the Ministry of Education, along with State Development Planning Commission granted Peking University and other 34 universities the permission to experiment with schools of software
- In December 2003, in the mid-term assessment of the 35 software schools nationwide organized by the Ministry of Education, it was ranked number 1

- PKU-IBM eServer iServer iSeries Joint Lab
- PKU-Intel Joint Lab for Multicore Technology
- PKU-Microsoft Joint Lab for Software Technology
- PKU-Motorola Embedded System Joint Lab
- PKU-Renesas T-Engine Joint Lab
- PKU-Tonsoft Enterprises Information-based Engineering Joint Lab

- one school (School of Software and Microelectronics, Peking University)
- two disciplines (Software Engineering, and IC Design and Engineering),
- three bases (National Training Base for International Software Talents, National Training Base for IC Design Talents, Engineering Base of National Engineering Research Center for Software Engineering)
- 8 Departments (Department of Software Technologies, Department of Network and Communication Technologies, Department of Embedded Systems Engineering, Department of e-Services, Department of Management and Technology, Department of IC Design and Engineering, Department of Digital Art and Design, and Department of Financial Information Engineering).

Beihang University

- http://scse.buaa.edu.cn/english/html/01/
- formerly Beijing Institute of Aeronautics
- one of the Chinese universities that have pioneered in computer science and technology, set up its first teaching and research unit for "solver" in 1958
- its first computer software major in 1975
- In 1978, Department of Computer Science and Engineering was founded
- further expanded into School of Computer Science and Engineering in September 2002

- one member of the Chinese Academy of Sciences
- 26 professors (including 15 doctoral supervisors)
- 5 part-time doctoral supervisors
- 51 associate professors
- It has five sub-units: Department of Computer Science and Technology, Department of Computer Application Engineering, Department of New Media Art, Computer Teaching Experiment Center, Software Engneering Institute(SEI), and Network Research Center.

CS Curriculum – an example (PKU)

学院要求课程（13+20=33 credits）

1．School-wide required courses：（13 credits）

编号	课程	Semester	Hours/week	credits
1	Intro to information science	一上	2	1
2	Microelectronics and circuit basics	一下	3	2
3	Microelectronics lab	二上	2	1
4	Intro to computational theory I	一上	4	3
4A	Intro to computational theory I (实验班)	一上	4	3
5	Programming Lab	一下	4	3
5A	Programming Lab（实验班）	一下	4	3
6	Data structure and Algorithm I	二上	4	3
6A	Data structure and Algorithm I（实验班）	二上	4	3

2．Fundamentals Maths/physics（20 -26 credits）

编号	课程	Semester	Hours/week	credits
1A	Numerical Analysis(I)	一上	6	5
1	Advanced Maths B(I)	一上	6	5
2A	Numerical Analysis (II)	一下	6	5
2	Advanced Maths B(II)	一下	6	5
3A	Advanced Algebra (I)	一上	4	4
3	Linear Algebra	一上	4	4
4A	Advanced Algebra（II）	一下	4	4
5A	Mechanics A	一上	6	4
5	Mechanics B	一上	4	3
6A	Electronmagnetism A	一下	6	4
6	Electronmagnetism B	一下	4	3

Computer Science Dept Required Courses（69 credits ）

a)Required Courses（41 – 45 credits)

i．Maths/Theoretical Foundation（15 credits）

编号	课程	semester	Hous/week	credits	备注
1-1-1	Algorithm Analysis and Design	二下	4	3	
1-1-2	Set Theory and Graph Theory	二上	3	3	
1-1-3	Probability and Statistics A	二下	3	3	
1-1-4	Algebraical Structure and Combinatorics	二下	3	3	
1-1-5	Logic	三上	3	3	

ii．Hardware（15credits）

编号	课程	semester	Hours/week	credits	备注
1-2-1	Digital Logic	二上	3	3	
1-2-2	Digital Logic lab	二上	2	2	*
1-2-3	Principle of Microcomputer	二下	3	3	
1-2-4	Microcomputer Lab	二下	2	2	*
1-2-5	Computer Architecture	三上	3	3	
1-2-6	Architecture hardware lab	三下	2	2	*

iii．System software （15credits）

编号	课程	开课学期	周学时	学分	备注
1-3-1	Compiler	二下	3	3	
1-3-2	Compiler lab	三上	4	2	*
1-3-3	Operating Systems	三上	4	3	
1-3-4	OS lab	三下	4	2	*
1-3-5	Computer network	三下	3	3	
1-3-6	Computer network lab	三下	2	2	*

说明：带*的实习课程总学分12学分，鼓励学生修满12学分，允许学生只修8学分。

b)selective clusters（28学分）

c) undergraduate major courses

1）Theories

编号	课程	Semester	Hours/week	credits
1-4-1	Intro to AI	三上	3	3
1-4-2	Numerical computation II	三上	3	3
1-4-3	Foundation of theoretical computer science	三下	3	3
1-4-4	Intro to information theory	三下	2	2
1-4-5	Intro to probability, random variable, and stochastic processes	三下	2	2
1-4-6	Intro to machine learning	四上	2	2
1-4-7	Signals and Systems	三上	2	2

2）CS core courses

编号	课程	Semester	Hours/week	Credits
1-5-1	Intro to programming language	三上	3	3
1-5-2	Intro to database	三上	3	3
1-5-3	Assembly Language	三上	3	3
1-5-4	Computer Graphics	三上	3	3
1-5-5	Intro to Object Oriented Design	三下	3	3
1-5-6	Image Processing	三下	3	3
1-5-7	Human Computer Interface	四上	3	3
1-5-8	Intro to Information Security	四上	2	2
1-5-9	Software Engineering	四上	3	3
1-5-10	Embedded System	四上	3	3

3）Computer applications and others

编号	课程	Semester	Hours/week	Credits
1-6-1	Algorithm applications lab	一下	2	2
1-6-2	Data structure lab	二上	2	2
1-6-3	Windows Programming	二下	2	2
1-6-4	JAVA Programming	二下	2	2
1-6-5	Linux Programming	二下	2	2
1-6-6	Web technology intro	三下	2	2
1-6-7	Language And Statistics	四上	2	2
1-6-8	Scientific Writing	四上	2	2
1-6-9	Intro to Service Oriented Architecture	四上	2	2
1-6-10	**E**nhanced **M**achine **C**ontrolle	四上	2	2
1-6-11	IBM – Open Source Middleware Intro	四上	2	2
1-6-12	Digital Signals and Multimedia	三下	2	2
1-6-13	Intro to computational linguistics	三下	2	2