北京理工大学
BEIJING INSTITUTE OF TECHNOLOGY

2023 International Graduate Program

Graduate School
2023.7

主　　审：姜　澜　　**副 主 审：**王军政　　刘检华　　肖文英

主　　编：王　茹　　张景瑞　　刘　欣　　**编码机检：**陈　玲　　鄂　崐

编辑校对：林旷世　　张笑艺　　陈　琦　　马雨辰　　边铁垚　　董博文　　陈　程

2023 版留学研究生培养方案

Programs for International Graduates (2023)

学科代码 Program Code	学科名称 Program	牵头学院 School
020100	理论经济学 Theoretical Economics	人文学院 School of Humanities and Social Sciences
020200	应用经济学 Applied Economics	管理与经济学院 School of Management and Economics
030100	法学 Law	法学院 School of Law
040100	教育学 Education	人文学院 School of Humanities and Social Sciences
045300	汉语国际教育 Master of Teaching Chinese to Speakers of Other Languages	外国语学院 School of Foreign Languages
070100	数学 Mathematics	数学与统计学院 School of Mathematics and Statistics
070200	物理学 Physics	物理学院 School of Physics
070300	化学 Chemistry	化学与化工学院 School of Chemistry and Chemical Engineering
071000	生物学 Biology	生命学院 School of Life Science
083100	生物医学工程 Biomedical Engineering	生命学院 School of Life Science
071400	统计学 Statistics	数学与统计学院 School of Mathematics and Statistics
080100	力学 Mechanics	宇航学院 School of Aerospace Engineering
080200	机械工程	机械与车辆学院

学科代码 Program Code	学科名称 Program	牵头学院 School
	Mechanical Engineering	School of Mechanical Engineering
080300	光学工程 Optical Engineering	光电学院 School of Optoelectronics
080400	仪器科学与技术 Instrument Science and Technology	光电学院 School of Optoelectronics
80500	材料科学与工程 Materials Science and Engineering	材料学院 School of Materials Science and Engineering
080700	动力工程及工程热物理 Power Engineering and Engineering Thermophysics	机械与车辆学院 School of Mechanical Engineering
080900	电子科学与技术 Electronics Science and Technology	集成电路与电子学院 School of Integrated Circuits and Electronics
081000	信息与通信工程 Information and Communication Engineering	信息与电子学院 School of Information and Electronics
081100	控制科学与工程 Control Science and Engineering	自动化学院 School of Automation
081200	计算机科学与技术 Computer Science and Technology	计算机学院 School of Computer Science and Technology
081700	化学工程与技术 Chemical Engineering and Technology	化学与化工学院 School of Chemistry and Chemical Engineering
082500	航空宇航科学与技术 Aeronautics & Astronautics Science & Technology	宇航学院 School of Aerospace Engineering
082600	兵器科学与技术 Armament Science and Technology	机电学院 School of Mechatronical Engineering
083100	生物医学工程 Biomedical Engineering	生命学院 School of Life Science
083700	安全科学与工程 Safety Science & Engineering	机电学院 School of Mechatronical Engineering
083900	网络空间安全	网络空间安全学院

学科代码 **Program Code**	**学科名称** **Program**	**牵头学院** **School**
	Cyberspace Science	School of Cyberspace Science and Technology
120100	管理科学与工程 Management Science and Engineering	管理与经济学院 School of Management and Economics
120200	工商管理 Business Administration	管理与经济学院 School of Management and Economics
125100	工商管理硕士 Master of Business Administration	管理与经济学院 School of Management and Economics
125600	工程管理硕士 Master of Engineering Management	管理与经济学院 School of Management and Economics
130500	设计学 Design	设计与艺术学院 School of Design&Arts
140100	集成电路科学与工程 Integrated Circuit Science and Engineering	集成电路与电子学院 School of Integrated Circuits and Electronics
0202J1	国民经济动员学（经济学） National Economy Mobilization	管理与经济学院 School of Management and Economics
1201J2	国民经济动员学（管理学） National Economy Mobilization	管理与经济学院 School of Management and Economics

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Beijing Institute of Technology Graduate Program 2022 for International Students

北京理工大学 2023 版留学研究生

培养方案框架要求

（理工类）

1. Overview of the Program

英文介绍（下同）。

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 Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering	32	2	1/2	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
		Calculation 科学与工程计算						
	1701007	Modern Regression Techniques in Data Sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course	各学科自行设置				1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional Course	各学科自行设置				1/2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes:

1).Public Course

(1) Chines 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) Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3) Discipline Core Course

Different Programs can set their own Discipline Core Course.

4) Major Optional Course

International students should choose course from their own program or from other programs. 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 credits)

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 credits)

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；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

Time nodes of relevant procedure

The Dissertation Related Work	Master	Ph.D.
Literature Review& Opening Report	Before week 1 of the 3rd semester	Before week 1 of the 5th semester
Mid-Term Evaluation	——	Before week 1 of the 7th semester
Dissertation Pre-Defense	——	Before Review
Dissertation 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 Dissertation 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.

Beijing Institute of Technology Graduate Program 2022 for International Students

北京理工大学 2023 版留学研究生

培养方案框架要求

（人文类）

1. Overview of the Program

英文介绍（下同）。

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 Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	各学科自行设置				1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Discipline Core Course	各学科自行设置				1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional Course	各学科自行设置				1/2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
Total Credits	Master≥24 credits Ph.D.≥20 credits							

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2) Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3) Major Course

(1) Major Core Courses

Different Programs can set their own Major Core Course.

(2) Major Optional Course

International students should choose course from their own program or from other programs. 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 credits)

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 credits)

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；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

Time nodes of relevant procedure

The Dissertation Related Work	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report	Before week 1 of the 3rd semester	Before week 1 of the 5th semester
Mid-Term Evaluation	——	Before week 1 of the 7th semester
Dissertation Pre-Defense	——	Before Review
Dissertation 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 Dissertation 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.

Theoretical Economics

理论经济学

(020100)

1. Overview of the Program

理论经济学是一门以马克思主义经济学为指导，科学总结经济运行和发展一般规律的学科。理论经济学的研究主要覆盖以下三个领域：一是研究人类社会经济活动及其社会形态的发展规律；二是分析和描述经济发展的历史以及经济思想的演变和创新；三是通过对经验现实的抽象分析与整体综合，揭示经济活动主要特征及其基本性质，为经济体制和经济运行的具体分析与解释提供理论基础和理论体系。

Theoretical Economics is a discipline that is guided by Marxist Economics and aims to scientifically summarize the general laws of economic operation and development. The research of Theoretical Economics mainly covers three areas: firstly, studying the development laws of human social and economic activities and their social forms; secondly, analyzing and describing the history of economic development as well as the evolution and innovation of economic thoughts; thirdly, revealing the main characteristics and fundamental nature of economic activities through abstract analysis and comprehensive synthesis of empirical reality, and providing theoretical bases and theoretical systems for specific analyses and interpretations of economic structures and economic operations.

我校理论经济学专业的前身是 1953 年成立的政治经济学教研室。2001 年获得政治经济学专业硕士学位授予权，2010 年获得理论经济学硕士一级学科授予权，2022 年获得理论经济学博士一级学科授予权。经多年的建设、发展，逐步形成理论经济学与哲学、社会学、心理学、历史学、统计学等多学科相互支持和结合的学科背景，具有一支层次较高，年龄、学历、学位、学缘、职称、专业方向等分布合理的师资队伍，近年来本学科团队先后承担了国家社科基金、自然科学基金、教育部人文社科基金、北京社科、自科基金等一系列重要研究课题，年均经费 200 万以上，具有良好的研究生培养环境和条件。

The predecessor of our university's Theoretical Economics major is the Teaching and Research Institute of Political Economy, which was established in 1953. In 2001, we were granted the authority to confer master degree in Political Economy. In 2010, we obtained the authority to confer first-level discipline master degree in Theoretical Economics. In 2022, we obtained the authority to confer first-level discipline doctoral degree in Theoretical Economics. After years of construction and development, an interdisciplinary background that combines Theoretical Economics with multiple disciplines including Philosophy, Sociology, Psychology,

History, and Statistics has been formed, and a well-structured faculty team with reasonable distribution in terms of age, education background, academic degree, academic affiliation, professional title, and specialization has been built. In recent years, our discipline team has undertaken a series of research projects, granted by National Social Science Funds, Natural Science Funds, Humanities and Social Science Funds from the Ministry of Education, Beijing Social Science Foundation, and Natural Science Funds, with an annual average funding of over 2 million yuan. Therefore, we are equipped with a favorable environment and condition for international graduate students' training.

学科研究方向如下：

The research directions of the discipline are as follows:

1. 政治经济学 Political Economy

坚持以马克思主义经济学为基础，关注经济改革实践中的新问题，本学科主要围绕中国特色社会主义政治经济学、创新经济与工业制造业发展、全球价值链分工与全球治理等重大理论问题开展研究，既强调研究的前沿性、理论的本土化，又强调马克思主义经济学的指导作用。该学科研究方向学科团队整齐，理论背景扎实，在国内外享有较高声誉，具有一定的国内国际影响力。

Adhering to the basis of Marxist Economics and focusing on new issues in economic reform practice, this research direction conducts researches primarily on major theoretical issues related with Socialist Political Economy with Chinese characteristics, Innovative Economy and Industrial Manufacturing Development, Global Value Chain Division and Global Governance. It emphasizes not only the advancement of research and the localization of theories, but also the guiding role of Marxist Economics. This research direction of our discipline has a well-organized team with a solid theoretical background, a high reputation home and abroad, and influential power to some extent domestically and internationally.

2.资源与环境经济学 Resource and Environmental Economics

主要围绕环境治理、低碳经济与节能减排政策、生态文明建设等前沿性研究领域展开，引起社会广泛关注和报道，向全国政协提交了多份提案。针对目前我国经济发展的特殊性，突出生态文明建设研究的实践性，该学科研究领域在国内具有相当的学术和实践影响力。

This research direction mainly focuses on frontier research fields such as environmental governance, low-carbon economy and energy-saving policies, and ecological civilization construction, which has attracted widespread social attention and media coverage and has submitted multiple proposals to the National Committee of the

Chinese People's Political Consultative Conference. Considering the unique characteristics of China's economic development, this discipline highlights the practicality of ecological civilization construction, which leads to considerable academic and practical influence domestically.

3.西方经济学 Western Economics

主要围绕构建国际金融与资本市场的全球化风险及评估；国家自主创新体系与经济增长、西方经济思想流派等开展系统性的理论研究与政策分析；综合运用哲学、心理学、社会学等对西方经济学方法论展开研究，形成了较有影响力的研究成果；同时在数量经济学领域也取得进展。

The primary emphasis of this research direction is systematic theoretical research and policy analysis in areas such as risk and assessment of international finance and capital market globalization, National independent innovation system and economic growth, Schools of Western Economic Thoughts, etc. It also conducts researches on the methodology of Western Economics by integrating Philosophy, Psychology, Sociology, and other disciplines, resulting in influential research outcomes as well as progress in Quantitative Economics.

4.世界经济 World Economy

本方向主要探索构建国际金融与资本市场的全球化风险及评估；研究技术创新推动的全球价值链的发展与国际分工格局；全球化视角展开对世界各国国家经济发展趋势，特别是“一带一路”国家与中国经济发展关联性的研究；探索国际经济政治格局与人类命运共同体发展的新趋势。

This research direction mainly explores the construction of international finance and capital market, global risk and assessment, the development of the global value chain driven by technological innovation, and the international division of labor. It adopts a global perspective to study the economic development trend in various countries, particularly the relationship between the countries involved in the "Belt and Road" initiative and China's economic development. It also explores the new trend in the international economic and political pattern and the development of Human Destiny Community.

5、中国经济学 Chinese Economics

坚持以习近平中国特色社会主义思想为指导，紧密结合新中国成立 70 多年特别是改革开放 40 多年以来社会主义现代化实践，以更好地解释中国经济发展的伟大成就为原则，以推动形成中国经济学理论体系为己任，对中国经济增长与波动、宏观经济治理、数字经济等关键性问题进行系统深入研究。

Sticking to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics and combing closely with the practice over more than 70 years since the founding of People’s Republic of China, especially the

socialist modernization practice over the past 40 years since the reform and opening-up, this research direction conducts systematic and in-depth researches on key issues relating with China's economic growth and fluctuation, macroeconomic governance, and the digital economy, in order to better explain the great achievements of China's economic development and to promote the formation of a theoretical system of Chinese economics.

2. Training Target

坚持党的基本路线，认真贯彻学习习近平新时代中国特色社会主义思想，坚持正确政治方向，热爱祖国，遵纪守法，品行端正，诚实守信，身心健康，具有良好的科研道德和敬业精神，培养成为德智体美全面发展的社会主义事业建设者和接班人。博士研究生应掌握相应的理论经济学专门知识，对理论经济学有较为深入的理解，熟练掌握一门外语，具有一定的国际学术交流能力；具有独立地、创造性地从事科学研究的能力，并有良好的合作精神；且有理论经济学科研能力和较强的计算机应用能力的高级专门人才。能够在高等学校从事教学科研，在政府机关、学校、科研机构、军队以及其他企事业单位从事经济政策制定、经济管理工作，金融研究部门从事金融研究等。

Adhering to the Communist Party's basic line and earnestly implementing the study of Xi Jinping Thought on Socialism with Chinese Characteristics for the New Era, graduate students should adhere to the correct political orientation, love their motherland, abide by laws and regulations, be decent and well-mannered, be honest and trustworthy, and maintain physical and mental health. They should possess a strong sense of research ethics and professional dedication as well as be cultivated to become builders and successors of the socialist cause with comprehensive development of morality, intelligence, physical education and aesthetics. Doctoral students should master the corresponding specialized knowledge of Theoretical Economics, have a deep understanding of Theoretical Economics, possess proficiency in at least one foreign language, and acquire the ability to engage in international academic exchanges. They should be capable of doing research independently and creatively as well as possessing a cooperative spirit. They should become high-level professionals with scientific research ability of Theoretical Economics as well as strong computer skills, which can guarantee their engagement in teaching and conducting research in higher education institutions, making economic policy and managing in government agencies, schools, research institutions, military, and conducting financial research in financial research departments.

3. Length of Schooling

硕士生的基本修业年限为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生最长修业年限在 2 年基础上延长 0.5 年。

博士生的基本修业年限为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士生的最长学习年限在 4 年的基础上延长 2 年。

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

4. Curriculum and Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master	
Basic Courses	2200055	Advanced Econometrics 高级计量经济学	48	3	1	Optional 选修	Master	Master≥3 Ph.D.≥2
	2200162	Frontiers of Econometrics 计量经济学前沿	32	2	1	Optional 选修	Ph.D.	
Discipline Core Course	2200011	Advanced Political Economy 高级政治经济学	48	3	1	Optional 选修	Master	Master≥7
	2200065	Advanced Microeconomics 高级微观经济学	32	2	1	Optional 选修	Master	
	2200057	Advanced Macroeconomics 高级宏观经济学	32	2	2	Optional 选修	Master	
Major Optional Course	2200059	Special Topics of "Das Capital" 《资本论》专题	32	2	2	Optional 选修	Master	Master≥10 Ph.D.≥4
	2200163	Special Topics in Macroeconomic Finance 宏观金融专题	32	2	1	Optional 选修	Master	
	2200129	Topics on Capital	32	2	2	Optional	Master	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
		Market 资本市场专题				选修		Master≥10 Ph.D.≥4
	2200165	Special Topics in Digital Economics 数字经济学专题	32	2	2	Optional 选修	Master	
	2200063	Special Topics in Business Economics 企业经济学专题	32	2	2	Optional 选修	Master	
	2200064	Special Topics in Economic Thoughts 经济思想专题	32	2	1	Optional 选修	Master	
	2200120	Special Topics in Development Economics 发展经济学专题	32	2	2	Optional 选修	Master	
	2200066	Special Topics in Political Economy with Chinese Characteristics 中国特色社会主义政治经济学专题	32	2	2	Optional 选修	Master	
	2200067	Selected Readings in Economics Literature 经济学文献选读	32	2	2	Optional 选修	Master	
	2200166	Environmental Economics 环境经济学专题	32	2	2	Optional 选修	Master	
	2200173	Economics Research Standard and Thesis Writing 经济学研究规范与写作	32	2	1	Optional 选修	Master	
	2200167	Frontiers of Political Economy 政治经济学前沿	48	3	1	Optional 选修	Ph.D.	
	2200168	Frontiers of Chinese Economics 中国经济学前沿	48	3	2	Optional 选修	Ph.D.	
	2200169	Frontiers of World Economics	48	3	2	Optional 选修	Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
		世界经济学前沿						
	2200170	Frontiers of Chinese Finance 中国金融学前沿	48	3	2	Optional 选修	Ph.D.	
	2200171	Frontiers of Development Economics 发展经济学前沿	48	3	1	Optional 选修	Ph.D.	
	2200172	Frontiers of Digital Economics 数字经济学前沿	48	3	2	Optional 选修	Ph.D.	
Total Credits	Master≥34 credits Ph.D.≥20 credits 硕士≥34 博士≥20							

说明：

1. 公共课

汉语:由留学生中心开设，所有留学生必修课。
中国概况：由留学生中心开设，所有留学生必修课。

2. 基础课

研究生需要必修一门学科基础课。

3. 选修课

1） 核心课

硕士研究生需要必修三门学科核心课。

2）专业课

博士研究生至少需要选修两门本学科选修课

硕士研究生至少选修五门本学科课程。

4. 本硕博课程贯通在导师指导下，硕士生根据需要可选修本科生核心课程，课程如实记录成绩档案，但不计入硕士培养计划要求学分，也可选修博士生课程，学分按照博士课程学分计算；硕士起点博士根据需要可选修硕士生课程，学分按照硕士课程学分记入成绩档案，但不计入博士培养计划要求学分。本科生可选修研究生课程，学分按照实际学分计算。

5. 硕博连读生在硕士阶段按照硕士研究生培养方案执行，博士阶段按照博士研究生培养方案执行。课程层次中的“博士”是指包括普博、硕博连读的博士阶段的所有博士。

Notes（说明）：

1).Public Course

(1) Chines 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) Basic Course

Graduate students should select one basic course as compulsory.

3) Major Course

(1) Core Courses

Graduate students should select three core courses as compulsory.

(2) Major Course

Doctoral students should select at least two major courses as compulsory.

Graduate students should select at least five major courses as compulsory.

4) Course of Bachelor, Master and Doctor is under the guidance of supervisors, graduate students can select core courses of Bachelor as needed, with academic performance being recorded truthfully in files, but without adding credits in Master Training Program. Graduate students can also select doctoral course with credits calculated according to doctoral courses. Doctoral students can select graduate courses as needed, with academic performance recorded truthfully in files, but without adding credits in Doctor Training Program, Undergraduate students can select graduate courses, with credits calculated according to practical credits.

5) Students in a continuous academic project that involves postgraduate and doctoral study perform according to Master Training Scheme in the stage of master and perform according to Doctor Training Scheme in the stage of doctor. “Doctor” in course level refers to all doctor students including ordinary doctors, doctor stage of the continuous academic project that involves postgraduate and doctoral study.

5. Practice Part

1. 学术活动（1 学分）

包括参加国际国内学术会议、学术论坛、学术报告，以及在国际学术会议上做口头报告等。

2. 实践活动（1 学分）

包括科技实践、社会实践以及研究生思想政治教育工作等。

具体要求见《北京理工大学学术型研究生实践、培养环节实施细则》。

1.Academic Activity (1 credits)

Including participating in international and domestic academic conferences, academic forums, academic reports, and doing oral report in international academic conference, etc.

2.Innovative Practice (1 credits)

Including scientific and technological practice, social practice and work related with postgraduate ideological

and political education.

Detailed requirements can be found in Implementation Rules of Academic Postgraduate Practice and Training of Beijing Institute of Technology.

6. The Dissertation Related Work

1. 博士资格考核；2. 文献综述与开题报告；3. 中期检查；4. 博士论文预答辩；5. 论文答辩；6. 学位申请。

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予经济学硕士和经济学博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

1. Doctoral Qualification Examination; 2. Literature Review & Opening Report；3. Mid-Term Evaluation；4. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 5. Thesis Defense； 6. Degree Conferment

This discipline grants master degree of Economics and Doctor Degree of Economics to qualified applicants for master degree and doctor degree respectively.

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Academic master degree with 2 years** **2 年制学硕**	**Ph.D. starting from Master** **硕士起点博士博士**	**Ph.D starting from Bachelor** **本科起点博士**
Doctoral Qualification Examination 博士资格考核	/	One year later in the stage of doctor program 博士阶段一年后	Two years later in the stage of master program 研究生阶段两年后
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前	Before week 1 of the 8th semester 第八学期第一周（含）前
Mid-Term Evaluation 中期检查	/	Before week 1 of the 7th semester 第七学期第一周前	Before week 1 of the 10th semester 第十学期第一周（含）前
Dissertation Pre-Defense 论文预答辩	/	Before Review 论文评阅送审前完成	

The Dissertation Related Work **学位论文相关工作**	**Academic master degree with 2 years** **2 年制学硕**	**Ph.D. starting from Master** **硕士起点博士博士**	**Ph.D starting from Bachelor** **本科起点博士**
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月	
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请		

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.
所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Applied Economics

应用经济学

(020200)

1. Overview of the Program 学科简介

The Department of Applied Economics was founded in 1988 as the international trade sub discipline under the Master of Business Administration. In 2004, it obtained the right to grant Master of International Trade. In 2007, it obtained the right to grant Master of Applied Economics. In 2010, it obtained the right to grant Doctor of Applied Economics. There are 54 full-time teachers and 28 doctoral supervisors, including "National Outstanding Youth", "Changjiang Distinguished Teachers" and "Beijing Famous Teachers". The discipline has 8 national, provincial and ministerial research platforms. In the past three years, it has undertaken 53 scientific research projects, including "National Outstanding Youth", "National Key Research and Development Program", " Key project of National Natural Science Foundation of China" and " Major project of the National Social Science Foundation of China", with scientific research funds of more than 30 million yuan. After more than 30 years of hard work, the discipline has shown a good momentum of development. It ranks B+ in the fifth round of discipline evaluation by the Ministry of Education, ranking top15% in China. The discipline has cultivated a large number of outstanding talents, including Forbes Asia Young Leaders under 30 years old, professors from well-known universities at home and abroad, and business elites. At the same time, the discipline is oriented to the main battlefield of economic and social development, adhering to the "red gene" of BIT, and making important contributions to national economic decision-making and local social and economic development.

应用经济学科始建于 1988 年的工业外贸方向，2004 年获得国际贸易学硕士点授予权，2007 年获得应用经济学一级学科硕士点授予权，2010 年获得应用经济学一级学科博士点授予权。学科现有包含“国家杰青”“长江特聘”“北京市教学名师”等的专任教师团队 54 人，博士生导师 28 人。学科拥有国家级、省部级科研平台 8 个。近 3 年承担“国家杰青”“国家重点研发计划”“国家自科重点”“国家社科重大”等 53 项科研项目，科研经费 3000 余万元。经过 30 多年的砥砺奋进，学科展现良好发展势头，在教育部第五轮学科评估中位于 B+行列，排名全国前 15%左右。学科培养了包含福布斯亚洲 30 岁以下青年领袖、国内外知名大学教授、工商界精英等一大批优秀人才。同时，学科面向经济社会发展主战场，秉承北理工“红色基因”，为国家经济决策和地方社会经济发展做出重要贡献。

The main research directions of this discipline are:（主要的研究方向包括）

（1）Industrial economic theory and policy: With the rapid economic growth and economic restructuring in China, industrial safety and its corresponding food, ecological and environmental security, strategic emerging industry development and security are under high strategic demand of the country in the new situation. The discipline focuses on the research of relevant theories, strategies, and policies related to the needs of these countries, and provides theoretical and political support for the country to formulate major industrial strategies and policies.

（1）产业经济理论与政策：在中国经济快速增长与经济转型条件下，产业安全及与之相适应的食品、生态、环境安全，战略新兴产业发展与安全等是新形势下国家的战略需求。该学科方向围绕这些国家需求开展相关的理论、战略与政策研究，为国家制定重大的产业战略与政策、实施产业经济的宏观决策与管理提供理论和政策支持。

（2）International trade and multinational operations: Adhering to the national policy of opening to the outside world, promoting the development of the country’s international trade, and accelerating the “going out” of domestic enterprises are important requirements for the sustainable development of the national economy and national economic security in the future. This research area uses the combination of theoretical research and empirical research, qualitative analysis and quantitative analysis to study the theory and policies of international trade and multinational operations, it provides theoretical basis and policy suggestions to deepen our participation in economic globalization, increase the breadth and depth of opening to the outside world, As well as to implement the “The Belt and Road” initiative.

（2）国际贸易与跨国经营：坚持对外开放的国策，促进国家对外贸易的发展及良好的外贸环境，加速国内企业“走出去”等仍为未来国家经济可持续发展和国家经济安全的重大需求。本研究方向运用理论研究与实证研究相结合、定性分析与定量分析相结合的研究方法，研究国际贸易与跨国经营的理论、政策，为我国深层次地参与经济全球化、提高对外开放广度与深度以及“一带一路”倡议的贯彻，提供理论依据和政策建议。

（3）Energy economics and green finance: This direction will be based on finance, management science and engineering, probability theory and mathematical statistics and encourage interdisciplinary cooperation with other colleges, integrate research strengths, and develop science and technology.

