

Information and Communication Engineering

信息与通信工程

(081000)

1. Overview of the Program

This program is the engineering field to construct the modern information society with the combination of information technology. It solves the technical problems of electronic components, integrated circuit, electronic control, instrumentation, computer design and manufacturing and those related to electronics and communication engineering using the basic theory of information technology and studies the theory and technology of electronic information detection, transmission, exchanging, processing and display.

This program is a full-time degree, including both coursework and projects. It aims at cultivating the high-level specialized personnel with a firm grasp of basic theories and professional knowledge of electronics and communication engineering, having the ability to solve practical problems and undertake the tasks for professional technology or management. Students can apply for the master degree after getting required credits. They will participate in projects in electronics and communication engineering under the guidance of their advisors and complete their graduation thesis based on the projects they have conducted.

This discipline studies communication system theory and technology, mobile communication theory and technology, signal and image processing, information processing theory and technology, theory and technology in information security and countermeasures, and target detection and recognition theory and technology.

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	
Optional Course	Major Core Courses	0501001	Fundamentals of Statistical Signal Processing 统计信号处理基础	48	3	1	Compulsory	Master /Ph.D.	Master ≥4 Ph.D. ≥4
		0501002	Information Theory 信息论	48	3	1	Compulsory	Master /Ph.D.	
		0501003	Introduction to Radar Systems 雷达系统导论	32	2	1	Compulsory	Master /Ph.D.	
		0501004	Modern Antenna Theory and	48	3	2	Optional	Master /Ph.D.	

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			Technology 现代天线理论与技术						
		0501019	Electromagnetic Field and Waves 电磁场与电磁波	48	3	1	Optional	Master /Ph.D.	
		0501005	RF circuit design theory and Application 射频电路设计理论与应用	48	3	2	Optional	Master /Ph.D.	
	Major Optional course	0501006	Design of CMOS Analog Integrated Circuits CMOS 模拟集成电路设计	48	3	2	Optional	Master /Ph.D.	Master ≥ 6 Ph.D. ≥ 2
		0501008	Medical Image Processing & Analysis 医学图像处理与分析	48	3	2	Optional	Master /Ph.D.	

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Major Optional course	0501009	Foundations of FPGA and SoPC Design FPGA 与 SOPC 设计基础	48	3	2	Optional	Master /Ph.D.	Master ≥ 6 Ph.D. ≥ 2
	0501010	Mobile Communications Theory and Practice 移动通信原理与实践	48	3	2	Optional	Master /Ph.D.	
	0501011	Multi-source data fusion theory and application 多源数据融合理论与应用	32	2	2	Optional	Master /Ph.D.	
	0501012	Digital Speech Signal Processing 语音信号数字处理	48	3	1	Optional	Master /Ph.D.	

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		0501013	Fundamentals of Communication Networks 通信网络基础	48	3	1	Optional	Master /Ph.D.	
		0501014	Advanced Digital Communications 高等数字通信	32	2	1	Optional	Master /Ph.D.	
	Major Optional course	0501016	Quantum radar principle 量子雷达原理	32	2	1	Optional	Ph.D.	Master ≥ 6 Ph.D. ≥ 2
		0501017	High resolution radar 高分辨雷达	32	2	2	Optional	Ph.D.	
		0501018	Communication frontier technology topics 通信前沿技术专题	32	2	2	Optional	Master /Ph.D.	

Total Credits	Master \geq 18 credits	Ph.D. \geq 14 credits
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Notes:

1. Public Course

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

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

2. Major Basic Courses

Different Programs can set their own Major Basic Course.

3. Optional Course

(1) Major Core Courses

Different Programs set their own Major Core Course.

(2) Major Optional course

Master international students must take two optional 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	At least 18 months after the

	Opening Report	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.