

Computer Science and Technology

计算机科学与技术

(081200)

1. Overview of the Program

The disciplines of Computer science and technology of Beijing Institute of Technology root in the Computer Major established in 1958 as one of the first in China. In 1980, the Department of Computer Science and Engineering was formally formed. In 2009, it is restructured into School of Computer Science. The school has made prominent contributions to the development of teaching, research and industry in computer science and technology in China. The school has obtained the authorization of doctoral degree grant on the first-class discipline of Computer science and technology, the key discipline of Beijing on Computer Application Technology, the key discipline on Computer Software, and the Post-doctoral Mobile Stations for Computer Science and Technology.

Computer science is the study of how computational processes and devices represent, store, and manipulate information. It involves the development, and analysis of algorithms, which are instructions (or software) that tell a computer how to solve particular problems correctly and efficiently. The program of Computer Science and Technology provides intensive preparation in the concepts and techniques related to the design, programming, researching and application of computing systems. Students are provided a deep understanding of both fundamentals and important current issues in computer science and computer engineering so that they may either obtain productive employment or pursue advanced degrees.

This is a full-time degree program, involving both coursework and research projects. It aims at cultivating the high-level specialized personnel with a firm grasp of basic theories and professional knowledge of computer science and technology, with the ability to solve practical problems and undertake the tasks for professional technology. Students will be awarded with the Master/PhD degree after getting required credits. They will participate in research or project in computer science and technology under the guidance of his or her supervisor and complete their graduation thesis based on the projects they have conducted.

2. Training Target

The target is to train high-level innovative talents who have a good knowledge of international common sense, with the ability of spreading Chinese and foreign cultures occupied, so that to bring international graduate students into full play as a cultural bridge.

3. Length of Schooling

The basic length of schooling for master students is 2 years. In principle, students should complete the courses in the first academic year. Thesis work time should not be less than one year. The maximum length of study for master students is extended by 0.5 years on the basis of 2 years. The basic length of schooling for Ph.D. students is 4 years. In principle, students should complete the courses in the first academic year. Thesis work time should not be less than three years. The maximum length of study for Ph.D. students is extended by 2 years on the basis of 4 years.

4. Curriculum and Credit Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Requirements	Master /Ph.D.	Credits Requirement
Public Course	3700001	Chinese Language 汉语	96	3+3	1+2	Compulsory	Master /Ph.D.	Master=6 Ph.D.=6
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	Master=2 Ph.D.=2
Major Basic Courses	1700001	Numerical analysis 数值分析	32	2	1/2	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
	1700002	Matrix analysis 矩阵分析	32	2	1/2	Compulsory	Master /Ph.D.	
	1700003	Science and Engineering Calculation 科学与工程计算	48	3	1/2	Compulsory	Master /Ph.D.	

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		1700004	The Foundation of Modern Mathematics 近代数学基 础	48	3	1/2	Compulsory	Master /Ph.D.	
Selected Course	Major Core Courses	0701001	Computer Science and Technology Frontier 计算机科学 与技术前沿	48	3	1	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
	Major Selected course	0701002	Theory of Computation 计算理论	48	3	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
		0701003	Advanced Operating Systems 高级操作系 统	48	3	1	Optional	Master /Ph.D.	
		0701004	Machine Learning and Knowledge Discovery 机器学习与 知识发现	32	2	2	Optional	Master /Ph.D.	
		0701005	Computer Graphics and Image Processing 计算机图形 与图像处理	48	3	2	Optional	Master /Ph.D.	

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		0701006	Web Mining Web 挖掘	32	2	1	Optional	Master /Ph.D.	
		0701007	Theory of Algorithms and Algorithmic complexity 算法与算法 复杂性理论	48	3	2	Optional	Master /Ph.D.	
		0701008	Social Network Analysis 社交网络分 析	32	2	2	Optional	Master /Ph.D.	
		0701009	Image and Video Processing 图像与视频 处理	32	2	1	Optional	Master /Ph.D.	
		0701010	Content Management and Digital Library 内容管理与 数字图书馆 技术	32	2	1	Optional	Master /Ph.D.	
		0701011	Wireless Network and Mobile Computing 无线网络与 移动计算	32	2	2	Optional	Master /Ph.D.	

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		0701012	Optimization Methods 智能优化方法	32	2	2	Optional	Master /Ph.D.	
		0701013	Network and Information Security 网络与信息 安全	48	3	1	Optional	Master /Ph.D.	
Total Credits		Master≥18 credits			Ph.D.≥14 credits				

Notes:

1. Public Course

(1) Chinese Language: Set by International Students Center of BIT. All international students must take this required course.

(2) Outline of China: Set by International Students Center of BIT. All international students must take this required course.

2. Major Basic Courses

Different Programs can set their own Major Basic Course.

3. Selected Course

(1) Major Core Courses

Different Programs set their own Major Core Course.

(2) Major Selected course

Master international students must take two selected courses of their own Program. Under the guidance of the supervisor, Master international students can take undergraduate courses if needed.

Ph.D. international students can take undergraduate courses if needed.

5. Practice Part

1. Academic Activity (1 credit)

International Graduate Students need to participate in academic activities, academic lectures and academic conferences of their own fields. Giving oral speeches on academic conferences, whether on

or off campus, are highly recommended.

2. Innovative Practice (1 credit)

International Graduate Students should take scientific research training and social practices during their training period, which should be carried-out and evaluated by supervisors.

6. The Dissertation Related Work

1. Literature Review & Opening Report

Under the guidance of the supervisor, International Graduate Students should pick a research direction as well as reading certain amount reference books, both Chinese or foreign languages, at the same time.

Master students should write a literature review, no less than 4000 words, based on the reading of over 30 papers , both Chinese or foreign languages, of their own research field.

Ph.D. students should write a literature review, no less than 5000 words, based on the reading of over 50 papers , both Chinese or foreign languages, of their own research field.

On the basis of the Literature Review, the Opening Report should mainly introduce following factors: research target, research meaning, methods of research, technical route, implementary plan, arrangements and expected results.

2. Mid-Term Evaluation

Schools organize Mid-Term Evaluation for International Students, which includes the evaluations of course study, literature review, opening report and the research progress of publishing papers and writing of Degree thesis.

3. Thesis Writing and Thesis Pre-Defense (for Ph.D. students)

International Graduate Students should complete a Degree thesis under the guidance of supervisors. Ph.D. students can take the Thesis Pre-Defense after finishing a supervisor-approved first draft.

4. Thesis Defense

After thesis approved and the Sub- Committee of Degree Assessment authorized, International Graduate Students can take the Thesis-Defense.

5. Degree Conferment

International students should acquire certain academic results as regulated when applying for a Master

or Ph.D. Degree. Each program should clarify the categories of Master Degree and Ph.D. Degree.

Time nodes of relevant procedure

The Dissertation Related Work	Master	Ph.D.
Literature Review& Opening Report	Before week 1 of the 3 rd semester	Before week 1 of the 5 th semester
Mid-Term Evaluation	week 1-2 of the 4 rd semester	Before week 1 of the 7 th semester
Thesis Pre-Defense	---	Before Blind review
Thesis Defense	At least 9 months after the Opening Report	At least 18 months after the Opening Report
Degree Application	The application should be raised in a certain time after the Thesis Defense	

7. Course Syllabus

Course Code, Course Name, Class Hour, Credits, Course Description and Course Target, Teaching Method, Evaluation and Exams, Suitable Specialty, Prerequisites, Course Contents, Reference, and Lecturer Introduction.