（3）能源经济与绿色金融：立足金融学、管理科学与工程、概率论与数理统计等学科，鼓励与其他学院跨学科合作，整合研究力量，发挥理工优势，强调不同学科的交叉融合，审视全球化大背景下的能源金

融环境，实现能源经济与金融研究的理论创新，培养高层次国际金融研究人才，同时立足中国金融发展实践，为政府科学决策提供依据。

（4）National defense economy and security warning: The direction of national defense economy is mainly based on the study of national economy mobilization, and the research strength is strong. Academic leaders and key teachers have long been engaged in the work of national economic mobilization and safety early warning. They have achieved fruitful results. Among them, they are in the leading position in the field of national economic mobilization.

（4）国防经济与安全预警：国防经济方向主要以国民经济动员学为主要研究特色，研究实力雄厚。学术带头人及骨干教师长期从事国民经济动员、安全预警等方面的工作，取得了丰硕的成果，其中，在国民经济动员领域更是处于国内领先地位。

（5）Quantitative economic theory and application: Research on economic quantitative relationships and their changing characters. The study of economic quantitative relations through economic mathematical models is a feature of quantitative economics. The main research contents of this direction include: nonlinear and non-stationary time series, high-dimensional and high-frequency data modeling, macroeconomic monitoring and early warning, monetary policy and financial measurement, micro-econometric theory and application, etc.

（5）数量经济理论与应用：研究经济数量关系及其变化规律性。通过经济数学模型来研究经济数量关系，是数量经济学的特征。本方向主要研究内容包括：非线性非平稳时间序列、高维高频数据建模、宏观经济监测与预警、货币政策与金融计量、微观计量理论与应用等。

2. Training Target 培养目标

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. Students should master the solid foundational theories and systems expertise of applied economics disciplines, with the ability to engage in scientific research independently.
培养具有良好国际知识、具有中外文化传播能力的高水平创新人才，使国际研究生能充分发挥文化桥梁作用，掌握应用经济学学科扎实的基础理论和系统专长，具有独立从事科研的能力。

3. Length of Schooling 学制

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.

硕士研究生的基本学制是 2 年，学生应在第一学年完成课程，论文时间不应少于一年，最长修业年限在 2 年学制基础上增加 0.5 年。博士生学制为 4 年，学生应在第一学年完成课程。论文时间不得少于三年，最长修业年限在 4 年学制基础上增加 2 年。

4. Curriculum and Credits Requirements

Course Classification 课程分类	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory/ Optional 必修/选修**	**Master /Ph.D. 硕士/ 博士**	**Credits Requirement 学分要求**
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕士/ 博士	Master=14 硕士=14 Ph.D.=14 博士=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕士/ 博士	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕士/ 博士	
Basic Course 基础课	2101008	Intermediate Econometrics 中级计量经济学	32	2	1/2	Optional	Master 硕士	Master≥2 硕士≥2 Ph.D.≥2 博士≥2
	2101010	Advanced Econometrics 高级计量经济学	32	2	1/2	Optional	Ph.D. 博士	
Discipline Core Course 专业核心课	2101009	Macroeconomics 宏观经济学	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕士/ 博士	Master≥2 硕士≥2 Ph.D.≥2 博士≥2
	2101001	Intermediate Microeconomics 中级微观经济学	32	2	1/2	Compulsory 必修	Master 硕士	
	2101002	Advanced Microeconomics 高级微观经济学	32	2	1/2	Compulsory 必修	Ph.D. 博士	
	2101012	International Trade 国际贸易理论与政策	32	2	1/2	Optional 选修	Master 硕士	

Course Classification 课程分类	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 必修/选修	Master /Ph.D. 硕士/ 博士	Credits Requirement 学分要求
Major Optional Course 专业选修课	2101013	Development Economics 发展经济学（管理）	32	2	1/2	Optional 选修	Master 硕士	Master≥6 硕士≥6 Ph.D.≥2 博士≥2
	2101014	Intercultural Management 跨文化管理	32	2	1/2	Optional 选修	Master 硕士	
	2101015	Laws and Regulations of the World Trade Organization 世界贸易组织法律法规	32	2	1/2	Optional 选修	Master 硕士	
	2101016	International Finance 国际金融学	32	2	1/2	Optional 选修	Master 硕士	
	2101017	Selective Readings in Energy Economics and Climate Policy 能源与气候经济文献选读	32	2	1/2	Optional 选修	Master 硕士	
	2101004	Efficiency and Productivity Analysis of Energy and Environment 能源环境效率与生产率分析	32	2	1/2	Optional 选修	Master 硕士	
	2101005	Industry Green Management and Optimization 行业绿色管理及优化	32	2	1/2	Optional 选修	Master 硕士	
	2101018	Classic Literature on International Trade 国际贸易经典文献	32	2	1/2	Optional 选修	Ph.D. 博士	
Total Credits 总学分	Master≥24 credits Ph.D.≥20 credits 硕士≥24 学分 博士≥20 学分							

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. Basic Course

Different Programs can set their own Major Basic Course.

3. Discipline Core Course

Different Programs can set their own Discipline Core Course.

4. Major Optional Course

International students should choose courses from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学、物理、化学、生物、管理、人文类等学科基础课。

3）专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

International Graduate Students should take scientific research training and social practices during their training

period, which should be carried-out and evaluated by supervisors.

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

The discipline awards Master's degree in Economics and Doctor's degree in Economics to qualified applicants for master's degree and Doctor's degree respectively.

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予经济学硕士和经济学博士学位。

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Law
法学
(030100)

1. Overview of the Program

The School of Law adheres to the "Law + Technology" training model, and cultivates high-level, international, and interdisciplinary legal talents. The School of Law now provides Master and Ph.D. program of International Law.

法学院坚持“法律+科技”的培养模式，培养高层次、国际化、跨学科的法律人才。法学院现设有国际法硕士、博士点。

Based on BIT’s advantage in science and technology in national defense field, School of Law has developed expertise on subjects of International Law, especially Space Law. Its Space Law program holds a leading position in China and has a great reputation in the international space law community. The “National Administration of Space Law Center” was established in BIT in 2016.

依托北京理工大学在国防科技领域的优势，法学院在国际法，特别是空间法方面形成了自己的特色。其空间法专业在国内处于领先地位，在国际空间法界享有盛誉。2016 年，“国家行政学院空间法中心”在北京理工大学成立。

The faculty and staff at School of Law are an energetic group comprised of teachers with vast experience. The school invites approximately 50 guest professors from domestically and internationally well-known law schools, judicial originations, procurator’s departments and law firms and department of legal practice. In order to improve the quality of education and research, the School of Law established a collaborative relationship with Renmin University of China School of Law and other well-known universities from United States, Germany, Netherlands, Great Britain and many other nations.
法学院的教职员工是一个充满活力的团队，由经验丰富的教师组成。学院从国内外知名法学院、司法机关、检察机关、律师事务所和法律实务部门聘请了约 50 名客座教授。为了提高教育和研究质量，法学院与中国人民大学法学院以及美国、德国、荷兰、英国等国家的知名大学建立了合作关系。

International Law focuses on International Human Rights Law, Public International Law, International Economic Law, International Space Law, Comparative Contract Law, and Immigration Law etc. Economic analysis of Law focuses on the economic analysis of legal system and legal practice. It suggests to

make use of economic principles and methods, especially cost and profit, to analyze legal system and legal issues.

国际法侧重于国际人权法、国际公法、国际经济法、国际空间法、比较合同法和移民法等。法律的经济分析侧重于对法律制度和法律实践进行经济分析，建议利用经济学原理和方法，特别是成本和利润，来分析法律制度和法律问题。

2. Training Target

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

培养通晓国际社会实践、具有中外文化沟通能力的高层次创新型人才，充分发挥国际研究生的文化桥梁作用。

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.

硕士研究生的基本学制为 2 年。学生原则上应在第一学年完成课程学习，论文工作时间不得少于 1 年。硕士生的最长学习年限在 2 年的基础上延长 0.5 年。

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.

博士研究生的基本学制为 4 年。学生原则上应在第一学年完成课程学习，论文工作时间不得少于 3 年。博士生最长学习年限在 4 年的基础上延长 2 年。

4. Curriculum and Credits Requirements

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory/ Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕博	Master=14 Ph.D.=14 硕士=14

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory/ Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕博	博士=14
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博	
Basic Course 基础课	2301001	Principles of Public International Law 国际法原论	32	2	2	Compulsory 必修	Master /Ph.D. 硕博	Master=2 Ph.D.=2 硕士=2 博士=2
Discipline Core Course 学科核心课	2301003	International Space Law 国际空间法专题	32	2	1	Compulsory 必修	Master /Ph.D. 硕博	Master=4 Ph.D.≥2 硕士=4 博士≥2
	2301004	International Economic Law 国际经济法研究	32	2	2	Compulsory 必修	Master /Ph.D. 硕博	
Major Optional Course 专业选修课	2301005	Industrial Property Rights Frontier Issues 工业产权法前沿问题研究	32	2	2	Optional 选修	Master /Ph.D. 硕博	Master≥8 Ph.D.≥2 硕士≥8 博士≥2
	2301006	International Immigration Law 国际移民法	32	2	1	Optional 选修	Master 硕士	
	2301007	Comparative Contract Law 比较合同法	32	2	2	Optional 选修	Master 硕士	
	2301009	International Human Rights Law 国际人权法专题	32	2	2	Optional 选修	Master 硕士	
	2301010	Law of International Organizations 国际组织法专题	32	2	2	Optional 选修	Master 硕士	
	2301012	Comparative Criminal Procedure Law 刑事诉讼制度比较	32	2	1	Optional 选修	Master 硕士	
Total Credits 合计	Master≥28 credits 硕士≥28			Ph.D.≥20 credits 博士≥20				

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. Basic Course

Different Programs can set their own Basic Course.

3. Discipline Core Course

Different Programs can set their own Discipline Core Course.

4. Major Optional Course

International students should choose courses from their own program or from other programs. 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.

说明：

1、公共课

（1）中文：由北京理工大学留学生中心开设，所有国际留学生必修课。

（2）中国概况：由北京理工大学留学生中心开设，所有国际留学生必修课。

2、基础课

本专业基础课程为必修课程，2 学分。

3、学科核心课

本专业学科核心课程为必修课程，硕士研究生 4 学分，博士研究生 2 学分。

4、专业选修课

留学生应从自己的专业或其他专业中选择课程，硕士留学生可在导师指导下根据需要选修本科课程，博士留学生可根据需要选修本科课程,课程如实记录成绩档案，但不计入培养计划要求学分。

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.

1、学术活动（1 学分）

国际研究生需要参加本专业的学术活动、学术讲座和学术会议，强烈建议在校内外学术会议上作口头发言。

2、创新实践（1 学分）

国际研究生在培养期间应参加科研训练和社会实践，并由导师进行考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Degree Awarding Regulations of BIT*

1、文献综述与开题报告；2、中期检查；3、博士论文预答辩；4、论文答辩；5、学位申请。

详见《北京理工大学留学研究生培养环节实施办法》、《北京理工大学博士学位论文预答辩细则》和《北京理工大学学位授予工作细则》。

Time Nodes of Relevant Procedure (相关环节的时间节点)

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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

所有课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Education

教育学

(040100)

1. Overview of the Program

教育学是一门研究人类世界教学现象和问题，揭示教育规律及其应用特征的学科。它是在总结教育实践经验的过程中，经过长期研究和积累而逐渐形成的知识体系。教育主要涉及人的成长、发展与学习以及教育活动的关系。它还指学习和教育活动的发展和组织，教育与社会的关系，以及教育改革和发展的规律。

Education is a discipline that studies the pedagogical phenomena and issues in human world, and reveals the law of education and its applied characteristics. It is a knowledge system gradually formed in the process of summarizing the practical experience of education and developed through long-term research and accumulation. Education mainly involves the relationship in human growth, development and learning, and educational activities. It also refers to the development and organization of learning and educational activities, the relationship between education and society, and the law of educational reform and development.

北京理工大学教育学科于 1998 年获批高等教育学硕士学位点，2005 年获批教育经济与管理硕士学位点，2006 年获教育学硕士一级学科授权；2011 年获教育学博士一级学科授权，同年获批教育硕士专业学位点；2019 年获批设立教育学博士后科研流动站。学科现有高等教育、教育经济与管理、研究生教育学、教育技术学、教育学原理，以及教育、文化与社会六个研究方向。

The education discipline of Beijing Institute of Technology was approved to be a master's degree of higher education in 1998. In 2005, it was approved to be a master's degree of economics and management of education. In 2006, it was authorized to be a master's degree of education. In 2011, it was authorized to be a doctor's degree of education. In the same year, it was approved to be a master's degree of education. In 2019, it was approved to set up a postdoctoral research mobile station in education. The current research directions include higher education, economics and management of education, graduate education, educational technology, pedagogical principal, education-culture and society.

2. Training Target

培养德、智、体全面发展，教育科学理论基础扎实，研究方法和专业知识系统，对教育实践有更深入理解，具有较强的教育研究和计算机应用能力的资深专业人才。毕业生将能够在政府机构，学校，科研机构等组织从事教育管理，专业教学，科学研究，人力资源管理和培训，教育技术管理和服务工作。

The target is to train senior professionals with comprehensive development of morality, intelligence and physique, solid theoretical foundation of educational science, corresponding research methods and systematic expertise, a deeper understanding of educational practice, and a strong ability of educational research and computer application. The graduates would to be able to engage in educational management, professional teaching, scientific research, human resource management and training, educational technology management and services in government agencies, schools, scientific research institutions, enterprises, and other institutions.

3. Length of Schooling

硕士生的基本受教育年限为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。

硕士生最长修业年限在 2 年基础上延长 0.5 年。

博士生的基本教育时间为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士生的最长学习年限在 4 年的基础上延长 2 年。

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

4. Curriculum and Credits Requirements

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory / Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
Public Course 公共课 Total Credits 合计	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D.	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博	
Basic Course 基础课	2200161	Research on General Secretary Xi Jinping's Important Remarks of Education 习近平总书记教育重要论述研究	32	2	1	Optional 选修	Master 硕	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	2200150	Pedagogics 教育基本理论	32	2	1	Optional 选修		
	2201096	Education Reform in China （英）中国教育改革	32	2	2	Optional 选修		
	2200151	Advanced Studies in Higher Education 高等教育研究前沿	32	2	1	Optional 选修	Ph.D.博	
	2201099	Education Reform and Chinese	32	2	2	Optional 选修		

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
		Modernization （英）教育改革与中国式现代化						
	2200043	Special Topic on Methodology of Social Science Research 社会科学研究方法论专题	32	2	1	Optional 选修		
Discipline Core Course 学科核心课	2200152	Educational Research Methods 教育研究方法	32	2	2	Optional 选修	Master.硕	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	2200153	The History of Chinese and Foreign Education 中外教育史	32	2	1	Optional 选修		
	2200078	Educational Organization and Management 教育组织与管理	32	2	1	Optional 选修		
	2200079	Education Policy 教育政策学	32	2	1	Optional 选修		
	2200080	Fundamentals of Graduate Education 研究生教育学基础	32	2	1	Optional 选修		
	2200069	Sociality and Personality Development 社会性与人格发展	32	2	2	Optional 选修		
	2200071	Educational Philosophy 教育哲学	32	2	2	Optional 选修		
	3300001	Educational Technology 教育技术学	32	2	1	Optional 选修		
	2201094	Global Issues in Education （英）全球教育热点	32	2	1	Optional 选修		

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	2200077	Higher Educational Economics and Management Frontiers 高等教育经济与管理前沿	32	2	1	Optional 选修	Ph.D.博	
	2201098	Analysis on Educational Issues in Other Countries （英）外国教育热点分析	32	2	1	Optional 选修		
	2200159	Special Topic of Educational Reform and Development 教育改革与发展专题	32	2	2	Optional 选修		
	2200089	The Frontier of Modern Learning Science 当代学习科学发展前沿	32	2	1	Optional 选修		
Major Optional Course 专业选修课	2200082	Economics of Education 教育经济学	32	2	1	Optional 选修	Master.硕	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	2200083	Education Statistics 教育统计学	32	2	2	Optional 选修		
	2200160	Theory and Practice of Innovation and Entrepreneurship 创新创业的理论与实践	32	2	2	Optional 选修		
	2200086	Writing and Communication Skills 写作与交流沟通能力	32	2	2	Optional 选修		
	2200087	Special Subject of Pedagogy 教育学专题	32	2	2	Optional 选修		

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	2200070	Development and Educational Psychology 发展与教育心理学专题	32	2	2	Optional 选修		
	2200050	Special Research Themes on Mental Health 心理健康专题研究	32	2	1	Optional 选修		
	2200154	Sociology of Education 教育社会学	32	2	1	Optional 选修		
	2200155	Introduction to Engineering Education 工程教育导论	32	2	2	Optional 选修		
	2200156	Design and Practice of Educational Research 教育研究设计与实践	32	2	2	Optional 选修		
	2200157	Educational Evaluation 教育评价学	32	2	1	Optional 选修		
	2200158	Monographic Study on Science Education 科学教育专题研究	32	2	1	Optional 选修		
	2201095	International Education Reform and Student Development （英）国际教育改革与学生发展	32	2	1	Optional 选修		
	2201097	Feminist Research Methods （英）女性主义研究方法	32	2	2	Optional 选修		

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory / Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
	2200088	Frontiers of Soft Science Methodology and Education Policy 软科学方法与教育政策前沿	32	2	2	Optional 选修	Ph.D.博	
	2201100	Feminist Research Methods(Advanced)（英）女性主义研究方法（高级）	32	2	2	Optional 选修		
	2200090	Frontiers of Educational Technology 教育技术前沿	32	2	1	Optional 选修		
Total Credits 合计	Master≥24 credits 硕士≥24 Ph.D.≥20 credits 博士≥20							

Notes：

1) Public Course

(1) Chines 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) Basic Course

Different programs can set their own Basic Course.

3) Major Course

(1) Discipline Core Course

Different programs can set their own Discipline Core Course.

(2) Major Optional Course

International students should choose course from their own program or from other programs. When credits of Basic Courses or of Discipline Core Courses international students take are more than 2, the excess could

be registered as Major Optional Courses' credits. Under the guidance of the supervisor, International master international students can take undergraduate courses if needed. International Ph.D. students can take undergraduate courses if needed.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

各学科确定本学科的基础课程。

3）专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。硕士生选修的基础课程学分≥2 或选修的学科核心课程学分≥2 时，超出的学分均可以认定为专业选修课学分。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1) Academic Activity (1 credit) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予教育学硕士和教育学博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》

以及《北京理工大学学位授予工作细则》。

1. Literature Review & Proposal Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Master of Teaching Chinese to Speakers of Other Languages

汉语国际教育

(045300)

1. Overview of the Program 专业学位简介

Master of Teaching Chinese to Speakers of Other Languages (MTCSOL), a professional degree that sets up for promoting Chinese to reach the world and meeting the great demand of overseas Chinese teachers, aims to link up with international Chinese teacher profession and to accelerate the development of cultivation system of teacher localization.

汉语国际教育硕士专业学位（MTCSOL）是以推广汉语在世界的广泛应用，并满足海外中文教师的巨大需求为目的的专业学位。该学位旨在与国际中文教师专业进行对接，并加速教师本土化培养体系的发展。

2. Training Target 培养目标

The program of Master of Teaching Chinese to Speakers of Other Languages (MTCSOL) aims to cultivate internationalized professional masters who are acquainted with China and Chinese culture. The postgraduates of this program should be equipped with solid knowledge of Chinese language and culture teaching skills and be qualified for teaching Chinese as a second language. The person who gets the degree is supposed to master the systematic teaching skills of Chinese as a second language, to possess professional competence and strong professional sense and be capable of intercultural communication.

汉语国际教育硕士专业学位旨在培养了解中国、理解中华文化的国际化专业硕士。该学位研究生应具备扎实的汉语语言和文化教学技能，能够胜任汉语二语教学任务。该学位获得者应掌握系统的汉语二语教学技能，具备专业能力和强烈的职业意识，并能够进行跨文化交际。

A combined approach of course study and professional practice is applied to the program of MTCSOL, including the union of Chinese international education and Chinese cultural communication, and the cooperation of supervision from both supervisors and internship instructors.

本专业学位的研究生采用课程学习与专业实践相结合，汉语国际教育与中华文化传播相结合，导师指导与实习指导教师指导相结合的培养方式。

3. Length of Schooling 学制

The normative time for full-time postgraduates is 2 years. The first two terms are for the study of courses. The first term of the second year is for the educational practice at their home countries or at the Office of International Students of Beijing Institute of Technology.

本专业学位的研究生采用全日制学习方式，学习年限一般为两年。其中第一年进行课程学习，第二年第一学期在其本国或北京理工大学留学生中心进行教学实习。

4. Curriculum and Credits Requirements 课程设置与学分要求

Course Type 课程分类	Course Code 课程代码	Course Name (Chinese) 课程名称	Period 学时	Credits 学分	Term 学期	Compulsory/ optional 必修/选修	Remarks 备注
Basic Courses 公共必修课	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	common courses≥5 credits 通识课≥5 学分
	2400199	Modern Chinese Language 现代汉语	48	3	1	Compulsory 必修	
Compulsory Courses 专业必修课	2400230	Teaching Chinese as a Second Language 汉语作为第二语言教学	64	4	1	Compulsory 必修	Core Courses≥12 credits 核心课≥12 学分
	2400197	Chinese Culture and Communication 中华文化与传播	32	2	1	Compulsory 必修	
	2400180	Theory and Practice of Intercultural Communication 跨文化交际理论与实践	32	2	1	Compulsory 必须	
	2400149	Second Language Acquisition 第二语言习得	32	2	1	Compulsory 必修	
	2400152	Case Analysis of Oversea Chinese Teaching 国外汉语课堂教学案例分析	32	2	2	Compulsory 必修	
	2400154	Methodology of Chinese as a Second Language 汉语教学研究方法	16	1	2	Compulsory 必修	Training Courses≥4 credits 训练课≥4 学分
	2400202	Chinese Language Testing 汉语语言测试	32	1	1	Compulsory 必修	

Course Type 课程分类	Course Code 课程代码	Course Name (Chinese) 课程名称	Period 学时	Credits 学分	Term 学期	Compulsory/ optional 必修/选修	Remarks 备注
	2400159	Training of Talent on Chinese Culture 中华文化才艺与展示	16	1	2	Compulsory 必修	
	2400195	Chinese Teaching Resources and Utilization 汉语教学资源及其利用	16	1	2	Compulsory 必修	
Optional Courses 选修课	2400200	Advanced Chinese Writing 高级汉语写作	32	2	1	Optional 选修	Extension Courses≥9 credits 扩展课≥9学分
	2400196	Fundamentals of Chinese language Teaching 汉语要素教学	32	2	1	Optional 选修	
	2400151	Comparative Linguistics and the Comparison of Chinese and Other Languages 汉外语言对比	32	2	1	Optional 选修	
	2400150	Education Psychology of Foreign Languages 外语教育心理学	32	2	2	Optional 选修	
	2400226	Modern Education Technology for Chinese Language 现代语言教育技术	32	2	1	Optional 选修	
Optional Courses	2400198	Academic Writing 汉语国际教育专业论文写作	16	1	2	Optional 选修	Extension Courses≥9 credits 扩展课≥9学分
	2400201	Chinese Lexicological Culture 汉字文化	16	1	2	Optional 选修	
	2400182	Research of Chinese Grammar 汉语语法专题研究	16	1	2	Optional 选修	

Course Type 课程分类	Course Code 课程代码	Course Name (Chinese) 课程名称	Period 学时	Credits 学分	Term 学期	Compulsory/ optional 必修/选修	Remarks 备注
	2400268	Listening and Speaking for Advanced Chinese Learners 高级中文听说教程	48	3	2	Optional 选修	

Notes：

For international students: total credits of courses including common courses, compulsory courses, optional courses and teaching practice should be no less than 36 credits, seeing details below.

Basic courses: 5 credits (Overview of China: 2 credits; Modern Chinese Language:3 credits)

Compulsory courses: 16 credits (Core courses + Training courses)

Optional courses: 9 credits (Extension courses)

Teaching Practice: 6 credits

说明：

通识课、必修课、选修课和教学实习累积不低于 36 学分。其中：

公共必修课：5 学分（中国概况 2 学分，现代汉语 3 学分）

专业必修课：16 学分（由核心课和训练课构成）

选修课：9 学分（扩展课）

教学实习：6 学分

5. Practice Part 专业实践

Master students are required to participate in international Chinese teaching and intercultural communication, in which they are required to write a plan, a record and a report for the teaching practice with an assessment by the employer as well as a report for the cultural exchange activity. In addition a classroom teaching video or micro-video and two Chinese teaching or intercultural communication case reflection logs are required. All the international students are required to practice Chinese teaching either at Confucius institutes and other educational institutions in their domestic countries or at the Office of International Students in Beijing Institute of Technology.

研究生在学期间应参加汉语国际教育教学实习和文化交流活动，并提交撰写教学实习计划、实习记录和实习总结报告、实习单位鉴定、文化交流活动总结报告、一个课堂教学视频或教学微视频、两个教学案例或跨文化交际案例反思日志。原则上，所有留学生须在本国孔子学院、北京理工大学留学生中心或

国内外其他学校及教育机构进行教学实习。

6. The Dissertation Related Work 学位论文相关工作

All the Master students should participate in academic lectures no less than 8 times and write 4 lecture reports concerning lectures' content and academic views and arguments.

6.1 Literature review and thesis proposal

All the postgraduates should conduct thesis proposal at the end of the second term after reading academic 20 articles or books and accomplishing a literature review based on the reading in 3000 words.

A thesis proposal should focus on literature review, research objectives and significance, implement scheme, schedule, and expected results. The research topic should be closely related to international Chinese teaching practice and should have strong application value.

6.2 The progress report

The progress report is examined by the supervisor group, and should be completed by the middle of the third term (for the local internship) or the middle of the forth term (for the international internship)

6.3 Thesis writing

Directed by the supervisor, postgraduates should accomplish the required credits and processes of thesis proposal, writing thesis, applying and getting approval of thesis defense independently under the guidance of the supervisor. The thesis can be issue research, investigation report, educational experiment report, case analysis, teaching design etc. The thesis should reach the required level of originality and include no less than 20,000 characters. The criterion of thesis assessment focuses on the internalization of theories and methodology and abilities of analyzing and solving practical problems. It is encouraged to involve research results with new insights and practical value.

6.4. Thesis defenses

All the procedures of thesis defense should follow the "Regulation of Professional Degree Awarding of Beijing Institute of Technology" .

6.5 Degree Conferment

After accomplishing the required credits, approved by the supervisor, the postgraduates engage into the thesis review and oral defense. The time interval between thesis proposal and thesis defense should be at least 9 months.

研究生在学期间应听 8 次学术报告，并撰写 4 次学术报告总结，简述报告内容并阐明自己对相关问题的学术观点或看法。

6.1 文献综述与开题报告

研究生须在第二学期末完成开题报告，在此之前，须结合学位论文任务，至少阅读 20 篇国内外相关文献，并在此基础上，撰写 3000 字以上的文献综述报告。

开题报告主要介绍学位论文, 应以文献综述报告为基础，介绍研究目的、意义、实施方案、计划安排和预期成果。选题应紧密结合国际汉语教育实践，具有较强的应用价值。

6.2 中期检查

中期检查由导师小组负责，分别在第三学期中（国内实习的研究生），第四学期（海外实习的研究生）。

6.3 论文撰写

专业学位研究生应在导师指导下，在规定时间内按照开题、撰写、申请论文答辩、获准参加论文答辩等完整环节和过程，独立完成学位论文。论文形式可以是专题研究、调研报告、教学实验报告、典型案例分析、教学设计等。字数不低于 20000 字。论文评价标准重在考查学生综合运用所学理论和方法，分析和解决实际问题的能力，鼓励具有新见解与实用价值的研究成果。

6.4 论文答辩

硕士专业学位研究生学位论文答辩程序按照《北京理工大学硕士专业学位授予工作管理办法》进行。

6.5 学位授予

在完成所要求学分并经导师审核通过后，进入论文评阅和答辩环节。论文答辩距离开题至少 9 个月。

Time Nodes of Relevant Procedure

Cultivation Stages	**2-years Professional Types of Postgraduate Students**
Literature review and thesis proposal	By the first week of the third term
Progress report	By the first two weeks of the fourth term
Thesis defense	At least nine month after thesis proposal
Degree application	After thesis defense within the required time

附表　　相关环节时间节点要求

培养环节	**两年学制**
文献综述和开题报告	第三学期第一周前
中期检查	第四学期第一二周前
答 辩	距离开题至少 9 个月
学位申请	答辩后规定时间内

7. Course Syllabus 课程教学大纲要求

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

课程教学大纲内容包括课程编码、课程名称、学时、学分、课程说明、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和参考文献等。

Mathematics

数学

(070100)

1. Overview of the Program（学科简介与研究方向）

Mathematics is the science and study of quality, structure, space, and change. It deals with logical reasoning and quantitative calculation, and its development has involved an increasing degree of abstraction of its subject matter. Today, mathematics is used throughout the world as an essential tool in many fields, including natural science, engineering, medicine, and the social sciences. Applied mathematics, the branch of mathematics concerned with application of mathematical knowledge to other fields, inspires and makes use of new mathematical discoveries and sometimes leads to the development of entirely new disciplines.

数学是一门在广泛意义下研究自然现象和社会现象中的数量关系和空间形式的科学。它的根本特点是从自然现象的量的侧面抽象出一般性的规律，预见事物的发展并指导人们能动地认识和改造世界。数学是各门科学的基础，在自然科学、社会科学、工程技术等方面起着思想库的作用；又是经济建设和技术进步的重要工具。数学科学是一个范围广阔、分支众多、应用广泛的科学体系。

The School of Mathematics and Statistics at Beijing Institute of Technology (BIT) originates from the Mathematics Teaching and Research Office in the Basic Science Department in the 1960s. The School of Mathematics was founded in 2011, and renamed as the School of Mathematics and Statistics in 2013.

Approved by the Academic Degrees Committee of the State Council, the School was among the first group of institutions that is qualified to confer Ph. D degrees in applied mathematics in 1981, and was approved to confer Ph. D degrees in mathematics in 2010 and Ph. D degrees in statistics in 2011. Its “Applied Mathematics” was approved as a key subject in 2013 by the Ministry of Industry and Information Technology. The laboratory on “Mathematical Characterization, Analysis and Applications of Complex Information” was acknowledged as a Beijing key laboratory in 2015. The Mathematics subject has been in the top 1% according to the Essential Science Indicators (ESI) since 2021. According to the QS World University Rankings by Subject in 2021, the rank of Mathematics subject in BIT is 201-250.

北京理工大学数学学科具有 40 多年的研究生培养历史，是国家培养高水平基础研究和应用基础研究数学人才的重要基地，于 1981 年获批国务院学位委员会首批应用数学博士学位授予权，2007 年设立博士后流动站，2010 年获批数学一级学科博士学位授予权，2013 年“应用数学”获批工业与信息化部重点学科，2015 年获得北京市重点实验室“复杂信息数学表征分析与应用”认定。2020 年获得工信部重点实验室“信息安

全的数学理论与计算” 认定。在 2021 年全球 QS 世界大学数学专业排名中，数学学科位列 201-250 位。

Currently, there are 69 faculty members working on mathematics, including 23 professors, 28 associate professors and 22 assistant professors. Among them, there are two winners of the National Natural Science Foundation for Distinguished Young Scholars, 2 Changjiang Scholar Chair Professors acknowledged by the Ministry of Education (1 of them is a fellow of the American Mathematical Society, and both of them are fellows of the Institute of Mathematical Statistics), 5 scholars supported by the Program for New Century Excellent Talents of the Ministry of Education, and 2 winners of the “Beijing Outstanding Teacher Award”. After more than 30 years of development, the following 5 preponderant research fields stand out:

北京理工大学数学学科已经建立了稳定和高水平的师资队伍，具有丰富的人才培养经验，在基础理论研究和应用基础研究方面都做出了重要贡献。数学学科现有教师 69 人，其中教授 23 人，副教授 28 人，助理教授 22 人。其中，教育部长江学者讲座教授 2 人，国家自然科学基金委杰出青年基金获得者 2 人，教育部新世纪人才 5 人，北京市教学名师 2 名。经过 30 多年的发展，以下 5 个优势研究方向脱颖而出:

(1) Algebra and Representation Theory 代数及其表示

This discipline focuses on structures and theories related to algebraic groups, quantum groups, Lie algebras, cyclotomic Hecke algebras, Hecke-Clifford algebras and non-commutative Iwasawa algebras. More specifically, this field of study covers the modular representation of semisimple algebraic groups, integral Schur-Weyl duality between classical groups of types BCD or their quantum groups and the Brauer algebras or BMW algebras, respectively, modules for the cyclotomic Hecke algebras of type *G(r,p,n)*, *Z*-graded representation theory of quiver Hecke algebras, spin symmetric groups and Hecke-Clifford algebras, queer Schur superalgebras, *Q-q*-Schur superalgebras, affine and cyclotomic Yokonuma-Hecke algebras, reflexive ideals in Iwasawa algebras, derivations of generalized matrix algebras, Lie algebras and vertex operator algebras, cluster algebras, gentle algebras, classical groups over rings and coding theory.

主要从事代数群、量子群、HECKE 代数、Q-SCHUR 代数、IWASAWA 代数、代数编码等的研究。研究内容包括：分圆箭图 HECKE 代数与箭图 SCHUR 代数的 Z 分次表示理论；G(R,P,N）型分圆 HECKE 代数的模表示理论；BCD 型的典型群及量子群与 BRAUER 代数及 BMW 代数之间的整 SCHUR-WEYL 对偶理论；HECKE-CLIFFORD 代数的表示以及对称群的自旋表示理论；奇异量子超群的结构及其表示；YOKONUMA-HECKE 代数的模表示理论；IWASAWA 代数的自反理想；CLUSTER 代数及 CLUSTER 范畴理论；线性码的相对广义 HAMMING 权等。

(2) Geometry, Topology and Analysis 几何、拓扑与分析

This discipline focuses on differential geometry, topology, complex analysis, operator algebras theory, etc. More specifically, this field of study covers geometric flows in Riemannian and complex geometry, geometry and topology of manifolds, hypersurface geometry; fuzzy topological theories, including theories for lattice-valued

measures, pointwise approach, separation axioms and fuzzy compactness; operator algebras theory, Lie algebras of operator and their applications in physics and operator spectral theory; and deformation theory of Kleinian groups.

从事微分几何、拓扑学、复分析、算子代数等领域的研究。研究内容包括：黎曼流形和复流形上的几何流，子流形上的几何和拓扑结构，超曲面的几何结构；格值拓扑的度量理论，模糊的逐点度量，模糊分离公理、模糊紧性等模糊拓扑理论；算子代数、算子李代数理论及其在物理上的应用，算子谱理论；克莱因群与空间变换的刚性问题等。

(3) Differential Equations and Their Applications 微分方程理论及其应用

This discipline focuses on definite solutions for evolution equations such as their well-posedness and asymptotic behavior, eigenvalue problems for nonlinear elliptic partial differential equations, well-posedness of Boltzmann equations and scattering theory for dispersive partial differential equations, as well as their applications in automatic control, image processing, bioscience and life science, etc.

研究发展方程的定解问题,如解的适定性、解的渐近性,非线性椭圆方程的特征值问题，BOLTZMANN 方程的适定性问题,色散偏微分方程的散射理论等，以及它们在自动控制、图像处理、生物与生命科学等学科中的应用。

(4) Graph Theory and Combinatorial Optimization 图论与组合优化

This discipline studies graph structures, conditions for the existence of a factor and its extreme value, coloring, parameters and chemical index, random graphs and their applications; as well as fuzzy matroids and fuzzy optimization and applications of their mathematical models and optimization methods into engineering design, network flows, economic management of transportation, logistics and supply chains, etc.

研究组合数学、图的各种结构及关系，图的因子存在性条件及其极值问题,图的着色问题，图的各种参数与化学指标,随机图等及其应用，模糊拟阵、模糊优化及其在工程设计、网络流、经济管理与交通运输、物流与供应链管理等领域的数学模型与优化方法和理论。

(5) Computation, Mechanics and Control Theory 计算几何力学与控制

Capitalizing on the advantage interdisciplinary studies, this discipline is based on practical problems in engineering sciences, mechanics, materials science, automation, etc. and focuses on universal and key scientific issues, such as control theory, High Performance Computing (HPC) and fluid mechanics. The study covers control theory, distributed parameter systems, nonlinear systems, stochastic systems, optimal control, geometric control, scientific computation, finite element methods, multiscale analysis, wavelet transform computation, general mechanics and Computational Fluid Dynamics (CFD).

充分发挥多学科交叉与综合的优势，以科学、工程中的实际问题为背景，开展系统控制、高性能计算和流体

力学带有普遍性的关键科学问题研究。研究分为：控制理论与应用、计算与应用数学、一般力学与流体计算，具体包括数学控制理论、分布参数系统、非线性系统、随机系统、最优控制、几何控制、科学计算、有限元方法、多尺度分析、小波计算、一般力学、流体计算等。

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.

培养具有良好的国际常识，具有传播中外文化能力的高层次创新人才，充分发挥国际研究生作为文化桥梁的作用。

We are aimed to produce graduate students who have a national sense of mission and the social sense of responsibility, law-abiding, decency, honesty and trustworthiness, physical and mental health, rich scientific spirit and international perspective to the high-quality, high-level creative talents. The graduate students should have the ability to engage in basic theory and application research in the field of mathematics, have a rigorous and realistic style of work and learning attitude, and have a high professional English reading ability.

Master students should master the solid basic theory and systematic knowledge of the discipline, and have the ability to engage in scientific research work or independent specialized technical work.

Doctoral students should master the solid basic theory and systematic knowledge of the discipline, and have the ability to work independently in scientific research, and make creative achievements in science and technology.

研究生应具有从事数学领域基础理论和应用研究的能力，具有严谨求实的工作作风和学习态度，具有较高的专业英语阅读能力。硕士生应掌握本学科扎实的基础理论和系统的知识，具有从事科学研究工作或独立从事专业技术工作的能力。博士生应掌握本学科扎实的基础理论和系统的知识，具有独立从事科学研究工作的能力，并在科学技术方面取得创造性成果。

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.

硕士研究生的基本学制是 2 年，学生应在第一学年完成课程，论文时间不应少于一年，最长修业年限

在 2 年学制基础上增加 0.5 年。博士生学制为 4 年，学生应在第一学年完成课程。论文时间不得少于三年，最长修业年限在 4 年学制基础上增加 2 年。

4. Curriculum and Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1700127	Functional Analysis (Module I) 泛函分析（模块 1）	64	4	1	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1700128	Functional Analysis (Module II) 泛函分析（模块 2）	16	1	1	Optional	Master /Ph.D.	
	1700129	Algebras (Module I) 代数学（模块 1）	48	3	1	Optional	Master /Ph.D.	
	1700130	Algebras (Module II) 代数学（模块 2）	32	2	2	Optional	Master /Ph.D.	
	1700131	Topology(Module I) 拓扑学（模块 1）	48	3	1	Optional	Master /Ph.D.	
	1701132	Topology(Module II) （英）拓扑学（模块 2）	32	2	2	Optional	Master /Ph.D.	
	1700105	Modern Partial Differential Equations 现代偏微分方程	48	3	1	Optional	Master /Ph.D. 硕博	
Discipline Core Course	1700104	Riemannian Geometry 黎曼几何	48	3	1	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1700106	Advanced Probability Theory 高等概率论	48	3	2	Optional	Master /Ph.D.	
	1701146	Modern Optimization Methods （英）现代优化方法	48	3	2	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	1701148	Introduction to algebraic geometry and algebraic groups （英）代数几何	32	2	1	Optional	Master /Ph.D.	
Major Optional Course	1700107	Graph Theory and Its Applications 图论及其应用	48	3	1	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	1700116	Advanced Mathematical Statistics 高等数理统计	48	3	2	Optional	Master /Ph.D.	
	1700159	Advanced Stochastic Processes 高等随机过程	48	3	1	Optional	Master /Ph.D.	
	1700111	Control Synthesis Theory 控制综合理论	32	2	2	Optional	Master /Ph.D.	
	1701113	Theory of Semigroup of Operators and Application （英）算子半群理论及应用	32	2	1	Optional	Master /Ph.D.	
	1700114	Finite Element Methods 现代有限元方法	32	2	2	Optional	Master /Ph.D.	
	1700115	Mathematical Methods in Information Analysis 信息分析中的数学方法	32	2	2	Optional	Master /Ph.D.	
	1700133	Stochastic Differential Equations 随机微分方程	48	3	2	Optional	Master /Ph.D.	
	1700149	Homological Algebras 同调代数	32	2	1	Optional	Master /Ph.D.	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes：

1).Public Course

(1) Chines 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.

说明：

1. 公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

The qualified candidates for master's degree and doctor's degree will be granted the degree of master of science and doctor of science respectively.

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

本学科对符合要求的硕士学位申请人或博士学位申请人分别授予理学硕士或理学博士学位。

具体要求见《北京理工大学学术型研究生实践、培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、课程说明、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和参考文献等。

Physics

物理学

(070200)

1. Overview of the Program 学科简介

Physics studies the structure, interaction and movement laws of matter and their various practical applications. It is the foundational subject for all disciplines of natural science and a major source of science and technology. The Subject of Physics in BIT has the right to grant master's degree and doctor's degree of first-level discipline. Currently, the School of Physics is well staffed with 111 teachers, with 64 professors and 46 associate professors, 66 Ph.D. supervisors and 104 master's supervisors. Our teachers have strong scientific research strength, and have published more than 200-SCI papers every year, with an average annual funding of about 50 million yuan. We have won several national and provincial awards such as the Second Prize and Third Prize of the National Natural Science, the First Prize of National Defense Science and Technology, and the Second Prize of the Natural Science of the Ministry of Education by now. Since 2012, the subject has entered the top 1% of ESI's global rankings. In the QS World University Rankings of 2022, the School of Physics of Beijing Institute of Technology successfully entered the top 300 universities in the world, ranking "251-300" in the "Physics and Astronomy" discipline, ranking 5th in the discipline of Applied Physics mainland China universities.

物理学是研究物质的结构、相互作用和运动规律以及它们各种实际应用的科学，是自然科学各学科的重要基础，是科学技术的主要源泉。北京理工大学物理学科入选教育部一流学科建设名单，现有一级学科硕士学位授予权和一级学科博士学位授予权，并设有博士后流动站。

本学科师资力量雄厚，拥有一支高水平的教师队伍。现有专任教师 111 人，教授 64 人，副教授 46 人，博士生导师 66 人，硕士生导师 104 人。学院教师具有很强的科学研究实力，年均发表 SCI 论文 200 余篇，年均到校经费约 5000 万元。曾获得国家自然科学二等奖、三等奖，国防科学技术一等奖和教育部自然科学二等奖等多项国家与省部级奖。2012 年起，本学科进入 ESI 全球排名前 1%。在 2022 年的 QS 世界大学学科排名中，在“物理与天文”学科中排名“251-300”位。应用物理学专业 2022 年软科中国大学专业排名第 5 名。

Beijing Institute of Technology physics academic graduate training program mainly includes the following research directions: theoretical physics and applications, condensed matter physics, optics, computational physics and so on:

本学科注重方向凝练，促进团队建设，围绕物理学前沿开展教学和科研工作，重视理工结合，注重学生理论

与实践等综合素质的培养。北京理工大学物理学科主要包括以下研究方向：理论物理及应用、凝聚态物理、光学、计算物理等。

（1）Theoretical physics and applications: including basic theoretical issues related to quantum information, Condensed matter strong correlation theory, cosmology and high energy physics, theoretical biophysics.

理论物理及应用：主要侧重于量子信息理论，量子计算理论，强关联理论，超导理论，统计物理，机器学习与人工智能；高能理论，粒子物理，天体物理与宇宙学；生物物理与软物质物理等方向。

（2）Condensed matter physics: including condensed matter theory, elementary excitation in condensed matter physics, quantum transport, nanoscale physical properties, spintronics and new solid quantum device design, quantum materials, etc. Focusing on the structure-effect relationship between small molecules and macroscopic particle aggregate construction principles, methods, microstructures, and structures and properties, researching and exploring the nonlinear response, self-organization, ordering and rheology of soft materials under various external influences and key issues in application.

凝聚态物理：主要侧重于凝聚态理论，凝聚态计算；量子材料与物性调控，磁性与自旋电子学，关联体系与超导物理，材料光学与光电物性，极端高压物理，能源材料与物理；量子器件物理，神经形态信息器件，自旋量子结构与存储器件等方向。探讨制备新型材料的新方法、发展调控物性的新手段、设计和构筑新型的功能器件，研究这些材料和器件在信息、材料和能源领域中实际可能的应用。

（3）Optics: including light-substance interactions, nanophotonics, quantum optics, and optical quantum informatics. The interaction between light and matter mainly explores the interaction between light and quantum wires, quantum dots, quantum plates, photonic crystals, metal nanostructures, mesoscopic superconducting devices, optical superlattices and other artificial structural materials from both theoretical and experimental aspects. Nanophotonics is a discipline that studies the interaction of electrons and photons in nanostructures and their devices. It is a new discipline developed by the integration of photonics technology and nanoelectronics technology, and will be developed in the direction of nanophotonics integration. Quantum optics and optical quantum informatics mainly carry out quantum imaging and ghost imaging, optical quantum computing, optical quantum communication, optical quantum sensing and so on.

光学：主要侧重于光与物质相互作用，微纳光学和光子学，拓扑光子学；量子信息处理，量子通信，光量子态调控，量子存储，量子随机行走；光量子芯片，微纳制造与光电子器件，微纳检测与激光光谱技术；量子精密测量，极弱微信号探测与成像，生物量子传感与检测等方向。

（4）Computational physics: Develop computational methods based on quantum mechanics, develop corresponding high-performance parallel computing software packages; study various new functional materials, especially topological materials, two-dimensional quantum materials, nano photoelectronic materials,

Renewable energy materials, Defective material, energy-containing materials, application of material and plasma physics in military and commercial technology, amorphous and quasicrystals, design and application of conductive materials and optoelectronic materials.

计算物理：主要侧重于新奇量子物性，强关联体系等计算方法的发展，软件包开发及模拟；量子材料（如拓扑材料、二维材料、关联材料、超导材料、光电材料等），自旋电子学材料，能源材料，含能材料，非晶和准晶材料等的物性计算与结构设计；生长和演化等动力学模拟；复杂环境下的电磁场传播；静电等离子体等方向。注重解决军民两用技术如材料和静电等离子体中的关键问题；为设计和开发新型电子学和光电量子器件提供理论和材料基础。

2. Training Target 培养目标

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.

目标是培养具有良好国际常识、具有传播中外文化能力的高层次创新人才，充分发挥国际研究生的文化桥梁作用。

The Physics master degree candidates should have a solid foundation of the basic theory and professional knowledge in the field of physics, master modern experimental method and techniques in physics, have the capability of organization and administration of scientific research and engineering, have good spirit of cooperation and strong communication skills，have good command of listening and speaking in English, be good at reading professional literature and writing English thesis of related field. Candidates will be developing in every way morally intellectually and physically and will be competent for teaching and scientific research in physics and related field.

硕士研究生应掌握物理学科坚实的基础理论和系统的专门知识，掌握物理学科的现代实验方法和技能，在科学研究或专门工程技术工作中具有一定的组织和管理能力，有良好的合作精神和较强的交流能力，具有良好的英语听说能力，能够较为熟练地运用英语阅读本专业的有关文献资料、撰写论文。培养能够从事物理学科及相关领域教学和科学研究工作的高水平人才。

The Physics doctor degree candidates should have a solid foundation of the basic theory and professional knowledge in the field of physics, master modern experimental method and techniques in related field, demonstrate continuous and effective engagement in independent and creative research activity of high quality and significance, have good spirit of cooperation and strong communication skills，have good command of listening and speaking in English, be good at reading professional literature and writing English thesis of related field, make creative achievements in scientific research and specialized technology. Candidates will be

competent for teaching, scientific researching, developing and project administrating in colleges, universities and high-tech enterprises.

博士研究生应掌握本学科坚实宽广的基础理论和系统深入的专门知识，掌握本学科的现代研究方法和技能，具有独立地、创造性地从事科学研究的能力，具有良好的合作精神和较强的交流能力，具有良好的英语听说能力，能够较为熟练地运用英语阅读本专业的有关文献资料、撰写论文，能够在科学研究或专门技术上做出创造性的成果。博士研究生毕业后能胜任高等院校、科研院所及高科技企业的教学、研究、开发和管理工作。

3. Length of Schooling 学制

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.

本学科普通硕士研究生原则上应在第一学年内完成全部课程学习，学位论文工作时间不少于 2 年。原则上普博生和硕博连读生应在第一学年内完成课程学习，本科直博生应在前两学年内完成课程学习。

4. Curriculum and Credits Requirements 课程设置与学分要求

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1801001	Advanced Quantum Mechanics 高等量子力学	64	4	1	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
Discipline Core Course	1801005	Modern Optics 现代光学	64	4	1	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Major Optional Course	1801003	Introduction to quantum information 量子信息引论	32	2	1	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	1801004	Surface Physics and Surface Analysis 表面物理与表面分析	32	2	2	Optional		
	1801006	Thin Film Science and Technology 薄膜科学与技术	32	2	2	Optional		
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes（说明）：

1).Public Course 公共课

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

(1) 汉语：由北京理工学院留学生中心设置。所有国际学生都必须参加这门必修课。

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

(2)中国概况：由北京理工学院留学生中心设置。所有国际学生都必须参加这门必修课。

2) Basic Course 基础课

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

如果图表中列出的数学课程不能满足要求，不同的项目可以设置自己的基础课程。

3) Discipline Core Course 学科核心课

Different Programs can set their own Discipline Core Course.

不同的项目可以设置自己的学科核心课程。

4) Major Optional Course 选修课

International students should choose course from their own program or from other programs. 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.

不同的项目可以设置自己的学科核心课程。国际学生应该从自己的项目或其他项目中选择课程。如果需要，在导师的指导下，硕士生留学生和博士生留学生可以选修本科课程。

5. Practice Part 实践环节

1) Academic Activity (1 credits) 学术活动（1 学分）

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.

留学生需要参加本领域的学术活动、学术讲座和学术会议。强烈建议在校内外的学术会议上发表口头演讲。

2) Innovative Practice (1 credits) 创新实践（1 学分）

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

留学生应在学习期间接受科学研究培训和社会实践，并由导师进行评估。

6. The Dissertation Related Work

1. Literature Review & Opening Report； 2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

1. 文献综述与开题报告； 2. 中期检查；3. 论文写作和论文预答辩(博士生)；4. 论文答辩；5. 学位授予。

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前

Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Chemistry

化学

(070300)

1. Overview of the Program 概述

In recent years, the Chemistry discipline has achieved advanced development, with the international influence rising significantly. According to the ESI evaluation retrieval data of academic influence of subjects, the chemistry program in BIT is ranked within top 1‰. It is also ranked 28th among universities in China, which is one of the important bases of chemical scientific research and talents training.

The Chemistry program belongs to a full-time degree program, involving both coursework and projects. It aims to cultivate the high-level specialized personnel with a firm grasp of basic theories and professional knowledge of chemistry, with experimental skills and abilities to solve practical problems. Students are required to participate in projects in relevant fields under the guidance of their supervisors and complete their graduation thesis based on the projects they have conducted. The qualified students will be granted to the master or Ph.D. degrees after obtaining required credits and passing their thesis defense.

近年来，化学学科取得了长足发展，国际影响力显著提升。根据 ESI 学科学术影响力评价检索数据，北京理工大学化学专业排名在前 1‰以内。在全国高校中排名第 28 位，是我国化工科研和人才培养的重要基地之一。

化学是全日制教育，包括学位课程和研究项目。化学学科旨在培养既能扎实掌握化学基础理论和专业知识，又具有实验技能和解决实际问题能力的高层次专业人才。学生需要在导师的指导下参与相关领域的科研项目，并根据所做的项目完成毕业论文。经修满规定学分并通过论文答辩后，授予硕士或博士学位。

2. Training Target 培养目标

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 bond.

培养具有高水平的的具有国际视野，具有传播中外文化能力的高层次创新人才，充分发挥国际研究生作为文化纽带的作用。

3. Length of Schooling 学制

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.

硕士研究生基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生的最长学习年限在 2 年的基础上延长 0.5 年。

博士研究生的基本学制为四年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士研究生最长学习年限在 4 年的基础上再延长 2 年。

4. Curriculum and Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕士/ 博士	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕士/ 博士	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕士/ 博士	
Basic Course 基础课	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional 选修	Master /Ph.D. 硕士/ 博士	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional 选修	Master /Ph.D. 硕士/ 博士	
	1701007	Modern Regression Techniques in Data Sciences 现代回归方法	32	2	1/2	Optional 选修	Master /Ph.D. 硕士/ 博士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Discipline Core Course 学科核心课	1001017	Coordination Chemistry 配位化学	32	2	1	Optional 选修	Master /Ph.D. 硕士/ 博士	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	1001018	X-Ray Crystallography X 射线晶体学	32	2	1	Optional 选修	Master /Ph.D. 硕士/ 博士	
	1001003	New Energy Technology 新能源技术	32	2	1	Optional 选修	Master /Ph.D. 硕士/ 博士	
Major Optional Course 专业选修课	1001007	Supramolecular Chemistry 超分子化学	32	2	2	Optional 选修	Master /Ph.D. 硕士/ 博士	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	1001021	Heterogeneous Catalysis for Energy Applications 能源应用当中的多相催化	32	2	1	Optional 选修	Master /Ph.D. 硕士/ 博士	
	1001023	Carbon Neutral Chemical Technology 碳中和化工技术	32	2	1	Optional 选修	Master /Ph.D. 硕士/ 博士	
	1001006	Spectrometric Identification of Organic Compound 有机波谱分析	32	2	1	Optional 选修	Master /Ph.D. 硕士/ 博士	
	1001024	Advanced Instrumental Analysis 高等仪器分析	32	2	2	Optional 选修	Master /Ph.D. 硕士/ 博士	
	1001025	Organometallic Chemistry 金属有机化学	32	2	2	Optional 选修	Master /Ph.D. 硕士/ 博士	
	1001026	Fundamentals of Materials Science and Engineering 材料科学与工程基础	32	2	2	Optional 选修	Master /Ph.D. 硕士/ 博士	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes：

1).Public Course

(1) Chines 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) Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3) Discipline Core Course

Discipline Core Courses were set by Chemistry Graduate Program.

4) Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语：由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的基础课。

3）学科核心课：化学学科确定本学科的核心课程。

4）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程；留学博士生根据需要可选修本科生课程。

5. Practice Part 实践部分

1) Academic Activity (1 credits) 学术活动(1 学分)

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.

国际研究生需要参加本专业的学术活动、学术讲座和学术会议。鼓励留学生在校内外的各类学术会

议上做报告。

2) Innovative Practice (1 credits) 实践活动(1 学分)

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

由指导教师指导国际研究生在研修期间进行科研训练和社会实践并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students)； 4. Thesis Defense； 5. Degree Conferment

1. 文献综述与开题报告； 2. 中期检查；3. 论文写作和论文预答辩(博士生)；4. 论文答辩；5. 学位授予。

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Biology

生物学

(071000)

1. Overview of the Program

School of life science researches started from 1980s in Beijing Institute of Technology, primarily supporting the Master and Doctor Program in applied chemistry. In 1995, department of Biology Engineering was authorized began to recruit master and doctor programs in this major, respectively in 2000 and 2005. For the disciplinary progress of fundamental biology, school of life science was authorized to award degree in biochemistry and molecular biology in 2003, microbiology and neurology in 2005. Furthermore, biochemistry and biology were approved as key discipline of national defense in 2007. Biology was conferred as a first-class discipline and authorized to recruit master and doctor programs in this major, respectively in 2010 and 2019.

So far, there are four principal research orientations in biology as first class disciplines: Neurobiology, Biochemistry &Molecular Biology, Microbiology and Cellular Biology. Introductions as follows:

1. Neuroscience: (1) study molecular mechanism of neuronal disease: for neurodegenerative disorders and vascular diseases. To clarify the molecular mechanism, pathology and possible treatment of Parkinson's disease, Alzheimer’s Disease, cerebrovascular disease and psychosis via advanced approaches and techniques such as proteomics, biochemical analysis and separation, molecular biology, etc. (2) space neurology and immunology: to investigate the biological alteration its mechanism of nervous system, the interaction between nervous and immune systems and their signaling pathways’ changes, nervous system development, neuronal apoptosis caused by oxidative damage and its prevention, neuron stem cells development and its role in repair the nervous system trauma, ergonomic evaluation for space and confined capsule human-machine-environment, fundamental space neurobiology medicine study, etc. (3) research on new technology and approaches for neurobiology: to discuss application of proteomics and metabonomics, new labeling and quantitative technique in neurobiology study. Apply to Biological mass spectrometry, HPLC-MS, two-dimensional electrophoresis techniques in and other nervous system diseases associated protein used in highly sensitive quantitative analysis; proteome level in exploring the etiology of neurological diseases and its regulation. Neurobiological research on the application of nanotechnology, new techniques and methods of labeling, the molecules, cells, and neural elements on the individual level for rapid and sensitive marker, and real-time detection of dynamic trace.

2. Biochemistry & Molecular Biology: (1) structure, function and regulation of biomacromolecules. It focuses on the research on novel drug targets and endogenous pathogenic matter responsible for major human disorders. Structure and molecular design of proteins with specificity function; application of trip-repeat nucleotide fragments in gene expression and regulation. (2) Technology of biochemical analysis and separation. It stresses studies of new approaches and applications of biochemical analysis and separation, including the biology separation medium and ligands development and their use in chromatography realm; application of lowabundant protein concentrating technique, High Performance Liquid Chromatography, electrophoresis, capillaryelectrochromatography in biochemical analysis and separation, drug selection and proteomics; researches on new-type quantum dots and biosensors. (3) Applied chemistry and molecular biology. It aims at the cross disciplinary fields of biology, chemistry, material science, engineering and space biology, including high-sensitive molecular detection technology for nucleic acid, molecular mechanisms of the interaction between biomaterial or bioactivity material between tissue and cells, design and application of biomaterials, aptamer and vectors, etc.

3. Microbiology: (1) Biotransformation and Synthetic Biosystem: Recombination and synthesis of new, specific functional artificial microbial systems by engineering strategies for production applications. Research areas cover microbial metabolism, regulation and its molecular mechanisms, as well as the reorganization of microbial metabolic pathways. (2) Space microbial biotechnology: to study the growth, metabolism and the gene expression mechanism of microorganism under the space condition and explore new methods for drug development and waste clearance in space with the assistance of microorganism. With the researches on space microbe culture techniques, create space culture system suitable for diverse categories of microbes with a measurable and controllable loading style. (3) microorganism metabolism and gene engineering: to research the metabolism, regulation and mechanism of microorganism, reconstruction of microbe metabolism, modification of geneticallyengineered bacterium, RNA interference in bacterial model, taking advantage of microbe and its enzyme to process and transform some certain substance to ensure the cleanness and efficacy.

4. Cellular and molecular regulation mechanisms and applications:

(1)Effects of Spatial Microgravity and Radiation on the Growth, Differentiation and Function of Different Cells in the Body.

(2)Molecular biological basis and structure-activity relationships of biologically active substances for the prevention and treatment of tumors, neurodegenerative diseases and diabetes; molecular mechanisms of neurological and cardiovascular damage, drug countermeasures and protective measures under conditions of aerospace weight loss; weightless pharmacokinetics and metabolic patterns the study.

After several years of efforts and dedication, school of life science owns a creative, active and cooperative faculty team. They are focusing on the cutting-edged international issues, highlighting the importance of academic communication, making efforts to combine their well-structured knowledge system with practice and contributing to earn national and international influence. Among which, there are 14 professors, 21 associate professors, 23 PhD supervisors and 45 mater supervisors. More than 90% have PhD degree, and 1/3 of them have oversea experience for more than 1 year. Faculties of our school have undertaken many Research Grants, such as the National High Technology Research Grant and Development Program of China Grant (863 Program), the National Basic Research Program of China Grant (973 Program), the National Natural Science Foundations of China (NSFC) and national, provincial and ministerial project of defense pre-research and civil aerospace. There are more than 120 published papers cited by SCI, EI and ISTP per year and there is research space about 3000 square meters with more than 30 large equipment and hundreds of small devices. The total cost of equipment are around 40 millions.

北京理工大学生物学学科起源于 1940 年创立的延安自然科学院创院四系之一的生物系。于 20 世纪 80 年代中期开始在应用化学硕士和博士点（生物学方向）培养生命科学学科相关的研究生。1995 年生物工程（当时称作“生物化工”）本科专业招生，2000 年获得生物化工硕士授权点，2005 年生物化工博士点获得批准。在基础生物学学科建设方面，2003 年获得生物化学与分子生物学学位授权；2005 年获得微生物学、神经生物学学位授权；2010 年，生物学一级学科硕士授权点获得批准，并于 2019 年获得一级学科博士点授权。拥有“生物化学与分子生物学”和“空间生物与医学工程”两个国防重点学科。目前已为社会输送了 2000 余名优秀人才，毕业生具有良好声誉。

本学科经过多年的建设，已拥有一支注重国际发展前沿，重视学科交叉，理论联系实际，知识结构和年龄结构合理，积极进行国际学术交流，在国内外有一定影响的老中青结合的教学科研队伍，其中正高级职称 14 人，副高级职称 21 人，博士生导师 23 人、硕士生导师 45 人。拥有分子医学与生物诊疗工业和信息化部重点实验室和北京市生物教学示范中心。本学科方向现有科研实验室约 3000 平米，拥有包括流式细胞仪、激光扫描共聚焦、制备型液相色谱、气相色谱、质谱仪、蛋白质纯化系统、荧光光谱仪、荧光显微镜、酶标仪、大容量高速离心机与管式离心机、PCR 仪、制备型细胞培养系统等大型设备 30 余件及近百件小型设备，设备总价值超过 4000 万。

本学科已经凝练形成了神经生物学、生物化学与分子生物学、微生物学、生物分析与检测等 4 个稳定的研究方向，这些方向既有当前生命科学发展的主流领域，也有我校自身发展所形成的特色，在国内外具有较大学术影响力。

1. 神经生物学

开展了从细胞水平到动物水平的一系列体内及体外神经生物学及相关工程研究，包括利用分子生物学研究关键蛋白的生物功能和表观遗传的改变;尤其在神经和精神疾病的致病机理到治疗手段进行了广泛而深入的探索。并且与“智能机器人与系统高精尖创新中心”强强合作，以脑科学及神经环路为突破口开展了医工融合研究。

2. 生物化学与分子生物学

作为生命科学的基础和前沿学科，生物化学与分子生物学是数理科学与生命科学的交叉学科，为生物技术、疾病防治与医药健康产业提供理论指导。主要研究内容包括：1）生命过程与重大疾病的分子基础；2）蛋白质的设计和改造；3）基因表达调控重要元器件的发掘和改造；4）基因治疗和绿色制造。

3. 微生物学

以微生物资源为原始创新材料，在微生物系统分类研究、内生菌与植物的联合作用机制研究、微生物制剂、空间微生物学、环境污染物的微生物降解机理、微生物代谢调控与改造等研究领域在国内外已经具有一定的影响力。特别是系统开展了多种生境微生物资源与分类研究，建立了新的细菌及放线菌的分离和分类体系，发现并生效发表了 30 余种微生物新物种；在水稻内生菌调控、大豆结瘤固氮等植物与微生物相互作用领域取得重要研究成果。

4. 生物分析检测技术

系统开展了从分子到活体的光谱、色谱、质谱的多层次、全方位分析检测研究。实现了新检测材料的合成、新型的探针信号单元和识别单元设计，完成了温和、可靠、高效的活病毒多重荧光标记方法。基于毛细管电泳和微流控芯片以及生物质谱技术实现了蛋白质组学、基因分析、痕量核酸检测、靶向药物筛选、重要生物分子的监测和检测分析。成功研制了便携式质谱仪，微型集成化质谱联用仪，以及一体化生物医学分析仪，并实现了产业转化。

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.

目标是培养具有良好国际常识知识、具有传播中外文化能力的高层次创新人才，充分发挥国际研究生的文化桥梁作用。

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.

硕士研究生的基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间应不少于 1 年。硕士研究生的最长学习时间在 2 年的基础上延长 0.5 年。博士研究生的基本学制为 4 年。原则上，学生应在第一学年完成课程，论文工作时间应不少于 3 年。博士研究生的最长学习时间在 4 年的基础上可延长 2 年。

4. Curriculum and Credit Requirements

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory/ Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博	
Basic Course 基础课	1601001	Modern Biochemistry 现代生物化学	32	2	2	Optional 选修	Master /Ph.D. 硕博	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	1600078	Structural Biology 结构生物学	32	2	1	Optional 选修	Master /Ph.D. 硕博	
Discipline Core Course 学科核心课	1601002	Current Opinion in Life science and Biotechnology 现代生命科学与生物技术述评	32	2	1	Optional 选修	Master 硕博	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	1600077	Cutting-edge Research Methods in Biology 生物学前沿研究方法	32	2	1	Optional 选修	Ph.D. 硕博	
Major Optional Course 专业选修课	1600059	Advance Experimental in Biochemistry and Molecular biology 高级生物化学与分子生物学实验	32	2	2	Optional 选修	Master 硕士	Master≥6 Ph.D.≥2 硕士≥6 博士≥2

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	1600035	Modern Neurobiological Technology and Method 现代神经生物技术与方法	32	2	2	Optional 选修	Master 硕士	
	1601005	Applied Biopharmace-utics&Pharmacokinetics 实用生物药剂学与药物动力学	32	2	1	Optional 选修	Master 硕士	
	1600013	Neurobiology 神经生物学	32	2	2	Optional 选修	Master 硕士	
	1601004	Molecular Immunity 分子免疫学	32	2	2	Optional 选修	Master 硕士	
	Other major course (Chinese or English) 跨专业课					Optional 选修	Master 硕士	
	1600017	Protein Engineering and Technology 蛋白质工程与技术	32	2	1	Optional 选修	Ph.D. 博士	
	1600022	Recognition and Detection of Biomedical Molecule 生物医学分子识别及检测	32	2	1	Optional 选修	Ph.D. 博士	
	1600076	Applied Environmental Microbiology 应用环境微生物学	32	2	1	Optional 选修	Ph.D. 博士	
	1600011	Clinical Test Methods and Instruments 临床检验方法与仪器	32	2	1	Optional 选修	Ph.D. 博士	
	1601009	Biological products recovery and separation 生物产品回收分离工艺	32	2	1	Optional 选修	Ph.D. 博士	
Total Credits 合计	Master≥24 credits 硕士≥24 Ph.D.≥20 credits 博士≥20							

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. Basic Course

Different Programs can set their own Basic Course.

3. Discipline Core Course

Different Programs can set their own Discipline Core Course.

4. Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学、物理、化学、生物、管理、人文类等学科基础课。

3）专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

International Graduate Students should take scientific research training and social practices during their training

period, which should be carried-out and evaluated by supervisors.

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予 XX 硕士和 XX 博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Biomedical Engineering

生物医学工程

(083100)

1. Overview of the Program 学科简介

Biomedical Engineering, a comprehensive and high-tech engineering field, applies the principles and methods of modern natural science and engineering techniques to study the structure, functions, and relationships of the human body to reveal life phenomena and provide prevention and treatment of diseases by new technical means. The areas of biomedical engineering include interdisciplinary science and technology for the purpose of disease prevention, diagnosis, treatment, rehabilitation, etc. Development and application of medical devices and other biomedical engineering products.

The First-level master's degree qualification of biomedical engineering in Beijing institute of technology was authorized in 2003. The First-level disciplines for granting doctoral degrees are authorized in 2011.In 2007, the distinctive direction “Space Biology and Medical Engineering” in biomedical engineering in Beijing institute of technology was approved as the special discipline of national defense. In 2013, the newly established interdisciplinary "integrated medical engineering" was approved as a key discipline of the Ministry of Industry and Information Technology.

So far, we have enrolled more than 200 master graduate students, and more than 200 have graduated. We have recruited nearly 90 Ph.D. students in this discipline and other related fields (bio-chemicals, life information engineering) with qualifications for Ph.D. awards, and nearly 40 have graduated.

There are 3 provincial and ministerial key laboratories, including Beijing Key Laboratory of Biomedical Separation and Analysis, Key Laboratory of Integrated Medical Systems and Health Engineering of the Ministry of Industry and Information Technology, and Beijing Biological Teaching Demonstration Center. The area of research laboratories is about 3,600 square meters. The total value of all equipment exceeds 40 million, including laser scanning confocal microscopy, chromatography-mass spectrometry proteomics platform, microfluidic chip processing system, protein purification system, flow cytometry analyzer, physiological biochemical analysis system, barrier level Animal Laboratory, Space Biological Tank Ground Demonstration and Verification System, Ultrasound Imaging Equipment, 128-lead Brain-Energy Detection Equipment, Optoelectronic Synchronization Brain Function Detection Equipment, Eye Tracker, Multi-GPU High Performance Computing Platform, etc.

Based on our university's background of engineering, the biomedical engineering discipline includes six

distinctive research directions:

生物医学工程是一个综合性的新兴技术交叉学科领域，应用现代科学和工程的原理和方法研究人体结构、功能及两者间关系，揭示生理、病理原理。通过“医工融合”的学科特色，开创疾病预防、诊断、治疗、康复等方面的跨学科新方法，开发和应用医疗器械及其他生物医学工程衍生产品。

北京理工大学生物医学工程学科于 2003 年获得一级硕士授权，2011 年获得一级学科博士点授权，2007 年该学科特色方向“空间生物与医学工程”批准为国防特色学科，2013 年自主设立的新兴交叉学科“融合医工学”被批准为工信部重点学科。到目前为止本学科已招收 200 多名硕士研究生、毕业 200 多名，利用本学科和其他博士点的相关方向（生物化工、生命信息工程）培养博士生近 90 人、毕业近 40 人。现有省部级重点实验室 3 个，分别是生物医药分离分析北京市重点实验室、融合医工系统与健康工程工信部重点实验室、北京市生物教学示范中心。科研实验室面积约 3600 平米，拥有包括激光扫描共聚焦显微镜、色谱-质谱蛋白质组学平台、微流控芯片加工系统、蛋白质纯化系统、流式细胞分析仪、生理生化分析系统、屏障级动物实验室、空间生物舱地面演示验证系统、超声成像设备、128 导脑电检测设备、光电同步脑功能检测设备、眼动仪、多 GPU 高性能计算平台等，设备总价值超过 4000 万。生物医学工程学科发挥我校理工和医工结合的优势，以“军民结合”和“医工结合”为特色形成了 6 个重要的研究方向：

1. Space Biology and Medical Engineering:**空间生物与医学工程**

Research on major national needs such as manned space flight and deep space exploration, and this direction belongs to the special discipline of national defense. The research on the key technologies of the space bio-compartment, the space life sciences load technology, the molecular mechanism of the space environment bio-medical effects, the astronaut health monitoring and protection technology, and the celestial biology are characteristic and advanced.

围绕载人航天和深空探测等重大国家需求开展研究，是国防特色学科；在空间生物舱总体关键技术、空间生命科学载荷技术、空间环境生物医学效应的分子机制、航天员健康监测保障新技术、天体生物学等方面形成了学科优势。

2. Autonomous micro-biological medical system (integrated medical engineering):**自主式微型生物医疗系统（融合医工学）**

Supported by major projects such as "Cerebral Vascular Surgery Assist System Technology", the autonomous micro-biological medical system has been developed. The academic echelon has been engaged in research on biomedical micro-system for many years and has achieved rich results.

以“脑血管手术辅助系统技术”等重大项目作为支撑点，开发了自主式微型生物医疗系统，学术梯队

在生物医学微系统方面长期积累，取得丰硕成果。

3. Digital Health and Smart Medical: **数字健康与智慧医疗**

Focus on advanced sensor technology, identification technology, mobile health equipment, advanced medical imaging systems, precision medical technology, the special studies include modern medical signal processing, functional imaging and molecular imaging, patient-centered mobile health information technology, and bioinformatics.

重点开展先进传感器技术、辨识技术、移动健康设备、先进医学成像系统、精准医疗技术的研究。在现代医学信号处理、功能成像及分子成像、以患者为中心移动健康信息技术及生物信息学等方面形成了学科特色。

4. Medical biotechnology: **医用生物技术**

Focusing on new strategies, new methods, and new technologies for the diagnosis and treatment of major diseases, we mainly work on new technologies and methods for tumor-targeted diagnosis and treatment, neural circuit control, novel pathogen microbial classification, and innovative drug development. The distinctive research includes the construction of biological expression systems, the creation of new drugs for plant drugs (Dai drug), drug equivalence assessment techniques, new approaches to tumor immunotherapy, and the etiology of Alzheimer's disease.

围绕重大疾病的诊断和治疗新策略、新方法、新技术，重点开展肿瘤靶向诊疗新技术新方法、神经环路调控、新型病原体微生物分类等研究及创新药物研发，在生物表达体系构建、植物药物（傣药）新药创制、药物等效性评价技术、肿瘤免疫治疗新方法、老年痴呆病因学等方面形成了特色。

5. Biomedical Detection Technology: **生物医学检测技术**

Based on the study of the etiology of major diseases, new clinical testing indicators and new detection technologies are developed. At the same time, for the country's needs, biological rapid inspection techniques for diseases and foods, especially microfluidic chip detection technologies, have been developed.

一方面以重大疾病病医学研究为基础，发展新的临床检测指标和新的检测技术，另一方面以国家需求为牵引，发展疾病和食品的生物快检技术，特别是微流控芯片检测技术。

6. Bio-Aware Computing and Rehabilitation Engineering: **生物感知计算与康复工程**

The main research includes computational theory and neural model of visual and auditory perception, non-invasive measurement techniques, formal expression of biological perception, interpersonal (human-computer) multi-channel information interaction technology and its application in rehabilitation engineering.

主要研究视觉和听觉感知的计算理论和神经模型、无创测量技术，生物感知形式化表达、人际（机）多通道信息交互技术及其在康复工程中的应用。

2. Training Target 培养目标

This program is designed to cultivate students with good moral, intellectual, physical and good scientific quality who is very competitive in the emerging discipline of biomedical engineering-related, interdisciplinary, new technological field. They will to be high-level and applicable specialized persons with innovative spirit and practical ability in biomedical engineering basic research or high-tech research and development field. The requirements are:

1. Master the solid theoretical foundation and systematic professional knowledge of the biomedical engineering specialty, understand the frontier trends of this specialty. Master the experimental skills, testing methods and evaluation techniques in biomedical engineering and possess the ability of engaging in research, teaching and solving local problems in engineering. Possess the engineering consciousness, strong awareness of management and development and management and development.

2. Master a foreign language, can skillfully read professional foreign language materials and write papers. Proficiency in computer application technology.

3. Actively participate in physical exercise, maintain a good physical and mental health quality.

本专业培养具备德、智、体全面发展和良好科学素质，在与生物医学工程相关的新兴学科、交叉学科、新技术领域有相当的竞争能力、创新精神和实践能力的高层次领军人才。具体要求为：

1. 掌握本学科坚实的基础理论和系统的专业知识，了解该学科的前沿趋势。掌握本学科的实验技能、检测方法和评价体系，具有从事科学研究工作或独立担负专门技术工作的能力。具有较强系统开发与维护的工程意识。

2. 熟练掌握一门外语，对本学科外文参考材料进行综述性阅读并对研究成果进行学术论文写作，熟练掌握计算机应用技术。

3. 积极参加体育锻炼和社会活动，具有良好的心理素质和健康的体魄。

3. Length of Schooling 学制

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.

硕士生基本学制为 2 年。原则上，学生应在第一学年完成课程。学位论文完成时限不得少于一年。硕士生最长修业年限在基本学制基础上增加 0.5 年。

博士生基本学制为 4 年。原则上，学生应在第一学年完成课程。学位论文完成时限不得少于三年。博士生最长修业年限在基本学制基础上增加 2 年。

4. Curriculum and Credit Requirements 课程设置与学分要求

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requireme
Public Course	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1701002	Matrix analysis; 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	modern regression techniques in data sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course	1600026	Bioinstrument analysis technology 生物仪器分析技术	32	2	1	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional Course	1600059	Advanced Biochemistry and Molecular Biology Experiments 高级生物化学与分子生物学实验	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	1600005	Advanced pharmacology 高级药理学	32	2	1	Optional	Master /Ph.D.	
	1600023	Frontiers in Biomedical Engineering	32	2	1	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requireme
Major Optional Course		生物医学工程前沿						Master≥6 Ph.D.≥2
	1600018	Biomechanics and Simulation 生物力学与仿真	32	2	1	Optional	Master /Ph.D.	
	1600006	Space Medicine and Cosmobiology 航天医学与宇宙生物学	32	2	1	Optional	Master /Ph.D.	
	1601008	Human anatomy and physiology 人体解剖生理学	32	2	1	Optional	Master /Ph.D.	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

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. Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3. Discipline Core Course

Different Programs can set their own Discipline Core Course.

4. Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明

1. 公共课

(1)基础汉语：由北京理工大学留学生中心开课，所有国际研究生必修。

(2)中国概况：由北京理工大学留学生中心开课，所有国际研究生必修。

2. 基础课

若表中所列数学类课程不符合毕业要求，不同项目可独自开课。

3. 核心课

不同项目可独自开课。

4. 选修课

国际研究生应从其项目课程库或其他项目课程库中选择课程。在导师指导下，攻读硕士学位的国际研究生根据需要可选修本科生课程。攻读博士学位的国际研究生可选修本科生课程。

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.

1. 学术活动（1 学分）

包括参加国际国内学术会议、学术论坛、学术报告，以及在国际学术会议上做口头报告等。

2. 实践活动（1 学分）

包括科技实践和社会实践，由导师负责并进行评价。

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. Dissertation Writing and Dissertation 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.

The discipline awards Master of Engineering (M.E) degree and Doctor of Engineering (D.E) degree to qualified applicants respectively.

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

1. 文献综述与开题报告

在导师的指导下，国际研究生应选择研究方向并阅读中外参考文献。硕士生应至少阅读 30 篇文献并撰写不少于 4000 字的文献综述；博士生应阅读至少 50 篇文献并撰写不少于 5000 字的文献综述。

在文献综述基础上，开题报告应包括：研究目标、研究意义、研究方法、技术路线、项目实施计划和预期结果。

2. 中期检查

学校组织国际研究生中期检查，包括：课程检查、文献综述、开题报告、发表论文、学位论文进展。

3. 论文撰写与预答辩（针对博士生）

国际研究生应在导师的指导下完成学位论文。博士生在导师批准后进行论文预审。

4. 论文答辩

经学位评定委员会批准后，国际研究生可参加论文答辩。

5. 学位申请与授予

国际研究生在申请硕士或博士学位时应符合项目要求，本学科对符合要求的学位申请人授予工学硕士学位（M.E）和工学博士学位（D.E）。

具体要求见《北京理工大学研究生培养环节实施办法》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

研究生培养方案确定所有课程必须制定教学大纲。教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献。

Statistics

统计学

(071400)

1. Overview of the Program（学科简介与研究方向）

Beijing Institute of Technology (BIT) established the second-level master program in Probability Theory and Mathematical Statistics in 1984. It started to enroll undergraduate students in statistics as well as Ph.D. students in statistics (under the Applied Math Ph.D. program) in 2003 and then further established the professional master program in 2010. In 2011, BIT was among the first batch of universities that can grant the first-level doctorate degrees in statistics, forming a comprehensive talent education system consisting of both the undergraduate and (academic and professional) graduate programs. Notable alumni include Professor Bing Li from the Penn State University who is an elected fellow of the Institute of Mathematical Statistics (IMS) and Professor Kehai Yuan from the University of Notre Dame who is a famous expert in psychological statistics. Currently, there are 41 faculty members with diverse backgrounds and rich overseas academic experience. There are four disciplines: Mathematical Statistics, Experimental Design and Reliability Optimization, Statistical Analysis of Big Data, and Applied Probability Theory.

北京理工大学是首批获得统计学一级学科博士学位授予权的高校之一,早在 1984 年就设立了概率论与数理统计二级学科硕士点,2003 年开始招收统计学学科本科生,2010 年增设应用统计硕士专业学位点，2011 年获批统计学一级学科博士点。目前，统计学学科招收包括统计学博士生和硕士生、应用统计专业硕士生和统计学专业本科生四个层次的学生；建立了稳定和高水平的师资队伍，具有丰富的人才培养经验，为统计学理论研究和应用领域培养了较多高层次统计学人才；建立了创新能力强的四个学术研究团队，在国内外具有较高的学术影响，已取得的学术成果丰富，在基础理论研究和应用基础研究两方面都做出了重要贡献。本学科含有数理统计，大数据统计分析，可靠性理论与应用，应用概率论四个研究方向。

2. Training Target（培养目标）

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.

Master students should master the solid basic theory and systematic knowledge of the discipline, and have the ability to engage in scientific research work or specialized technical works independently.

Doctoral students should master the solid basic theory and systematic knowledge of the discipline, and have the ability to work independently in scientific research, and make creative achievements in science and technology.

培养具有良好的国际常识，具有传播中外文化能力的高层次创新人才，充分发挥国际研究生作为文化桥梁的作用。

硕士生应掌握本学科扎实的基础理论和系统的知识，具有独立从事科学研究工作或专业技术工作的能力。

博士生应掌握本学科扎实的基础理论和系统的知识，具有独立从事科学研究工作的能力，并在科学技术方面取得创造性成果。

3. Length of Schooling（学制）

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.

硕士研究生的基本学制是 2 年，学生应在第一学年完成课程，论文时间不应少于一年，最长修业年限在 2 年学制基础上增加 0.5 年。博士生学制为 4 年，学生应在第一学年完成课程。论文时间不得少于三年，最长修业年限在 4 年学制基础上增加 2 年。

4. Curriculum and Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	Modern Regression Techniques in Data Sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course	1700106	高等概率论 Advanced Probability Theory	48	3	1	Compulsory	Master /Ph.D.	Master≥9 Ph.D.≥6
	1700116	高等数理统计 Advanced Mathematical Statistics	48	3	1	Compulsory		
	1700127	泛函分析（模块1） Functional Analysis (Module 1)	64	4	1/2	Compulsory		
	1700154	统计推断 Statistical Inference	48	3		Compulsory		
	1700155	统计机器学习 Statistical Machine Learning	48	3	1/2	Optional		
	1700156	现代试验设计 The Design of Modern Experiments	48	3	1/2	Optional		
	1700133	随机微分方程 Stochastic Differential Equation	48	3	1/2	Optional		
	1700157	多元统计分析 Multivariate Statistical Analysis	48	3	1/2	Optional		
Major Optional Course	1700142	时间序列与预测模型 Time Series and Predictive Models	32	2	1/2	Optional	Master /Ph.D.	Master≥8 Ph.D.≥3

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	1700158	数据挖掘 Data Minning	48	3	1/2	Optional		
	1700110	随机过程 Stochastic Process	48	3	1/2	Optional		
	1701146	（英）现代优化方法 Modern Optimization Methods	48	3	1/2	Optional		
	1700160	计算机试验设计方法与建模 The Design and Analysis of Computer Experiments	48	3		Optional		
	1700161	统计前沿选讲 Lecture on modern statistical models	32	2		Optional		
	1700162	生物信息与统计 Bioinformatics and Biostatistics	48	3		Optional		
	1700163	非参数统计 Nonparametric Statistics	48	3		Optional		
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes：

1).Public Course

(1) Chines 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) Basic Course

If the mathematic courses listed in the chart can’t meet the requirement, different Programs can set their own Basic Course.

3) Discipline Core Course

Different Programs can set their own Discipline Core Course.

4) Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2)基础课

如果列表中的数学课程不能满足要求，不同的专业可以设置自己的基础课程。

3)学科核心课

不同的研究方向可以设置自己的学科核心课。

4)专业选修课

留学生应选择本专业或其他专业的课程。在导师的指导下，硕博留学生可以根据需要选修本科课程。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on*

Academic Degree Conferrals of Beijing Institute of Technology

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。
本学科对符合要求的硕士学位申请人或博士学位申请人分别授予理学硕士或理学博士学位。

具体要求见《北京理工大学学术型研究生实践、培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、课程说明、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和参考文献等。

Mechanics

力学

(080100)

1. Overview of the Program 学科简介

Mechanics is both a fundamental discipline and a technical discipline. It is a bridge between science and engineering. Mechanics concerns with the motions of physical objects, specifically the relations among force, matter, and motion. Mechanical bodies stand for a wide assortment of objects, including particles, rigid bodies, solids, fluids, etc. Depending on the nature of the bodies, mechanics can be divided into three branches: (a) general mechanics, dealing with the mechanical behavior of material points and rigid bodies; (b) fluid mechanics (or the mechanics of continuous media), which is concerned with ideal and viscous fluids; and (c) mechanics of deformable media, which studies the deformation of solid bodies under applied external forces.

The full-time graduate program of mechanics will provide the students with opportunities for further development in the principles of mechanics and their applications to engineering, aiming at cultivating the high-level professionals with solid theoretical and practical background in mechanics. This program involves both fundamental courses and research project. Courses will focus on the fundamentals of mechanics, including solid mechanics, fluid mechanics, structural dynamics, computational mechanics, etc. The project will investigate challenging and fundamental problems in mechanics and engineering under the guidance of a supervisor.

力学既是一门基础学科，也是一门技术学科。它是科学与工程之间的桥梁。力学涉及物体的运动，特别是力、物质和运动之间的关系。力学的研究各种各样的物体，包括粒子、刚体、固体、流体等。根据物体的性质，力学可以分为三个分支：（a）一般力学，处理质点和刚体的力学行为；（b） 流体力学（或连续介质力学），涉及理想和粘性流体；（c）可变形介质力学，研究固体在外力作用下的变形。

全日制力学研究生课程将为学生提供进一步学习力学原理及其在工程中的应用的机会，旨在培养具有坚实力学理论和实践背景的高水平专业人才。本项目包括基础课程和研究项目。课程将侧重于力学基础，包括固体力学、流体力学、结构动力学、计算力学等。本项目将在导师的指导下研究力学和工程中具有挑战性的基本问题。

2. Training Target 培养目标

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.

The students should have a solid foundation of the basic theory and professional knowledge in the field of mechanics, have the capability of organization and administration of scientific research and engineering, have good spirit of cooperation and strong communication skills, have good command of listening and speaking in English, be good at reading professional literature and writing English thesis of related field. The Master Candidates will be developing in every way morally, intellectually and physically and will be competent for teaching and scientific research in mechanics and related field. The doctor degree candidates will be competent for teaching, scientific researching, developing and project administrating in colleges, universities and high-tech enterprises.

目标是培养具有良好国际视野、具有传播中外文化能力的高层次创新人才，充分发挥国际研究生的文化桥梁作用。

学生应具有扎实的力学基础理论和专业知识，具有科学研究和工程组织管理的能力，具有良好的合作精神和较强的沟通能力，具备良好的英语听说能力，擅长阅读专业文献和撰写相关领域的英语论文。硕士研究生将在道德、智力和身体各方面得到发展，能够胜任力学及相关领域的教学和科学研究。博士研究生应能胜任高校和高新技术企业的教学、科研、开发和项目管理工作。

3. Length of Schooling 学制

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

硕士生的基本学习年限为 2 年。原则上，硕士生应在第一学年完成所有课程。论文工作时间不得少于一年。硕士研究生的最长学习年限在 2 年的基础上延长 0.5 年。博士生的基本学习年限为 4 年。原则上，博士生应在第一学年完成课程。论文工作时间不得少于 3 年。博士生的最长学习年限在 4 年的基础上延长 2 年。

4. Curriculum and Credits Requirements 课程设置与学分要求

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory /Optional	Master /Ph.D.	Credits Requirement
Public Courses	3700005	Chinese Language I 基础汉语I	96	6	1	Compulsory	Master /Ph.D.	Master = 14 Ph.D. = 14
	3700006	Chinese Language II 基础汉语II	96	6	2	Compulsory	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory /Optional	Master /Ph.D.	Credits Requirement
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Courses	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	Master ≥ 2 Ph.D. ≥ 2
	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Courses	0201010	Continuum Mechanics 连续介质力学	32	2	1	Optional	Master /Ph.D.	Master ≥ 2 Ph.D. ≥ 2
	0101015	Fluid Mechanics 流体力学	48	3	2	Optional	Master /Ph.D.	
	0101023	Fundamentals of Structural Dynamics 结构动力学基础	32	2	1	Optional	Master /Ph.D.	
Major Optional Courses	0201021	Computational Mechanics 计算力学	32	2	2	Optional	Master /Ph.D.	Master ≥ 6 Ph.D. ≥ 4
	0101020	Introduction to Computational Fluid Dynamics 计算流体力学导论	32	2	2	Optional	Master /Ph.D.	
	3201005	Multibody Dynamics 多体动力学	48	3	1	Optional	Master /Ph.D.	
	0101022	Smart Materials and Structures 智能材料与结构	32	2	1	Optional	Master /Ph.D.	
	0101021	Measurement for Micro- and Nano-Technology 微纳尺度测量技术	32	2	2	Optional	Master /Ph.D.	
	0201015	Structural Response to Blast Loading 结构冲击动力学响应	32	2	2	Optional	Master /Ph.D.	
	0201011	Dynamic Behaviors of Materials	32	2	2	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory /Optional	Master /Ph.D.	Credits Requirement
Major Optional Courses		材料动态力学行为						Master ≥ 6 Ph.D. ≥ 4
	0201020	Dynamic Test Techniques 动态测试技术	32	2	2	Optional	Master /Ph.D.	
	0301011	Principle of Finite Element Method 有限元原理	32	2	2	Optional	Master /Ph.D.	
	0301008	Elasticity 弹性力学	32	2	1	Optional	Master /Ph.D.	
	0101006	Orbital Mechanics 轨道力学	48	3	1	Optional	Master /Ph.D.	
	0301004	Advanced Engineering Thermodynamics and Heat Transfer 高等工程热力学和传热学	48	3	2	Optional	Master /Ph.D.	
	1600018	Biomechanics and Simulation 生物力学与仿真	32	2	1	Optional	Master /Ph.D.	
Total Credits	Master ≥ 24 credits				Ph.D. ≥ 22 credits			

Notes:

1. Public Courses

   (1) Chines 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. Basic Courses

   If the mathematic courses listed in the chart can't meet the requirement, different programs can set their own basic courses.

3. Major Courses

(1) Discipline Core Courses

Different Programs can set their own Discipline Core Courses.

(2) Major Optional Courses

International students should choose courses from their own or other programs. Under the guidance of the supervisor, the international master students can take undergraduate courses if needed. The international Ph.D. students can take undergraduate courses if needed.

说明：

1.公共课

（1）汉语：由留学生中心开设，所有留学生的必修课。

（2）中国概况：由留学生中心开设，所有留学生的必修课。

2.基础课程

如果表中列出的数学课程不能满足要求，不同的专业可以自行设置基础课程。

3.专业课

（1）学科核心课

不同专业可以设置自己的学科核心课程。

（2）专业选修课

留学生应从本专业或其他专业中选修课程。在导师指导下，硕士生根据需要可选修本科生课程。博士生也可以根据需要选修本科生课程。

5. Practice Part 实践环节

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.

1. 学术活动（1 学分）

国际研究生需要参加本领域的学术活动、学术讲座和学术会议。建议在校内或校外学术会议上进行口头演讲。

2. 创新实践（1 学分）

留学生在学习期间应进行科研训练和社会实践，并由导师负责组织实施和考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report

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

A master student should write a literature review, no less than 4000 words, based on the reading of over 30 papers, both Chinese and foreign languages, of his/her own research field.

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

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

2. Mid-Term Evaluation (for Ph.D. students)

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)

An International Graduate Students should complete a Degree thesis under the guidance of supervisor. A Ph.D. student 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.

More details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of* Dissertation *Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology.*

1．文献综述及开题报告

国际研究生应在导师的指导下选择研究方向，同时阅读一定量的中外文参考书籍。

硕士生应在阅读本研究领域中外文 30 余篇论文的基础上，撰写不少于 4000 字的文献综述。

博士学位学生应在阅读相关研究领域的中外文论文 50 余篇的基础上，写一篇不少于 5000 字的文献综述。

在文献综述的基础上，开题报告应主要介绍以下内容：研究目标、研究意义、研究方法、技术路线、实验方案、进度安排和预期结果。

2．中期检查（博士生）

学校组织留学生中期检查，包括课程学习、文献综述、开题报告、发表论文和学位论文研究进展等评估。

3.论文写作及论文预答辩（博士生）

国际研究生应在导师指导下完成学位论文。博士学位研究生需完成学位论文的撰写，导师审阅合格并同意预答辩后，可以参加预答辩。

4．论文答辩

论文送审完成并经学位评定分委员会批准后，国际研究生即可进行论文答辩。

5.学位授予

国际学生申请攻读硕士、博士学位，应当按照规定取得一定的学业成绩。每个专业应明确硕士和博士学位的类别。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review & Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期的第一周（含）前	Before week 1 of the 5th semester 第五学期的第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期的第一周（含）前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审完成前
Dissertation Defense、 论文答辩	At least 9 months after the Opening Report 开题后至少 9 个月	At least 18 months after the Opening Report 开题后至少 18 个月

Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期的第一周（含）前
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Mechanical Engineering

机械工程

(080200)

1. Overview of the Program

This program solves the science and technical problems of design, performance achievement and optimization of mechanical product using the basic theory of mechanical engineering and studies the theory and technology of mechanical products as well as traditional vehicle, unmanned vehicle, intelligent connected vehicle, new energy vehicle, bionics and robot and also studies the theory and technologies includes intelligent manufacturing, sensing and mechatronic control, opto-electronics micro-nanofabrication science and engineering.

This program is a full-time degree, including both coursework and project. It aims at cultivating the high-level specialized personnel with a firm grasp of basic theories and professional knowledge of mechanical engineering, having the ability to solve practical problems and undertake scientific research projects. They will participate in projects in mechanical engineering field under the guidance of their advisors and complete their graduation thesis based on the projects they have conducted.

The mechanical engineering discipline in Beijing Institute of Technology was founded in 1943 in Yan'an Academy of Natural Science and began to enroll graduate students in 1955. In 1981, the second-class discipline named Vehicle Engineering was authorized to offer the doctorate degree. Mechanical engineering was selected as one of the earliest disciplines that offers first-class discipline doctorate degree in 1998. Mechanical engineering discipline was selected as one of the earliest national first-level key disciplines in 2007.

Based on the great needs of nation, mechanical engineering has developed the transmission design theory for heavy vehicles. Aiming at the development of national key emerging industries, electric commercial vehicle design platform was generated. The platform cooperated with 15 new-energy vehicle industry members and the outcome has been successfully applied on the electric vehicles used in the transportation systems in APEC. It's worth noted that through years of explorations and innovations, the electric commercial vehicle technology was successfully exported to European Union. Mechanical engineering also conducts systematic and cooperative research in unmanned vehicle, humanoid robot and other innovative technologies.

There are 194 full-time teachers in mechanical engineering discipline, and 49 national high-level talents have been selected. Young teachers under the age of 45 account for 51.7%. Among them, there are 2 academicians of the Chinese Academy of Engineering (CAE); 1 foreign academician of the Chinese Academy of Sciences

(CAS); 1 national model teacher and 1 national famous teacher with ten thousand talents. There is currently 1 national level teaching team and two provincial and ministerial level teaching teams in the discipline; Lead 5 national level research platforms, jointly build 1 national level research platform, and lead 8 provincial and ministerial level research platforms; Leading 3 national level teaching platforms; Lead the Ministry of Education to establish two subject innovation and talent introduction bases for higher education institutions. The area of the laboratories is over 26 thousand square meters, and the total assets of facilities reach RMB 400 million.

The main research directions in Mechanical Engineering of BIT include:

(1) Vehicle Theory and Unmanned Vehicle Technology

Focusing on the theory and integration of vehicle system, vehicle dynamics, simulation, NVH, vehicle reliability, vehicle new driveline theory and technology; system technology, perception, path planning, control, testing and evaluation of unmanned vehicles; multi-ground platforms cooperation technology, ground-aerial unmanned system cooperation technology, it has reached international advanced level in domains such as integrated transmission of vehicles, hydraulic transmission, high-power hydraulic components, electro-mechanical transmission, and system technology of unmanned platforms.

(2) Intelligent Connected Vehicles and Electric Drive

Focusing on intelligent connected vehicles system theory, big data analysis and deep mining of vehicle, deep environment perception and multi-source information fusion, intelligent autonomous decision and dynamics control, intelligent connected vehicle architecture and information security, electric vehicle design theory &system integration and control, vehicle lightweight design method and material application, on-board energy source security and efficiency, high-efficiency and high-energy density integrated electric drive system, it is at the forefront of the world in big data analysis and mining technology of vehicle and pure electric commercial vehicle platform technology and pure electric bus application technology.

(3) Intelligent Manufacturing Engineering

Based on the development of national important needs as the background, taking the intelligent technology of all stages in the production and manufacturing as the core and training the innovative talents in the intelligent manufacturing field are its goal, the advanced processing national defense key laboratory focuses on the research of difficult-to-machine materials, high-efficiency and precision ultra-precision machining theory and tooling technology, digital design and manufacturing technology, non-destructive testing technology, intelligent assembly technology, additive manufacturing technology and intelligent production and manufacturing service technology. It has obvious features and advantages in the processing technology of difficult-to-machine materials, product manufacturing quality inspection and control and digital design and manufacturing

technologies.

(4) Intelligent Robots and Systems

Focusing on the study of theoretical methods and techniques including motion bionics, multi-scale sensing and manipulation, biomechanical integration and interaction and system control and integration, it has obvious advantages and features in the research of humanoid robots and has reached the international advanced level. It is at the leading international level in the coordination and control of martial arts and other complex actions.

(5) Electromechanical Systems and Sensors

Focusing on sensing, measurement and control technology, micro-mini unmanned system design and integration, advanced control and drive technology, information and integrated electronic control technology and non-destructive testing theory and technology, it has obvious advantages and features in the intelligent control and ultrasonic detection of unmanned systems.

(6) Opto-Electronics Micro-Nano Fabrication Science and Engineering

Facing the frontier basic science and common technology problems in micro-nano fabrication, highlighting the unique advantages of multi-disciplinary integration of photo-machine-electricity, and focusing on micro/nano design theory and methods, micro-nano mechanical watch/interface behavior and control, laser micro-nano fabrication, micro-structured composite processing technology and precision mechanical system assembly theory and technology, it has distinctive features in the micro-nano system design, laser micro-nanometer manufacturing, precision/micro-structure composite processing and assembly technology, in which the femtosecond laser micro-nano processing mechanism and method lies in the international advanced level.

本项目旨在运用机械工程的基本理论，解决机械产品设计、性能实现和优化方面的科学和技术问题，研究机械产品以及传统车辆、无人驾驶车辆、智能网联车辆、新能源车辆、仿生学和机器人等方面的理论和技术，研究智能制造、传感和机电控制、光电微纳制造科学和工程等理论和技术。

本项目为全日制学位，包括课程学习和项目研究，旨在培养掌握机械工程基本理论和专业知识，具有解决实际问题和承担科学研究项目的高水平专业人才。学生将在导师的指导下参与机械工程领域项目，并根据进行的项目完成毕业论文。

北京理工大学机械工程学科溯源于 1940 年的延安自然科学院，1955 年开始招收研究生，其二级学科“车辆工程”于 1981 年获得全国首批博士学位授予权，1998 年机械工程获得全国首批一级学科博士学位授予权，2007 年机械工程学科入选首批国家一级重点学科。

本学科面向国家重大需求，创建了车辆液力机械综合传动设计理论。面向国家战略性新兴产业，积累形成的纯电动商用车技术平台成果成为行业品牌，与国内 15 家新能源汽车生产企业合作实现了技术成果

的转化将其成果应用于 APEC 交通系统中的电动车辆。通过多年的探索和创新，电动商用车辆技术已成功出口到欧盟。机械工程还在无人车、仿人机器人等领域，开展了系统的研究和国际合作。

本学科点专任教师 194 人，入选各类国家高层次人才 49 人，45 岁以下青年教师占比 51.7%。其中，中国工程院院士 2 人，中国科学院外籍院士 1 人，全国模范教师 1 人，国家万人名师 1 人。学科现有国家级教学团队 1 个，省部级教学团队 2 个；牵头的国家级科研平台 5 个，共建国家级科研平台 1 个，牵头省部级科研平台 8 个；牵头国家级教学平台方面了 3 个；牵头教育部高等学校学科创新引智基地 2 个。学科实验室面积达 2.6 万平方米，固定资产达 4 亿元。

北京理工大学机械工程的主要研究方向包括：

（1）车辆理论与无人车技术

重点研究车辆系统理论与集成、车辆系统动力学、车辆仿真、车辆 NVH、车辆可靠性理论、车辆新型传动系统理论与技术、无人平台总体技术、无人平台感知技术、无人平台规划技术、无人平台控制技术、无人平台测试与评价技术、多地面平台协作技术、地空无人系统协作技术等。在车辆综合传动、液力传动、大功率液压传动、机电复合传动、无人平台总体技术等技术方面达到国际先进水平。

（2）智能网联汽车与电驱动

重点研究智能网联汽车系统理论、车辆大数据分析与挖掘、深度环境感知与多源信息融合、智能网联汽车自主决策与动力学控制、车联网架构与信息安全、电动车辆设计理论/系统集成与控制、汽车轻量化设计方法及材料应用与制造技术、车载能量源安全和高效利用、高效高能量密度一体化电驱动系统等。在车辆大数据分析与挖掘技术、纯电动客车/商用车平台技术等方面达到国际先进水平。

（3）智能制造工程

以国家发展重要需求为背景，以生产制造的各个阶段的智能技术为核心，以培养智能制造领域的创新人才为目标。先进加工国防重点实验室重点研究难加工材料高效精密超精密加工理论与工具技术、数字化设计与制造技术、无损检测技术、智能装配技术、增材制造技术、智能生产与制造服务技术等。在难加工材料的切削技术、产品智能设计、数字化设计制造技术等方面具有明显特色和优势。

（4）智能机器人与系统

重点研究运动仿生学、多尺度感知与操作、生机电融合与交互、系统控制与集成等理论方法和技术。在仿人机器人、微纳操作机器人研究方面具有明显优势和特色，仿人机器人总体达到国际先进水平，在复杂动态动作的仿生规划与传感反射控制方面处于国际领先水平。

（5）机电系统与传感器

重点研究感知、测控技术、微小型无人系统设计和集成技术、先进控制与驱动技术、信息与综合电子控制技术、无损检测技术与应用。在无人系统的智能控制和超声波检测方面具有明显的优势和特色。

（6）光机电微纳制造科学与工程

面对微纳制造中的前沿基础科学与共性技术问题，突出光-机-电多学科交叉融合的独特优势，重点研究微/纳设计理论与方法、微纳机械表/界面行为与调控、激光微纳制造、微细结构复合加工技术、精密机械系统装配理论与技术等。在微纳系统设计、激光微纳制造、精密/微细结构复合加工与装配技术等方面具有鲜明特色，其中飞秒激光微纳加工机理与方法居于国际领先水平。

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.

本项目旨在培养具有国际共识的高水平创新人才，具备传播中外文化的能力，使国际研究生充分发挥文化桥梁的作用。

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.

硕士研究生的基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间应不少于 1 年。硕士研究生的最长学习时间在 2 年的基础上延长 0.5 年。博士研究生的基本学制为 4 年。原则上，学生应在第一学年完成课程，论文工作时间应不少于 3 年。博士研究生的最长学习时间在 4 年的基础上可延长 2 年。

4. Curriculum And Credit Requirements

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese Language Ⅰ （英）基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕/博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese Language Ⅱ （英）基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕/博	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	3700002	Outline of China （英）中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕/博	
Basic Course 基础课	0301001	Introduction to Advanced Engineering Mathematics （英）高等工程数学导论	48	3	2	Optional 选修	Ph.D. 博士	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	1701002	Matrix Analysis （英）矩阵分析	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	
Discipline Core Course 学科核心课	0301002	Fundamentals of Modern Control Theory （英）现代控制理论基础	48	3	2	Optional 选修	Master 硕士	Master≥8 Ph.D.≥4 硕士≥8 博士≥4 Among the Credits of Discipline Core Course: Master≥2 Ph.D.≥2 学分中学科核心课学分要求: 硕士≥2 博士≥2
	0301003	Advanced Mechanical Vibration （英）高等机械振动	48	3	2	Optional 选修	Master 硕士	
	0301004	Advanced Engineering Thermo-Dynamics and Heat Transfer （英）高等工程热力学和传热学	48	3	2	Optional 选修	Master 硕士	
	0301016	Energy-saving and New Energy Vehicle Technology （英）节能和新能源车辆技术	32	2	2	Optional 选修	Master 硕士	
	0301017	Learning-based Intelligent Vehicle Technology （英）智能车辆机器学习技术	48	3	2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	0301005	Computational Fluid Dynamics （英）计算流体力学	32	2	2	Optional 选修	Ph.D. 博士	
	0301006	Advanced Control Engineering （英）先进控制工程	32	2	1	Optional 选修	Ph.D. 博士	
	0301007	Fatigue Life Design of Mechanical Structure （英）机械结构疲劳与寿命设计	32	2	1	Optional 选修	Ph.D. 博士	
	0300013	车辆动力学	48	3	2	选修	硕士	
	0300010	车辆电驱动理论与技术	48	3	2	选修	硕士	
	0300213	智能车辆理论与技术	48	3	2	选修	硕士	
	0300069	先进加工理论	48	3	2	选修	硕士	
	0300054	摩擦学理论	48	3	2	选修	硕士	
	0300022	弹塑性力学 B	48	3	1	选修	硕士	
	0300210	先进制造科学与技术	48	3	2	选修	博士	
	0300030	非线性系统与智能控制	48	3	1	选修	博士	
Major Optional Course 专业选修课	0301008	Elasticity （英）弹性力学	32	2	1	Optional 选修	Master 硕士	
	0301009	Structural Optimization Method （英）结构优化方法	32	2	1	Optional 选修	Master 硕士	
	0301010	Modern Measurement Technology （英）现代测试技术	32	2	2	Optional 选修	Master 硕士	
	0301011	Principle of Finite Element Method （英）有限元原理	32	2	2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	0301012	Principle and Application of CAD/CAM/CAE （英） CAD/CAM/CAE 原理及工程应用	32	2	1	Optional 选修	Master 硕士	
	0301018	Laser Micro/Nano Fabrication and High-resolution Characterization （英）激光微纳制造及高分辨表征	32	2	2	Optional 选修	Master 硕士	
	0301019	Model Predictive Control and Applications （英）模型预测控制与应用	32	2	1	Optional 选修	Master 硕士	
	0301020	Vehicle Thermal Management （英）车辆热管理	32	2	2	Optional 选修	Master 硕士	
	0301013	Engineering Management （英）工程管理	32	2	2	Optional 选修	Ph.D. 博士	
	0301014	Cutting Theory and Advanced Machining Processes （英）切削理论与先进制造基础	32	2	1	Optional 选修	Ph.D. 博士	
	0301015	Advanced Technology of Modern Vehicle （英）现代车辆先进技术	32	2	2	Optional 选修	Ph.D. 博士	
	0300212	热工学及应用	48	3	1	选修	硕士	
	0300074	现代控制理论	48	3	1	选修	硕士	
	0300040	高等流体力学	48	3	1	选修	硕士	
	0300037	高等机构学	48	3	1	选修	硕士	
	0300109	智能生产与制造服务技术	32	2	2	选修	硕士	
	0300206	工业物联与现场	32	2	1	选修	硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
		总线						
	0300207	智能制造装备设计方法	32	2	2	选修	硕士	
	0300028	多学科设计优化方法	32	2	2	选修	硕士	
	0300208	地面无人机动平台技术	32	2	1	选修	硕士	
	0300057	汽车轻量化	32	2	2	选修	硕士	
	0300007	车联网技术	32	2	2	选修	硕士	
	0300018	车用电机驱动技术	32	2	2	选修	硕士	
	0300020	车用动力电源系统	32	2	1	选修	硕士	
	0300011	车辆电子学	32	2	1	选修	硕士	
	0300110	质量与可靠性工程	32	2	1	选修	硕士	
	0300038	高等机械设计理论	32	2	1	选修	硕士	
	0300116	光机电微纳制造技术	32	2	2	选修	硕士	
	0200095	先进机器人学	48	3	1	选修	硕士	
	0200168	生物医疗与微纳机器人技术	32	2	2	选修	硕士	
	0200169	微纳生物测量技术	32	2	2	选修	硕士	
	0300016	车辆前沿技术	48	3	2	选修	博士	
	0200024	机器人前沿技术	48	3	1	选修	博士	
Total Credits 合计	Master≥24 credits Ph.D.≥20 credits 硕士≥24 博士≥20							

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 Course

International students should choose courses from their own program or from other programs under the guidance of the supervisor. Master candidates can take undergraduate core courses if needed. The credits for undergraduate courses are not included in the credits required by the master program. Master candidates can

also take Ph.D. courses if needed, and the Ph.D. course credits can be included into the credits required. Ph.D. candidates can take master courses if needed. The credits for master courses are not included in the credits required by the Ph.D. program.

3) Special instructions

If the Chinese and English courses listed are similar in content, do not choose both, otherwise only one course credit will be counted.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）专业课

在导师指导下，留学生可在所在项目或其他项目中选修课程。留学硕士生根据需要可选修本科生课程，但不计入硕士培养计划要求学分。硕士留学生可根据需要选修博士生课程，并可计入学分。博士留学生根据需要可选修硕士生课程，但不计入博士培养计划要求学分。

3）特殊说明

如果中英文课程与中文课程内容相近，不要同时选择，否则只计入其中一次课程学分。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review & Opening Report 文献综述与开题报告	Before Week 1 of the 3rd semester 第三学期第一周（含）前	Before Week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before Week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Optical Engineering

光学工程

(080300)

1. Overview of the Program

The Optical Engineering at BIT was established in 1953. Its recruitment of graduate students began in 1954, and this discipline was the first in this field of China. In 1983, the Ministry of Education authorized the granting of doctoral degrees for Military Optics and Optical Instrument. In 1985, Optical Instrument was further enhanced with the establishment of the postdoctoral research station, which is one of the first in the nation and the first in BIT. In 1987, Military Optics was recognized by the Chinese government as a national key discipline (the only one in the field), and Optical Instrument was recognized as a ministry-level key discipline. In 1997, Military Optics and Optical Instrument were merged to Optical Engineering, which has remained a top national key discipline in numerous discipline evaluations by the government over the years. In 2017, Optical Engineering was selected into the Double First-Class University Plan as the first-class discipline to receive national priority support.

The main research directions include:

(1) Low-Light Level and Ultrabroad-Waveband Imaging

(2) Mixed Reality and Advanced Display

(3) Optical Design, Manufacture and Testing

(4) Photoelectric Detection, Measurement and Countermeasure

(5) Novel Optoelectronic Devices and Technologies

(6) Photonic Information Technology

北京理工大学光学工程学科成立于 1953 年。1954 年开始招收研究生，是中国光学工程领域的第一个学科。1983 年，获教育部批准军用光学、光学仪器博士学位授予权。1985 年建立我国首批、我校第一个博士后流动站，光学仪器得到了进一步发展。1987 年，军事光学被中国政府认定为国家级重点学科（该领域唯一一个），光学仪器被认定为部级重点学科。1997 年，军事光学和光学仪器调整合并为光学工程一级学科。多年来，光学工程一直是政府众多学科评估中的国家重点学科。2017 年，光学工程作为国家重点扶持的一级学科入选双一流大学计划。

主要研究方向包括：

（1） 微光与超宽波段成像

（2） 混合现实和新型显示

（3） 光学设计、加工与检测

（4） 光电探测、度量与对抗

（5） 新型光电子器件与技术

（6） 信息光子技术

2. Training Target

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

培养目标是培养具有良好国际常识、具有传播中外文化能力的高层次创新人才，充分发挥留学生的文化桥梁作用。

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.

硕士生的基本修业年限为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生最长修业年限在 2 年基础上延长 0.5 年。

博士生的基本修业年限为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士生的最长学习年限在 4 年的基础上延长 2 年。

4. Curriculum and Credit Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	modern regression techniques in data sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course	0401001	Introduction to Quantum Optics 量子光学导论	32	2	2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	0401002	Modern Color Science and Application 现代颜色技术原理及应用	32	2	1	Optional		
Major Optional Course	0401003	Artificial Intelligence and Biometrics 人工智能与生物特征识别	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0401004	Biomedical Optoelectronics 生物医学中的光电子学	32	2	2	Optional		
	0401005	Introduction to Fabrication of Micro-nano Optoelectronic Device/System 微纳光电子器件/系统制造导论	32	2	2	Optional		
	0401006	Digital Image Processing 数字图像处理	32	2	2	Optional		
	0401007	Introduction to Computational Optics 计算光学导论	32	2	1	Optional		
	0401008	Computational Optical Sensing and Imaging Theory	32	2	2	Optional		

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course		计算光学传感与成像理论						Master≥6 Ph.D.≥2
Total Credits	Master≥24 credits Ph.D.≥20 credits							

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 Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1. 公共课

(1)汉语:由留学生中心开设，所有留学生必修课。

(2)中国概况：由留学生中心开设，所有留学生必修课。

2. 专业选修课

留学生应该从自己的项目或其他项目中选择课程。在导师的指导下，如果需要，国际硕士生可以选修本科课程。如果需要，国际博士生可以选修本科课程。

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 presentations 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.

1.学术活动（1 学分）

留学生需要参加本领域的学术活动、学术讲座和学术会议。建议在校内外的学术会议上发表口头演讲。

2.创新实践活动（1 学分）

留学生应在培训期间接受科学研究训练和社会实践，并由导师进行评估。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing (for Both Master and Ph.D. students) and Dissertation Pre-Defense (only for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

1.文献综述与开题报告；2.中期检查；3.论文写作和博士论文预答辩；4.论文答辩；5.学位授予。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time Nodes of Relevant Procedure（相关环节时间节点要求）

The Dissertation Related Work 学位论文相关工作	**Master 硕士**	**Ph.D.博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Thesis Pre-Defense 论文预答辩	——	Before Thesis review 论文评阅送审前完成
Thesis Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Thesis Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Instrument Science and Technology

仪器科学与技术

(080400)

1. Overview of the Program

The representative research areas include instrument design and system integration, intelligent sensing and new imaging, precise photoelectric test technology and instruments, and advanced spectral measurement and probing, which are described in detail as follows:

(1) Instrument design and system integration

The topic mainly engaged in instrument engineering design methods, instrument precision, optimization and reliability design, integrated design and system integration methods for large and complex precision instruments, ergonomics and computer-aided design techniques, intelligent instruments and virtual instruments, manufacturing and testing of MEMS and devices, micro-robots and their payload technology, biomedical information detection and sensor bionic technologies, and others.

(2) Intelligent Sensing and New Imaging Technologies

The topic mainly focuses on intelligent digital interferometers, optical aspherical and freeform surface detection technology, optical defects detection technology; intelligent optoelectronic imaging sensors, quantum-dot infrared sensors and imaging system, three-dimensional laser imaging technology, computational imaging and scattering media imaging, multi-spectral and multi-mode imaging technology, and others.

(3) Precise Photoelectric Test Technology and Instruments

The topic mainly focuses on the research of optical testing and metering, confocal interference measurement, optical microscopy imaging, spectromicroscopic imaging, precision photoelectric sensing technology and systems, nanometer measurement and control technology and systems, precision optoelectronic test equipment and equipment integration, Instrumental accuracy theory, and others.

(4) Advanced Spectral Measurement and Probing

Mainly engaged in laser confocal Raman spectroscopy, confocal Brillouin spectroscopy, confocal LIBS spectroscopy, ultrafast spectroscopy, excited state dynamics, high-resolution spectral imaging and detection technology, confocal multispectral imaging technology, spectral imaging/detection instruments and equipment and other advanced spectral measurement and detection work.

具有代表性的研究领域包括仪器设计与系统集成、智能传感与新成像、精密光电测试技术与仪器、光学场景仿真与系统评估，具体描述如下：

（1） 仪器总体设计与系统集成

主要从事仪器工程设计方法，仪器精度、优化及可靠性设计，大型复杂精密仪器的综合设计与系统集成方法，人机工程和计算机辅助设计技术，智能仪器与虚拟仪器，微机电系统与器件的设计、制造与检测，微小型机器人及其有效载荷技术，生物医学信息检测及传感仿生技术等方面的研究工作。

（2） 智能感测与新型成像

主要从事智能化数字干涉测量仪器，光学非球面及自由曲面面形及瑕疵检测技术及仪器；智能光电成像传感器，量子点红外成像芯片与系统，激光三维成像技术与系统，计算成像及散射介质成像，多光谱和多制式成像技术等方面的研究工作。

（3） 光电测试技术及仪器

主要从事光电测量理论与方法、光学测试与计量、几何量/机械量/生物量光学检测、共焦/干涉测量、光学显微成像、光电感测与传感器、纳米测控与部件、制造监测一体化技术与装备、光电测试仪器与装备、仪器精度理论等方面的研究工作。

（4） 先进光谱测量与探测

主要从事先进光谱测量理论与方法、激光拉曼光谱/布里渊光谱/LIBS光谱显微成像与探测、高分辨多光谱联用成像与探测、超快光谱成像与探测、新型光电探测技术及器件、光量子精密测量与探测、新型光谱测量与探测仪器等方面的研究工作。

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.

培养目标是培养具有良好国际常识、具有传播中外文化能力的高层次创新人才，充分发挥留学生的文化桥梁作用。

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.

硕士生的基本修业年限为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生最长修业年限在 2 年基础上延长 0.5 年。

博士生的基本修业年限为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士生的最长学习年限在 4 年的基础上延长 2 年。

4. Curriculum and Credit Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=12 Ph.D.=12
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	Master=2 Ph.D.=2
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	modern regression techniques in data sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course	0401010	Deep Learning and Intelligent Image Analysis 深度学习与智能图像分析	32	2	2	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional Course	0401001	Introductions to Quantum Optics 量子光学导论	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0401009	Laser Technology and its Applications in Advanced Instruments 激光技术及其在先进仪器中的应用	32	2	1	Optional		
	0401002	Modern Color Science and Application	32	2	1	Optional		

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
		现代颜色技术原理及应用						
	0401011	Optical Interferometric Measurement 光学干涉测量	32	2	1	Optional		
Total Credits	Master≥24 credits Ph.D.≥20 credits							

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 Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1. 公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2. 专业选修课

留学生应该从自己的项目或其他项目中选择课程。在导师的指导下，如果需要，国际硕士生可以选修本科课程。如果需要，国际博士生可以选修本科课程。

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.

1.学术活动（1 学分）

留学生需要参加本领域的学术活动、学术讲座和学术会议。建议在校内外的学术会议上发表口头演讲。

2.创新实践活动（1 学分）

留学生应在培训期间接受科学研究训练和社会实践，并由导师进行评估。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

1.文献综述与开题报告；2.中期检查；3.论文写作和博士论文预答辩；4.论文答辩；5.学位授予。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time Nodes of Relevant Procedure

The Dissertation Related Work	Master	Ph.D.
Literature Review& Opening Report	Before week 1 of the 3rd semester	Before week 1 of the 5th semester
Mid-Term Evaluation	——	Before week 1 of the 7th semester
Thesis Pre-Defense	——	Before 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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Materials Science and Engineering

材料科学与工程

(080500)

1. Overview of the Program

This university major of material science and engineering was founded in 1952, from 1955, this major started to offer the master's degree. It was authorized to offer the Doctor's degree in 1981 and was granted the permission to recruit post-doctors from 1985. Material Science and Engineering was listed as a key academic major of Ministry of Machinery and Electronics Industry in 1988, Ministry of Weaponry Industry Department in 1991, and National Defense Science and Technology Committee in 2001. It is one of national "211 Project", national "985 Project key academic majors, being incorporated into "Advanced Material Science and Technology Innovation Platform" in the second stage of "985". The discipline was selected to enter the list of "Double-First Class" discipline construction plan by the Ministry of Education. It was evaluated as a Class A discipline in the fourth round of discipline assessment by the Ministry of Education. In 2005, the Materials Science and Engineering became a Level-I discipline. After more than 50 years of construction, this academic major has built a research platform, which can support various research fields of material science and engineering and combine materials design, fabrication, analysis, characterization, and performance assessment. The total assets of the equipment amounted to over 90 million yuan. This major has the abilities of solving the critical problems involving material science and engineering in the construction of economy, and has been leading a large number of national key projects, making tremendous achievements in a large number of applications of materials science and engineering.

材料科学与工程学科始建于 1952 年，1955 年开始培养研究生。1981 年获博士学位授予权，并且自 1985 年起获招收博士后资格。1988 年材料科学与工程被列为机械电子工业部重点学科专业，1991 年被列为兵器工业部重点学科专业，2001 年入驻国防科学技术委员会。北京理工大学材料科学与工程学科是国家“211 工程”、“985 工程”重点建设学科之一，被纳入“985”第二阶段“先进材料科技创新平台”。学科入选“双一流”等历次国家重点建设学科，在教育部第四轮学科评估中被评为 A 类学科。2005 年，材料科学与工程成为一级学科。经过 50 多年的建设，该学科专业已被建设成涉及材料科学与工程各个研究领域，集材料设计、制造、分析、表征、性能评估于一体的研究平台。设备总资产达 9000 万元以上。本专业具备解决经济建设中涉及材料科学与工程的关键问题的能力，并且主持了一大批国家重点项目，在有关材料科学与工程的应用中取得了巨大成果。

The School of Materials has 299 faculty members. Among them, there are 161 full-time teachers, 63 professors/ researchers, 72 associate professors, 90 doctoral supervisors, 5 academicians of the Chinese Academy of Engineering (CAE)/Chinese Academy of Sciences (CAS), 2 chief professors of National Program on Key Basic Research Project (973 Program), 4 winners of Ho Leung Ho Lee Prize, and 13 New Century/Trans-Century Excellent Talents in University of Ministry of Education of China.

材料学院现有教职工 299 人。其中，专任教师 161 人，教授 / 研究员 63 名、副教授 72 名、博士生导师(含兼职博导)90 名，两院院士 5 人，973 首席 2 人，何梁何利奖获得者 4 人，教育部新世纪 / 跨世纪优秀人才 13 人。

In the past five years, this discipline has won more than 30 national and provincial awards, including three National Technological Invention Second Prize, one Special Prize of National Defense Science and Technology Progress Award, one National Teaching Achievement Award. This discipline has constructed varies national and provincial supporting platforms, including National Science Key Lab of Impact Environment on Materials, National Flame-retardant Materials Engineering and Research Center, National High Technology Development Center Green Materials, National Engineering Research Center of Flame Retardant Materials, Collaborative Innovation Center of Electric Vehicles in Beijing, Beijing Higher Institution Engineering Research Center of Power Battery and Chemical Energy Materials, Beijing Key Laboratory of Construction Tailorable Advanced Functional Materials and Green Applications, Beijing key laboratory of environmental science and engineering, Beijing engineering research center of cellulose and its derivatives, Engineering Research Center of Fire-Safe Materials and Technology(Beijing Institute of Technology)，Ministry of Education.

近五年来，本学科获得国家级和省部级奖励 30 余项，其中国家技术发明二等奖 3 项、国防科技进步特等奖 1 项、国家级教学成果奖 1 项。本学科建有冲击环境材料技术国防科技重点实验室、国家阻燃材料工程技术研究中心等国家级、省部级支撑平台。国家绿色材料高技术开发中心、国家阻燃材料工程研究中心、北京市电动汽车协同创新中心、北京市高等学校动力电池与化学能源材料工程研究中心、定制化先进功能建设北京市重点实验室材料与绿色应用、北京市环境科学与工程重点实验室、北京市纤维素及其衍生物工程研究中心、消防安全材料与技术教育部工程研究中心（北京理工大学）。

In 2022, the discipline of material science and engineering of Beijing Institute of Technology ranked 74th in the world from QS World University Rankings, 9th throughout the country, and entered 1‰ in the world of ESI international ranking. The main research directions including:

2022 年，北京理工大学材料科学与工程学科在 QS 世界大学排名中位列全球 74 名，全国第 9 名，ESI 国际排名进入全球 1‰。主要研究方向包括：

(1) Mutilate and protective material: The main research objects are the warhead material and armor protection material.

(1) 毁伤及防护材料：以战斗部材料和装甲防护材料为主要研究对象。

(2) Advanced materials molding theory and technology: Including the theory and technology of liquid molding of special materials, the basic theory and engineering application research of the new technology of plastic processing of warhead materials, research of powder metallurgy technology, research of the numerical modeling and simulation technology of material forming process.

(2) 先进材料成型理论与技术：主要包括特种材料的液态成形理论与技术、战斗部材料塑性加工改性新技术基础理论和工程应用研究、粉末冶金技术研究、材料成形过程的数值模拟与仿真技术研究。

(3) Low dimensional materials physics and chemistry: mainly including the preparation of zero-dimensional, one-dimensional and two-dimensional nanomaterials, the study of materials performance, especially semiconductor nanomaterials.

(3) 低维材料物理与化学：主要包括零维、一维、二维纳米材料的制备与性能特别是半导体纳米材料的性能的研究。

(4) Functional polymer and flame retardant materials: Focusing on biomedical materials, Photoelectric functional polymer materials and flame-resistant materials.

(4) 功能高分子及阻燃材料：以生物医用材料、光电功能高分子材料、阻燃材料研究为特色。

(5) Materials surface engineering: Including the design and optimization of surface special functional coating materials, the numerical simulation of thermal spraying process, the preparation of coating materials, the performance testing and characterization of materials, the processing of surface special functional coating materials.

(5) 材料表面工程：主要包括表面特种功能涂层材料设计与优化、热喷涂工艺数值模拟、涂层材料制备、材料性能测试与表征及表面特种功能涂层加工等。

(6) Energetic material: Including the molecular design, synthesis and preparation of high energy density compound, energetic polymer, nanometer energetic materials, functional energetic auxiliaries, high performance solid propellant and charging technology, the progress and application of solid propellant forming, cladding layer and thermal barrier material technology.

(6) 含能材料：包括高能量密度化合物、含能聚合物、纳米含能材料、功能含能助剂的分子设计、合成

与制备工艺，高性能固体推进剂及装药技术，固体推进剂成型工艺与应用，包覆层与绝热层材料技术。

(7) Energy and environmental materials: Studying various key materials and its engineering application technologies of new chemical energy sources and physical energy sources. The synthesis characterization, molecular design, simulation, performance prediction and economic evaluation of various new green energy materials. New theory, new method and new technology in preparation and application of various new green energy materials. New theories, new methods and new technologies in the preparation and application of energy materials, The failure mechanism of environmental materials and resource recovery and recycling technology of various waste. The theory problems in the treatment process of waste water, waste gas and solid waste. The basic theories, systematic scientific methods and practical applications of environmental planning and management.

(7) 能源与环境材料：研究各种新型化学电源、物理电源的关键材料及其工程应用技术，各种新型绿色能源材料的分子设计、合成表征、仿真模拟、性能预测和经济性评价，能源材料制备与应用中的新理论、新方法和新技术，环境材料失效机制以及各种废弃物品的资源化与再生利用技术，废水、废气和固体废物处理过程中的理论问题，环境规划与管理的基础理论、系统科学方法及应用实践等。

2. Training Target

To cultivate innovative talents with historical sense of mission and social responsibility, law-abiding, well-behaved, honest and trustworthy, physical and mental health, full of scientific spirit and international vision of high-quality and high-level.

培养具有历史使命感和社会责任心，遵纪守法，品行端正、诚实守信，身心健康，富有科学精神和国际视野的高素质、高水平创新人才。

Master students should master the solid basic theory and systematic expertise of the discipline, and have the ability to work in scientific research independently and make creative achievements in scientific or technical expertise.

硕士研究生应掌握材料科学与工程学科坚实的基础理论和系统的专门知识，具有从事科学研究工作或独立担负专门技术工作的能力。

Ph. D. students should have a solid and broad basic theory of the subject and systematic and in-depth expertise, have the ability to work independently in scientific research, and make creative achievements in scientific or technical expertise.

博士研究生应掌握材料科学与工程学科坚实宽广的基础理论和系统深入的专门知识，具有独立从事科学研究工作的能力，在科学或专门技术上做出创造性的成果。

3. Length of Schooling 学制

Subjects 学科门类	Academic Masters 学术型硕士	Academic Doctors 学术型博士
Engineering 工学	2 years 2 年	4 years 4 年

Note：

1. The maximum length of schooling for academic masters is extended by 0.5 years on the basis of the basic length of schooling.

1. 学术型硕士最长修业年限在基本学制基础上增加 0.5 年；

2.The maximum length of schooling for Ph. D. students is extended by 2 years on the basis of the basic length of schooling.

2. 学术型博士最长修业年限在基本学制基础上增加 2 年；

3. Academic Doctor who is especially outstanding and completed his dissertation in advance can graduate 1 year ahead of schedule.

3. 特别优秀并提前完成学位论文的博士最多可提前 1 年毕业。

4. Curriculum and Credit Requirements

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 必修/选修	Master /Ph.D.硕士/博士	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D.硕士/博士	Master 硕士=14 Ph.D.博士=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕士/博士	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕士/博士	
Basic Course 基础课	1700001	Numerical analysis 数值分析	32	2	1/2	Optional 选修	Master 硕士	Master 硕士≥2 Ph.D.博士≥2
	1701003	Science and engineering calculation 科学与工程计算	48	3	1/2	Optional 选修	Ph.D.博士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 必修/选修	Master /Ph.D.硕士/博士	Credits Requirement 学分要求
	1701007	modern regression techniques in data sciences 现代回归方法	32	2	1/2	Optional 选修	Master /Ph.D.	
Discipline Core Course 学科核心课	0901001	Solid state chemistry 固体化学	32	2	1	Optional 选修	Master /Ph.D.硕士/博士	Master 硕士≥2 Ph.D.博士≥2
	0901002	Theory of Materials Processing 材料加工理论	32	2	2	Optional 选修	Master /Ph.D. 硕士/博士	
Major Optional Course 专业选修课	0901004	Novel Energetic Materials 新型含能材料	32	2	1	Optional 选修	Master /Ph.D. 硕士/博士	Maste 硕士≥6
	0901005	Nanomaterials and Physics 纳米材料与物理	32	2	1	Optional 选修	Master /Ph.D. 硕士/博士	
	0901006	Optoelectronic Materials and Devices 光电材料与器件	32	2	2	Optional 选修	Master /Ph.D. 硕士/博士	
	0901007	Characterization Technique in Electrochemical Measurement and Analysis of Materials 材料电化学测试与分析表征技术	32	2	2	Optional 选修	Master /Ph.D. 硕士/博士	
	0901008	Microstructural Analysis and Properties Characterization of materials 材料微结构分析与性能表征	32	2	2	Optional 选修	Ph.D.博士	Ph.D.博士≥2
	0901010	High-energy Beam Processing Technology 高能束流加工与技术	32	2	1	Optional 选修	Ph.D. 博士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 必修/选修	Master /Ph.D.硕士/博士	Credits Requirement 学分要求
Major Optional Course 专业选修课	0901011	Electrochemical Fundamentals and Application of Materials 材料电化学理论与应用	32	2	1	Optional 选修	Ph.D.博士	
	0901012	Advanced Carbon Materials 先进碳材料	32	2	2	Optional 选修	Master /Ph.D.硕士/博士	
	0901013	Materials Engineering and Performance 材料工程与力学性能	32	2	2	Optional 选修	Master /Ph.D. 硕士/博士	
Total Credits	Master 硕士≥24credits Ph.D.博士≥20 credits							

Notes：

说明：

1. Public Course 公开课

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

（1）汉语：由北京理工大学留学生中心制定。所有留学生都必须修读这门必修课程

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

（2）中国概况：由北京理工大学留学生中心制定。所有留学生都必须修读这门必修课程。

2. Basic Course 基础课

If the mathematic courses listed in the chart can't meet the requirement, different programs can set their own Basic Course.

如果表中所列出的数学类课程不能满足要求，不同的专业可以另行制定自己的学科基础课。

3. Discipline Core Course 学科核心课

Different Programs can set their own Discipline Core Course.

不同的专业可以另行制定自己的学科核心课

4. Major Optional Course 专业选修课

International students should choose course from their own program or from other programs. 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.

留学生应从自己的专业或其他专业中选择课程。硕士留学生在导师指导下，可根据需要选修本科课程。博士留学生也可以根据需求选修本科课程。

5. Practice Part

1. Academic Activity (1 credit) **学术活动（1 学分）**

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, is highly recommended.

留学生需要参加本领域的学术活动、学术讲座和学术会议 强烈建议在学术会议上进行口头演讲，无论是校内还是校外。

2. Innovative Practice (1 credit) **实践活动（1 学分）**

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

留学生在学习期间应当进行科研训练和社会实践，并由导师负责组织实施和考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

1.文献综述与开题报告； 2.中期检查； 3.论文写作及论文预答辩（针对博士生）；4.论文答辩； 5.学位授予

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

具体要求见《北京理工大学留学生培养程序规定》、《博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time Nodes of Relevant Procedure 培养环节时间节点要求

The Dissertation Related Work 论文相关工作	**Master 硕士**	**Ph.D.博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期 第一周（含）前	Before week 1 of the 5th semester 第五学期 第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期 第一周（含）前
Thesis Pre-Defense 论文预答辩	——	Before review 文献综述前
论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
The Dissertation Related Work 论文相关工作	**Master 硕士**	**Ph.D. 博士**
Degree Application 学位申请	The application should be raised in a certain time after the Thesis Defense 答辩后在规定时间内提出申请	

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.
课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献及讲师介绍等。

Power Engineering and Engineering Thermophysics

动力工程及工程热物理

(080700)

1. Overview of the Program

This discipline began in 1950 with the Internal Combustion Engine major at the College of Engineering of North China University (predecessor of Beijing Institute of Technology). In 1953, it was established as the only tank engine major in China and is a national key construction unit with national defense characteristics. In 1981, it was one of the first batch to receive a doctoral degree in military vehicle engineering (including internal combustion engines), and in 1993, it was granted a doctoral degree in the second level discipline of "Power Machinery and Engineering" and established a postdoctoral mobile station, In 2002, it was approved as a national key discipline, and in 2018, it was granted the right to confer a doctoral degree in the first level discipline of power engineering and engineering thermophysics.

本学科始于 1950 年华北大学工学院（北京理工大学前身）内燃机专业，1953 年建立我国唯一的坦克发动机专业，是国防特色学科和历批次国家重点建设单位，1981 年首批获军用车辆工程（含内燃机）博士学位授予权，1993 年获“动力机械及工程”二级学科博士学位授予权并设博士后流动站，2002 年获批国家级重点学科点，2018 年获动力工程及工程热物理一级学科博士学位授予权。

At present, there are 29 professors, 55 doctoral supervisors, 59 associate professors/senior engineers and senior experimenters, 89 master's supervisors, 1 double employed academician of the Chinese Academy of Sciences, 14 national high-level talents, 3 Beijing famous teachers, 3 candidates of the national high-level youth talent plan, and 1 new century talent of the Ministry of Education. We have a national technology innovation team for vehicle power systems, forming an academic echelon led by young and middle-aged teachers with reasonable age, educational background, and academic background structure. This discipline has established the "Beijing Key Laboratory for Clean Vehicles", "Key Laboratory for Efficient and Low Emission Technology of the Ministry of Industry and Information Technology", and "National Key Laboratory for Vehicle Power System Technology". It is a co-built discipline of the Beijing Electric Vehicle Collaborative Innovation Center, with a total investment of 250 million yuan in teaching and research equipment and a laboratory area of nearly 6000 square meters. It has established a scientific research system from theoretical research to product development,

advanced experimental research and development platforms and stable research directions, are important bases for cultivating high-level talents in the field of vehicle power.

本学科点现有教授 29 名、博士生导师 55 名，副教授/高级工程师和高级实验师 59 名、硕士生导师 89 名，中国科学院双聘院士 1 名、国家高层次人才 14 名、北京市教学名师 3 名、国家级高层次青年人才计划入选者 3 名、教育部新世纪人才 1 名。拥有车辆动力系统科技创新团队，形成了以中青年教师为主导的，年龄、学历和学缘结构合理的学术梯队。本学科建有“清洁车辆北京市重点实验室”、“高效低排放技术工信部重点实验室”、“车辆动力系统技术重点学科实验室”，是北京电动车辆协同创新中心的共建学科，教学科研设备总资产达 2.5 亿元，实验室面积近 6000 平方米，建立了从理论研究到产品开发的科研体系、先进的试验研究开发平台和稳定的研究方向，是车用动力领域高层次人才培养的重要基地。

The main scientific research in Power Engineering and Engineering Thermophysics of BIT includes:

动力工程及工程热物理专业的主要研究方向包括：

(1) Engineering Thermophysics

The research area of engineering thermophysics is oriented to the needs of the national energy strategy. Based on the combustion theory, the aerodynamic thermodynamics, fluid dynamics, heat and mass transfer of heat engines, the theoretical methods and key technologies for energy efficient used in thermal systems are studied. The main research contents include: thermal cycle and its work process, high-efficiency combustion theory and technology, thermal management of thermal system, theory and method of waste heat recovery of thermal system, complex combined cycle and its adjustment technology. Significant research features have been formed in the areas of efficient combustion, thermal management, and efficient thermal cycling.

（1）工程热物理

面向国家能源战略需求，以燃烧理论、热机气动热力学、流体动力学、传热传质为理论基础，研究热力系统中能量高效利用的理论方法和关键技术。主要研究内容包括：工作过程与热力循环、高效高密度燃烧理论与技术、热力系统热管理、热力系统余热回收理论与方法、复杂联合循环及其调节技术等。在高效高密度燃烧、热管理和高效热力循环等方面形成了明显的研究特色。

(2) Power Machinery and Engineering

The research area of power machinery and engineering is based on internal combustion engines, heat turbines, internal combustion generators, and other new types of power machinery and systems. Based on engineering

thermodynamics, fluid mechanics, solid mechanics, materials science, engineering control theory, and modern design methods, the basic theory and key technologies for the efficient, reliable and clean conversion of various forms of energy into directly exploitable mechanical or electrical energy is studied. The main research contents include: overall design and performance optimization of power system, power system control theory and technology, reliability and vibration noise of power mechanical structure, turbocharger and emission purification, design of new concept power machinery and system. Among them, the digital design theory of highly enhanced internal combustion engines, key technologies for component reliability, electronic control of internal combustion engines and turbocharging have prominent advantages in China.

（2）动力机械及工程

以内燃机、热力涡轮机、内燃发电机和其他新型动力机械及其系统为对象，以工程热力学、流体力学、固体力学、材料学、工程控制理论以及现代设计方法等为基础，研究将各种形式能源高效、可靠、清洁地转换为可直接利用的机械能或电能的基本理论及其关键技术。主要研究内容包括：动力系统总体设计与性能优化、动力系统控制理论与技术、动力机械结构可靠性与振动噪声、涡轮增压理论与技术、内燃机排放净化以及新概念动力机械与系统的设计等。高强化内燃机数字化设计理论、零部件可靠性关键技术、内燃机电控以及增压等方面在国内具有突出优势。

(3) Fluid Machinery and Engineering

In response to major engineering needs in national defense and energy, research is conducted on the functional transformation laws of fluid mechanical devices, the flow processes of complex systems, and key technologies in fluid dynamics. The main research contents include: the cavitation flow mechanism and numerical model research, the hydrodynamics of amphibious vehicle and its power systems, the internal flow characteristics of low-temperature medium in high-speed turbo-pump, internal flow characteristics and control of bladed fluid machinery, unsteady flow and fluid-structure interaction, fluid dynamics in vehicle and power system, optimal design of fluid machinery, integrated optimal design of water-jet propulsion system and underwater vehicle, and optimal design theory and key technology development of advanced composite propellers. In the high-speed hydrodynamics, especially the cavitation flow and hydrodynamics of amphibious vehicles, the program has formed a significant research feature.（3）流体机械及工程

针对国防和能源等领域的重大工程需求，研究流体机械装置中的功能转化规律、复杂系统流动过程及关键技术。主要研究内容包括：空化流动机理及数值计算模型、两栖车辆及其动力系统流体动力学、高速涡轮泵内部低温介质的流动特性、叶片式流体机械内部流动特性与控制、非定常流动与流固耦合、以

及流体机械的优化设计、喷水推进系统与航行体一体化优化设计和先进复合材料螺旋桨的优化设计理论与关键技术开发等。在高速水动力学特别是空化流动，以及两栖车辆水动力学等方面形成了明显的研究特色。

(4)Energy and Environmental Engineering

The research area of energy and environmental engineering is mainly engaged in the research of pollutant generation mechanism, emission control technology, and pollutant monitoring technology. It focuses on the research of various pollutant generation mechanisms, control technologies, on-line monitoring technologies, pollutant control regulations and pollution control technology policies; the research of the generation mechanism of various types of conventional and unconventional pollutants in the process of energy conversion and utilization, the mechanism of action and contribution rate of pollution in the atmospheric environment, the impact of various types of pollution sources on indoor and in-vehicle environments and on human health, and the energy utilization and environmental protection system engineering research. Significant research features have been formed in energy conversion and utilization, pollutant control technologies, and other aspects.

（4）能源环境工程

主要从事能源转换和利用过程中的污染物产生机理和排放控制技术、污染物监测技术研究，重点研究移动污染源中各类污染物产生机理、控制技术、在线监测技术以及污染物控制法规；研究能源转换利用过程中各类常规污染物和非常规污染物的产生机理，以及在大气环境中的作用机理和污染贡献率，研究各类污染源对室内、车内环境的影响和对人类健康的影响，研究能源利用和环境保护系统工程等。在能源转化应用、污染物控制技术等方面形成明显的研究特色。

(5)New energy Science and Engineering

The research area of new energy science and engineering focuses on the research of renewable energy such as solar energy, hydrogen energy, and biomass energy, and has connections with energy, materials, chemistry, physics, and biology. This research area studies the basic theory and key technologies for the efficient conversion and utilization of renewable energy. The main research contents include: the theory and key technologies of hydrogen energy and fuel cell, hybrid power system energy management and control technology, solar energy efficient utilization theory and technology, high density Power battery system technology, development of new energy and new power devices, etc. This research area formed leading research features in the solar thermal utilization, seawater desalination and hydrogen internal combustion engine development.

（5）新能源科学与工程

以太阳能、氢能、生物质能等可再生能源为对象，与能源、材料、化学、物理、生物等学科形成交叉，研究可再生能源高效转化与利用的基本理论及关键技术，主要研究内容包括：氢能与燃料电池理论及关键技术，混合动力系统能量管理与控制技术，太阳能高效利用理论与技术，高密度动力电池系统技术，新能源新型动力装置开发等。在太阳能热利用、海水淡化及氢内燃机开发等方面形成了明显的研究特色。

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.

此项目旨在培养具有良好国际常识知识、具有传播中外文化能力的高层次创新人才，充分发挥国际研究生的文化桥梁作用。

(1) Master student

Master students trained in this subject should have good research ethics and professionalism. They should master the solid basic theory and systematic expertise of the discipline, master the modern experimental methods and the skills of the discipline, and have the ability to engage in scientific research or undertake specialized technologies independently. They should be capable of performing scientific research, engineering design, product development and teaching in research institutes, companies, and universities.

(1) 硕士生

本学期培养的硕士生应掌握本学科坚实的基础理论和系统的专门知识，掌握本学科的现代实验方法和技能，具有从事科学研究工作或独立担负专门技术工作的能力，能够胜任科研院所、企业、高校的科学研究、工程设计、产品开发和教学等工作。

(2) Ph.D. student

The Ph.D. students cultivated in this subject should have the scientific spirit and the international perspective. They should master a solid and broad basic theory and systematic in-depth expertise of the discipline; master the modern experimental methods and skills of the discipline. They should be proficient in mastering a foreign language, have a certain degree of International academic communication skills; be capable of conducting scientific research independently. They also need to have a good spirit of cooperation, and be able to make creative achievements in scientific research or technical expertise.

(2) 博士生

本学科培养的博士生应具备科学精神和国际视野。应掌握本学科坚实宽广的基础理论和系统深入的专门知识，掌握本学科的现代实验方法和技能，熟练地掌握一门外国语，具有一定的国际学术交流能力和独立地从事科学研究的能力，并有良好的合作精神，能够在科学研究或专门技术上做出创造性的成果。

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.

硕士生的基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于一年。硕士研究生的最长修业年限在基本学制的基础上延长 0.5 年。

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.

博士生的基本学制为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于三年。博士生的最长修业年限在 4 年的基础上延长 2 年。

4. Curriculum and Credits Requirements

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory /Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
Public Course 公共课程	3700005	Chinese Language Ⅰ （英）基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕/博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese Language Ⅱ （英）基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕/博	
	3700002	Outline of China （英）中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕/博	
Basic Course 基础课程	0301001	Introduction to Advanced Engineering Mathematics （英）高等工程数学导论	48	3	2	Optional 选修	Master/ Ph.D. 硕/博	Master≥2 Ph.D.≥2 硕士≥2 博士≥2

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory /Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	1701002	Matrix Analysis （英）矩阵分析	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	
Discipline Core Course 学科核心课	0301002	Fundamentals of Modern Control Theory （英）现代控制理论基础	48	3	2	Optional 选修	Master 硕士	Master≥8 Ph.D.≥4 硕士≥8 博士≥4 Among the Credits of Discipline Core Course： Master≥2 Ph.D.≥2 其中，学科核心课学分要求: 硕士≥2 博士≥2
	0301003	Advanced Mechanical Vibration （英）高等机械振动	48	3	2	Optional 选修	Master 硕士	
	0301004	Advanced Engineering Thermodynamics and Heat Transfer （英）高等工程热力学和传热学	48	3	2	Optional 选修	Master 硕士	
	0301005	Computational Fluid Dynamics （英）计算流体力学	32	2	2	Optional 选修	Ph.D. 博士	
	0301006	Advanced Control Engineering （英）先进控制工程	32	2	1	Optional 选修	Ph.D. 博士	
	0301007	Fatigue Life Design of Mechanical Structure （英）机械结构疲劳与寿命设计	32	2	1	Optional 选修	Ph.D. 博士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory /Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	0301016	Energy-saving and New Energy Vehicle Technology （英）节能和新能源车辆技术	48	3	2	Optional 选修	Master /Ph.D. 硕/博	
	0301017	Learning-based Intelligent Vehicle Technology （英）智能车辆机器学习技术	48	3	2	Optional 选修	Master /Ph.D. 硕/博	
	0300032	高等传热传质学	48	3	2	Optional 选修	Master 硕士	
	0300033	高等工程热力学	48	3	1	Optional 选修	Master 硕士	
	0300040	高等流体力学	48	3	1	Optional 选修	Master /Ph.D. 硕/博	
	0300077	新能源动力系统技术	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
Major Optional Course 专业选修课	0301008	Elasticity （英）弹性力学	32	2	1	Optional 选修	Master 硕士	
	0301009	Structural Optimization Method （英）结构优化方法	32	2	1	Optional 选修	Master 硕士	
	0301010	Modern Measurement Technology （英）现代测试技术	32	2	2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory /Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	0301011	Principle of Finite Element Method （英）有限元原理	32	2	2	Optional 选修	Master 硕士	
	0301012	Principle and Application of CAD/CAM/ CAE （英）CAD / CAM / CAE 原理及工程应用	32	2	1	Optional 选修	Master 硕士	
	0301019	Model Predictive Control and Applications （英）模型预测控制与应用	32	2	1	Optional 选修	Master 硕士	
	0301020	Vehicle Thermal Management （英）车辆热管理	32	2	2	Optional 选修	Master 硕士	
	0301013	Engineering Management （英）工程管理	32	2	2	Optional 选修	Ph.D. 博士	
	0301015	Advanced Technology of Modern Vehicle （英）现代车辆先进技术	32	2	2	Optional 选修	Ph.D. 博士	
	0300079	有限元法原理	32	2	2	Optional 选修	Master 硕士	
	0300027	动力系统振动噪声理论与分析	32	2	2	Optional 选修	Master 硕士	
	0300095	燃烧诊断技术原理与应用	32	2	2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory /Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	0300026	系统工程学及其应用	48	3	1	Optional 选修	Ph.D. 博士	
	0300030	非线性系统与智能控制	48	3	1	Optional 选修	Ph.D. 博士	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes：

1). Public Course **公共课**

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

汉语：由留学生中心开设，所有留学生均需选修该门课程。

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

中国概况：由留学生中心开设，所有留学生均需选修该门课程。

2) Major Optional Course **专业选修课**

International students should choose courses from their own program or from other programs under the guidance of the supervisor. Master candidates can take undergraduate core courses if needed. The credits for undergraduate courses are not included in the credits required by the master program. Master candidates can also take Ph.D. courses if needed, and the Ph.D. course credits can be included into the credits required. Ph.D. candidates can take master courses if needed. The credits for master courses are not included in the credits required by the Ph.D. program.

在导师指导下，留学生可在所在项目或其他项目中选修课程。留学硕士生根据需要可选修本科生课程，但不计入硕士培养计划要求学分。硕士留学生可根据需要选修博士生课程，并可计入学分。博士留学生根据需要可选修硕士生课程，但不计入博士培养计划要求学分。

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.

（1）学术活动（1 学分）

留学生应参加本领域的学术活动、学术讲座和学术会议，并鼓励在校内外的学术会议上做口头报告。

(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.

（2）实践活动（1 学分）

在导师指导下，留学生应在实践环节接受科学研究培训和社会实践。

6. The Dissertation Related Work

(1) Literature Review & Opening Report；(2) Mid-Term Evaluation；(3) Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）；(4)Thesis Defense；(5) Degree Conferment.

（1）文献综述及开题报告 （2）中期检查 （3）论文撰写和论文预答辩（博士生） （4）论文答辩（5）学位申请。

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

具体要求见《北京理工大学留学生研究生培养环节实施办法》、《北京理工大学博士学位论文预答辩细则》、《北京理工大学学位授予工作细则》

Time nodes of relevant procedure

培养环节时间节点

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士生**	**Ph.D.** **博士生**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第 3 学期 第 1 周（含）前	Before week 1 of the 5th semester 第 5 学期 第 1 周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第 7 学期 第 1 周（含）前
Thesis Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Thesis Defense 论文答辩	At least 9 months after the Opening Report	At least 18 months after the Opening Report

	距离开题至少 9 个月	距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Thesis Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、课程描述及课程目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Electronics Science and Technology

电子科学与技术

(080900)

1. Overview of the Program

The electronic science and technology discipline of Beijing Institute of Technology origins from the Academy of Natural Sciences of Yan'an, which was founded by Communist Party of China in 1940. Chinese academician Li Qiang, the "red radio expert", was the founder of the discipline. It is the first discipline in our country to successfully develop a TV transmission and reception test system. It was approved to set up the first-level doctoral site in 2003. It is also a Beijing Key Discipline and Key Discipline of Ministry of Industry and Information Technology.

北京理工大学电子科学与技术学科创始于 1940 年我党创办于延安的自然科学院，老院长“红色无线电专家”李强院士是学科奠基人，是我国第一个成功研制电视发射和接收试验系统的学科点，2003 年获得一级博士点授权，是北京市重点学科和工信部重点专业。

There are currently 104 full-time teachers in the discipline, including 29 with senior professional titles, 41 with deputy senior professional titles, 67% with senior professional and technical positions, and 88% with doctoral degrees. The faculty includes 2 titled with "Changjiang Scholars" distinguished professors of the Ministry of Education, 2 titled with the National Science Fund for Distinguished Young Scholars, 1 titled with national "Ten Thousand Talents Program" scientific and technological innovation leader, 1 overseas high-level talent, 1 IEEE fellow, and 6 candidates for the national high-level youth talent plan, 3 candidates for the provincial and ministerial talent plan, 1 Beijing Famous teacher and 1 Beijing Famous Young Teacher.

学科目前共有专职教师 104 人，其中正高级职称 29 人，副高级职称 41 人，高级专业技术职务占比 67%，具有博士学位的比例为 88%。师资队伍汇聚了 2 名教育部“长江学者”特聘教授、2 名国家杰青、1 名国家“万人计划”科技创新领军人才、1 名海外高层次人才、1 名 IEEE fellow，以及 6 名国家级高层次青年人才计划人选者、3 名省部级人才计划入选者，另有 1 名北京市教学名师、1 名北京市青年教学名师。

The discipline has a national-level teaching team of "Electrical and Electronic Fundamentals", and has built a series of high-level teaching and scientific research platforms such as "National-level Experimental Teaching Demonstration Center of Electrical Engineering and Electronics", National Defense Key Discipline Laboratory of "Multiple Information Systems", Ministry of Industry and Information Technology Key Laboratory of "Low-Dimensional Quantum Structures and Devices" , Beijing Key Laboratory of "Millimeter Wave and Terahertz

Technology", Beijing Engineering Technology Research Center of "Silicon-based High-speed System-on-Chip", etc. The discipline undertakes important scientific research projects such as National Key Research and Development Program, National Natural Science Foundation of China key project and major scientific research instrument development project, major national defense projects, and civil aerospace projects. More than 70% of the graduates serve in the national defense and military industry. Among the graduates are many academicians such as Wang Xiaomo, the winner of the National Highest Science and Technology Award. The discipline has become one important talents training base for serving the national strategy and the national civilian economy territory.

学科拥有“电工电子基础”国家级教学团队，建设了“电工电子国家级实验教学示范中心”、“多元信息系统”国防重点学科实验室、“低维量子结构与器件”工信部重点实验室、“毫米波与太赫兹技术”北京市重点实验室、“硅基高速片上系统”北京市工程技术研究中心等高水平教学与科研平台。学科承担国家重点研发计划项目、国家自然科学基金重点项目和重大科研仪器研制项目、国防重大重点项目、民用航天等重要科研项目，年均科研经费近亿元，发表 SCI 检索论文百余篇。70%以上毕业生服务于国防军工行业，毕业生中包括国家最高科技奖获得者王小谟等多位院士，已成为服务国家战略和国民经济主战场的重要人才培养基地。

At present, this discipline has formed five advantageous directions with distinctive features, from basic theory to application, including radio frequency technology and software, microwave and terahertz technology, intelligent electronic information system, microelectronics and solid-state electronics and signal and image processing.

目前，本学科形成了军民融合、特色鲜明、从基础到应用的五个优势学科方向，包括射频技术与软件、微波与太赫兹技术、智能电子信息系统、微电子学与固体电子学和信号与图像处理。

1）Radio Frequency Technology and Software

1）射频技术与软件

Radio frequency (RF) technology is one of the pillars of the electronic information age. Electronic industrial design software is one of the key foundations of the national electronic industry. The design of complex RF systems faces a series of extremely challenging problems such as complex materials, multi-scale, multi-physics, and complex environment electromagnetic compatibility. This direction aims at the major national needs such as the electromagnetic characteristics of targets and stealth design, radar, high-level aircraft communication and detection system development, large-scale integrated circuit design for radio frequency, etc. Here, we carry out research on the electromagnetic heat of radio frequency systems in complex environments, and establish mechanism analysis and calculation models. We independently developed the industrial RF simulation software "SINOCOM", which has served nearly 30 institutes of aviation, aerospace, and electronics. This software has

successfully carried out the electromagnetic computing of "tens of thousands of electrical wavelengths, tens of billions of unknowns, and millions of cores in parallel", which won high praise from international authoritative scholars. This direction has established a certain international reputation and influence in the fields of national strategic deployment such as "High Performance Computational Electromagnetics", "Target Feature Engineering", "Stealth Aircraft Design".

射频技术是电子信息时代的支柱之一。电子工业设计软件是国家电子工业产业的关键基础之一。复杂射频系统设计面临复杂材料、多尺度、多物理、复杂环境电磁兼容等一系列极具挑战性问题。本方向瞄准目标电磁特性与隐身设计、雷达、高超飞行器通信与探测系统研制、大规模射频集成电路设计等国家重大需求，开展复杂环境射频系统电磁热等作用机理研究，建立机理分析和计算模型，自主研发了工业射频仿真软件“中算”，服务于航空、航天、电子各大集团近 30 个单位，成功计算了“数万电波长、百亿未知数、百万核并行”的电磁计算案例，赢得了国际权威学者的高度赞誉。在“目标特性工程”、“高性能计算”、“隐身飞行器设计”等国家战略部署领域建立了一定的国际声誉和影响力。

2）Microwave and Terahertz Technology

2）微波与太赫兹技术

The main research areas of this direction include microwave/millimeter wave/terahertz integrated circuits, antennas and systems. We carry out research on integrated RF technology, design technology and system integration technology, such as silicon-based, GaAs-based monolithic and MEMS. We conduct research on microwave and millimeter-wave phased array antennas and MIMO antenna technologies for the 5G applications and the next-generation wireless communication systems. Taking the THz wave transmission and regulation, terahertz detection and identification, terahertz channel modeling and terahertz target characteristics research as the background, we carry out research on terahertz imaging system, terahertz radar system, terahertz communication system, terahertz key functional devices, and terahertz antennas and integrated front-end. Closely combined with national defense and civil needs, we carry out research on millimeter-wave and optical (laser/infrared/visible light) composite detection, vehicle-mounted millimeter-wave environment and situational awareness, Internet of things wireless sensing and other system technology research, and interdisciplinary research on millimeter and terahertz wave based bio-electromagnetism, accurate multiphysics measurement and quantum correlation.

本学科方向主要研究领域包括微波/毫米波/太赫兹集成电路、天线及系统。开展硅基、砷化镓基单片和 MEMS 等集成射频工艺、设计技术及系统集成技术研究；针对 5G 及下一代无线通信系统的应用需求，开展微波毫米波相控阵天线及 MIMO 天线技术研究；以太赫兹波传输与调控、太赫兹探测与识别、太赫兹信道建模及太赫兹目标特性研究为背景，开展太赫兹成像系统、太赫兹雷达系统、太赫兹通信系统、太赫兹关键功能器件、

太赫兹天线和集成前端等研究；紧密结合国防和民用需求，开展毫米波与光学（激光/红外/可见光）复合探测、车载毫米波环境与态势感知和物联网无线传感等系统技术研究；开展基于毫米波与太赫兹的生物电磁学、多物理场精确测量和量子关联等交叉学科方向研究。

3） Intelligent electronic information system

3）智能电子信息系统

This direction is oriented towards major national needs, and conducts in-depth research in the fields of intelligent perception, intelligent electromagnetic spectrum warfare, intelligent image processing and pattern recognition. Research includes Radar system and signal processing, Radar/telecommunication intelligent game, Laser/ultraviolet ray/infrared ray detection and identification, remote sensing and implanted sensing, integration of telecommunication detection and interference, integration of telecommunication, navigation and remote sensing, aerospace platform anti-jamming data link, millimeter wave and terahertz telecommunication networking, intelligent image processing, image/video intelligent detection and tracking, intelligent heterogeneous computing, and real-time sensing and storage computing systems, etc. This discipline direction focuses on the integration of theoretical exploration and engineering practice, emphasizing both on algorithm research and system development, and has achieved many achievements in the fields of radar reconnaissance, radar countermeasures, data link anti-jamming, and laser/ultraviolet detection.

本学科方向面向国家重大需求，在智能感知、智能电磁频谱战、智能图像处理与模式识别等领域深入开展研究，研究方向主要包括雷达系统与信号处理、雷达/通信智能博弈、激光/紫外/红外探测与识别、遥感与植入传感、通信探测干扰一体化、通信导航遥感一体化、空天平台抗干扰数据链、毫米波与太赫兹通信组网、智能图像处理、图像/视频智能检测与跟踪、智能异构计算与实时感存算系统等。本学科方向注重理论探索与工程实践合一，算法研究与系统研制并重，在雷达侦察、雷达对抗、数据链抗干扰、激光/紫外探测等领域取得多项成果。

4） Microelectronics and Solid State Electronics

4）微电子学与固体电子学

This direction focuses on the major national needs and "stuck neck" problems in the fields of high-performance, low-power, low-cost semiconductor materials, devices and chips, and deploy interdisciplinary research with physical electronics, superconducting electronics, and flexible electronics. Utilizing advanced measurement and manipulation technology, we carry out the detection of novel quantum physical properties, explore the construction of new low-dimensional quantum functional materials and manipulation methods for quantum property, and study the structural design, energy band engineering, physical property regulation and device construction of new semiconductor materials. Here we provide an important scientific basis for the development

of information devices in the future. At the same time, we carry out research on high-performance analog integrated circuit design and application, silicon-based RF/millimeter wave integrated circuit design, system-on-chip (SOC) design, new MEMS sensor design and application, three-dimensional integration and vertical interconnection, etc, towards the development of high-end chips and new micro-nano devices with full intellectual property rights.

本学科方向聚焦高性能、低功耗、低成本半导体材料、器件与芯片领域的国家重大需求和“卡脖子”难题，与物理电子学、超导电子学、柔性电子学等前沿领域交叉融合，利用先进的测量和操控技术，实现对新奇量子物性的探测，探索新型低维量子功能材料的构筑及量子特性调控方法，研究新型半导体材料的结构设计、能带工程、物性调控和器件构筑，为未来信息器件的发展提供重要的科学依据。同时，开展高性能模拟集成电路设计与应用、硅基射频/毫米波集成电路设计、片上系统（SOC）设计、新型 MEMS 传感器设计与应用、三维集成与垂直互连等方向的研究，发展具有自主知识产权的高端芯片与新型微纳器件。

5） Signal and Image Processing

5）信号与图像处理

This direction is oriented towards the international academic frontier fields, such as the integration of new radar system and telecommunication, hybrid brain-computer interface, brain science and brain image processing, intelligent video, and image analysis and recognition. This direction serves the major needs of countries such as intelligent information system integrating reconnoitre, interference, detection and telecommunication, safe operation of power system security, smart ocean, and healthy China, etc. We conduct research on multi-polarization array signal processing and array design, brain magnetic resonance image processing method and clinical application development, visible light and infrared image processing in video security monitoring, insulator state assessment in power system, unmanned operation and maintenance, perception and navigation of intelligent unmanned ships, intelligent wearable health monitoring, hybrid brain-computer interface and emotional level assessment, etc. Our research on polarization-sensitive array signal processing and brain magnetic resonance image processing methods is at the international advanced level, and we have cutting edge and distinctively featured studies in environment perception for intelligent unmanned ship, intelligent algorithm in navigation obstacle avoidance, and intelligent video security monitoring with target tracking and group behavior analysis.

本学科方向面向新体制雷达通信一体化、混合脑机接口、脑科学与脑影像处理、智能视频和图像分析与识别等国际学术前沿领域，服务侦干探通一体化智能信息系统、电力系统安全运行、智慧海洋、健康中国等国家重大需求，重点开展多极化阵列信号处理和阵型设计，脑磁共振图像处理方法及临床应用开发，视频安全监控中可见光和红外图像处理，电力系统绝缘子状态评估与无人化运维，智能无人船感知与导航，智能可穿戴

健康监护、混合脑机接口与情绪等级评估等方向的研究工作，在极化敏感阵列信号处理和脑磁共振图像处理方法研究方面处于国际先进水平，在智能无人船环境感知和导航避障智能算法、智能视频安全监控目标跟踪与群体行为分析等方面具有特色和优势。

2. Training Target

1）To train students to understand the solid basic theory and systematic and specialized knowledge of the discipline, learn the modern experimental methods and skills of the discipline (direction), have an interdisciplinary academic background, and have the ability to engage in scientific research work or independently undertake specialized technical work in the field of Electronic Science and Technology.

培养学生掌握本学科扎实的基础理论和系统的专业知识，学习本学科(方向)的现代实验方法和技能，具有跨学科的学术背景，能够从事电子科学与技术领域的科学研究工作或独立承担专业技术工作。

2）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.

培养具有良好的国际常识，具有传播中外文化能力的高层次创新型人才，充分发挥国际研究生的文化桥梁作用。

3. Length of Schooling

1）The basic length for master students is 2 years. In principle, students must complete the courses in the first academic year. Thesis work time must be at least one year. The maximum length of study for master students can be extended by 0.5 years on the basis of 2 years.

硕士研究生基本学制为 2 年。 原则上，学生必须在第一学年完成课程。 论文工作时间不少于一年。硕士生的最长学习年限在 2 年的基础上可延长 0.5 年。

2）The basic length for Ph.D. students is 4 years. In principle, students must complete the courses in the first academic year. Thesis work time must be at least three years. The maximum length of study for Ph.D. students can be extended by 2 years at maximum on the basis of 4 years.

博士研究生基本学制为 4 年。 原则上，学生必须在第一学年完成课程。 论文写作时间不少于三年。博士研究生的学习年限在 4 年的基础上，最多可延长 2 年。

4. Curriculum and Credit Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Requirements	Master /Ph.D.	Credits Requirement
Public Course 公共课程	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕/博	Master=14 硕=14 Ph.D.=14 博=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕/博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕/博	
Basic Course 基础课程	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	Master≥2 硕≥2Ph.D.≥2 博≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	
	1701007	Modern Regression Techniques in Data sciences 现代回归方法	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	
Discipline Core Course 学科核心课	0501004	Modern Antenna Theory and Technology 现代天线理论与技术	32	2	2	Optional 选修	Master 硕	Master≥2 硕≥2 Ph.D.≥2 博≥2
	1301006	Nano-Electronic Devices and Applications 纳米电子器件及应用	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1301021	Radar remote sensing and channel modeling 微波遥感与信道建模	32	2	1	Optional 选修	Master 硕	
Major Optional Course 专业选修课	0501005	RF Circuit Design Theory and Application 射频电路设计理论与应用	32	2	2	Optional 选修	Master 硕	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Requirements	Master /Ph.D.	Credits Requirement
Major Optional Course 专业选修课	0501009	Foundation of FPGA and SoPC Design FPGA 与 SoPC 设计基础	32	2	2	Optional 选修	Master 硕	Master≥6 硕≥6 Ph.D.≥2 博≥2
	0501011	Multi-source Data Fusion Theory and Application 多源数据融合理论与应用	32	2	2	Optional 选修	Master 硕	
	0501014	Advanced Digital Communication 高等数字通信	32	2	1	Optional 选修	Master 硕	
	0501021	Probability, Radom Process and Stochastic Geometry in Engineering 概率、随机过程和随机几何及其应用	32	2	1	Optional 选修	Master 硕	
	0501022	Medical Image Processing and Artificial Intelligence 医学图像处理与人工智能	32	2	1	Optional 选修	Master 硕	
	1301004	Fundamentals of MEMS Transducers MEMS 原理	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1301005	Microfabrication for IC and MEMS I 集成电路工艺 I	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1301019	Semiconductor Optoelectronics 半导体光电子学	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1301026	MEMS Design MEMS 设计	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1301027	Microfabrication of IC and MEMS II 集成电路工艺 II	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1301028	Introduction to	32	2	1	Optional	Master	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Requirements	Master /Ph.D.	Credits Requirement
		Biophotonics 生物光子学				选修	/Ph.D. 硕/博	
	1301029	Integrated Microsystems 智能集成微系统	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1301030	Advanced MEMS -- Optical MEMS MEMS 专题—光学	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301031	Advanced MEMS -- Acoustic MEMS MEMS 专题—声学	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301032	Advanced MEMS -- BioMEMS MEMS 专题—生物	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301033	Advanced MEMS -- CMOS MEMS Integration MEMS 专题—CMOS-MEMS 集成技术	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301034	Advanced MEMS -- Thermal MEMS MEMS 专题—热电	16	1	2	Optional 选修	Master /Ph.D. 硕/博	Master≥6 硕≥6 Ph.D.≥2 博≥2
	1301035	Advanced MEMS -- Inertial MEMS MEMS 专题—惯性	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301036	Advanced MEMS -- Resonant MEMS MEMS 专题—谐振	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301054	Weather Radar Polarimetry 双偏振雷达气象学	16	1	1	Optional 选修	Master /Ph.D. 硕/博	
Total Credits 总学分	Master≥24 credits Ph.D.≥20 credits 硕≥24 学分 博≥20 学分							

Notes：

1). Public Courses

(1) Chines 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) Basic Courses

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3) Discipline Core Courses

Different Programs can set their own Discipline Core Course.

4) Major Optional Courses

International students should choose course from their own program or from other programs. 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.

说明:

1)公共课

(1)汉语:由北京理工大学留学生中心设置。 所有国际学生都必须修这门必修课程。

(2)中国概况:由北京理工大学留学生中心制定。 所有国际学生都必须修这门必修课程。

2)基础课程

如果图表中列出的数学课程不能满足要求，不同的专业可以设置自己的基础课程。

3)学科核心课程

不同的项目可以设置自己的学科核心课程。

4)专业选修课

留学生应选择本专业或其他专业的课程。 在导师的指导下，硕士留学生可以根据需要选修本科课程。 博士留学生可根据需要选修本科课程。

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.

1. 学术活动(1 学分)

国际研究生需要参加本专业的学术活动、学术讲座和学术会议。建议在学术会议上做口头演讲，无论是在校

内还是校外。

2. 创新实践(1 学分)

国际研究生在研修期应进行科研训练和社会实践，由导师进行考核。

6. The Dissertation Related Work

(1) Literature Review & Opening Report；(2) Mid-Term Evaluation；(3) Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）；(4)Thesis Defense；(5) Degree Conferment.

（1）文献综述及开题报告 （2）中期检查 （3）论文撰写和论文预答辩（博士生） （4）论文答辩（5）学位申请。

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

具体要求见《北京理工大学留学生研究生培养环节实施办法》、《北京理工大学博士学位论文预答辩细则》、《北京理工大学学位授予工作细则》

Time nodes of relevant procedure

培养环节时间节点

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士生**	**Ph.D.** **博士生**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第 3 学期 第 1 周（含）前	Before week 1 of the 5th semester 第 5 学期 第 1 周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第 7 学期 第 1 周（含）前
Thesis Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Thesis Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Thesis Defense 答辩后在规定时间内提出申请	

7. Course Syllabus

课程教学大纲内容包括课程编码、课程名称、学时、学分、课程描述及课程目标、教学方式、考核方式、适

用学科专业、先修课程、主要教学内容和学时分配、参考文献等

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.

Information and Communication Engineering

信息与通信工程

(081000)

1. Overview of the Program 学科简介

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.

信息与通信工程是与信息技术相结合构建现代信息社会的工程领域。利用信息技术的基本理论，解决电子元器件、集成电路、电子控制、仪器仪表、计算机设计与制造以及与电子和通信工程相关的技术问题，研究电子信息的检测、传输、交换、处理和显示的理论与技术。

信息与通信工程是全日制学位，包括完成课程学习和毕业设计。旨在培养掌握电子与通信工程基础理论和专业知识，具有解决实际问题和承担专业技术或管理任务的高层次专业人才。学生可以在获得所需学分后申请硕士学位。他们将在导师的指导下参与电子和通信工程项目，并根据所做的项目完成毕业论文。

本学科研究通信系统理论与技术、移动通信理论与技术，信号与图像处理、信息处理理论与技术以及信息安全与对策理论与技术和目标检测与识别理论与技术。

2. Training Target 培养目标

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.

培养具有良好国际常识、具有传播中外文化能力的高层次创新人才，充分发挥国际研究生的文化桥梁作用。

3. Length of Schooling 学制

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.

硕士研究生的学习年限为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于一年。硕士研究生的最长学习年限在 2 年的基础上延长 0.5 年。博士研究生的基本年限为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于三年。博士研究生的最长学习年限在 4 年的基础上延长了 2 年。

4. Curriculum and Credit Requirements 课程设置及学分要求

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	Modern Regression Techniques in Data Sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	0501021	Probability, Random Process and Stochastic Geometry in Engineering 概率、随机过程和随机几何及其应用	32	2	1	Optional	Master /Ph.D.	
Discipline Core Course	0501001	Fundamentals of Statistical Signal Processing 统计信号处理基础	32	2	1	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
	0501002	Information Theory 信息论	32	2	1	Compulsory	Master /Ph.D.	
	0501003	Introduction to Radar Systems 雷达系统导论	32	2	1	Compulsory	Master /Ph.D.	
	0501014	Advanced Digital Communication 高等数字通信	32	2	1	Compulsory	Master /Ph.D.	
	0501013	Communication Networks Fundamentals 通信网络基础	32	2	2	Compulsory	Master /Ph.D.	
Major Optional Course	0501004	Modern Antenna Theory and Technology 现代天线理论与技术	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0501005	RF Circuit Design Theory and Application 射频电路设计理论与应用	32	2	2	Optional	Master /Ph.D.	
	0501022	Medical Image Processing and Artificial Intelligence 医学图像处理与人工智能	32	2	1	Optional	Master /Ph.D.	
	0501009	Foundations of FPGA and SoPC Design FPGA 与 SoPC 设计基础	32	2	2	Optional	Master /Ph.D.	
	0501020	Mobile Communications 移动通信	32	2	2	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	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	32	2	1	Optional	Master /Ph.D.	
	0501013	Fundamentals of Communication Networks 通信网络基础	32	2	2	Optional	Master /Ph.D.	
	0501014	Advanced Digital Communications 高等数字通信	32	2	1	Optional	Master /Ph.D.	
	0501016	Quantum Radar Principle 量子雷达原理	32	2	1	Optional	Ph.D.	
	0501017	High Resolution Radar 高分辨雷达	32	2	1	Optional	Ph.D.	
	0501021	Probability, Random Process and Stochastic Geometry in Engineering 概率、随机过程和随机几何及其应用	32	2	1	Optional	Master	
	0501024	Microwave Photonics 微波光子学	32	2	1	Optional	Master	
	0501007	Advanced optical fiber communication systems 先进光纤通信系统	32	2	1	Optional	Ph.D.	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

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. Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3. Discipline Core Course

Different Programs can set their own Discipline Core Course.

4. Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1. 公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2. 基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学、物理、化学、生物、管理、人文类等学科基础课。

3. 专业核心课

各学科确定本学科的全英文核心课程。

4. 专业选修课

可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

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.

1. 学术活动（1 学分）

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2. 实践活动（1 学分）

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time Nodes of Relevant Procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Thesis Pre-Defense 论文预答辩	——	Before review 论文评阅送审前完成
Thesis Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Thesis Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献和授课教师介绍等。

Control Science and Engineering

控制科学与工程

(081100)

1. Overview of the Program

The first-level discipline “Control Science and Engineering” has a Post-doctoral research station. The discipline was selected twice to enter the list of “Double-First Class” discipline construction plan by the Ministry of Education. It was evaluated as a Class A discipline in the fourth round of discipline assessment by the Ministry of Education. The second-level disciplines under the first-level discipline are “Intelligent sensing and motion control”, “Pattern Recognition and Intelligent Systems”, “Navigation, Guidance and Control”, “Control Theory and Control Engineering”, “Intelligent Information Processing and Control” and “Electrical Engineering and Control”.

“控制科学与工程”一级学科具有博士后科研流动站，两次入选教育部“双一流”学科建设名单，在教育部第四轮学科评估中被评为 A 类学科。“控制科学与工程”一级学科下设六个二级学科：智能感知与运动控制、模式识别与智能系统、导航制导与控制、控制理论与控制工程、智能信息处理与控制和电气工程与控制。

Control Science and Engineering studies on moving objects, industrial equipment and human-computer-object fusion systems. It aims to enhance the ability of human beings to understand and change the world. This discipline uses the knowledge of information technology, computer technology, test technology, artificial intelligence and basic knowledge of research objects to do research on system modeling, dynamic analysis, prediction, control and decision making. The discipline focuses on the combination of theoretical research and engineering applications, interdisciplinary research and military-civilian integration, and has played a major role in the development of our national economy and the defense of national security.

控制科学与工程以运动体、工业装备及人机物融合系统等为研究对象，以增强人类认识世界和改造世界的能力为目的，综合运用信息技术、计算机技术、检测技术、人工智能以及研究对象的领域知识，研究具有系统建模、动态特性分析、预测、控制和决策等功能于一体的系统设计方法和实现技术的学科。本学科注重理论研究与工程实践结合、多学科交叉和军民融合，具有鲜明的特色与优势，对我国国民经济发展和国家安全具有重要作用。

The main research directions of this discipline are:

本学科主要研究方向及研究内容：

(1) Intelligent sensing and motion control: Advanced technology for sensors and testing; Transmission and control of electricity, liquid and gas; New-type actuators and automation equipment; Intelligent instruments and controllers; Integration and networking of measurement and control systems; Fault diagnosis and tolerance of measurement and control systems; Medical signal detection and intelligent medical instruments.

(1)智能感知与运动控制：先进传感与检测技术；电、液、气传动与控制；新型执行机构与自动化装置；智能仪表及控制器；测控系统集成与网络化；测控系统故障诊断与容错技术；医学信号检测与智能医疗仪器。

(2) Pattern Recognition and Intelligent Systems: Intelligent control and intelligent systems; Computational intelligence and optimal decision making; Pattern recognition and machine learning; Image comprehension and computer vision; Multi-agent synergetic control; Command control and decision systems; Intelligent control of unmanned systems; Distributed simulation of com plex systems.

(2)模式识别与智能系统：智能控制与智能系统；计算智能与优化决策；模式识别与机器学习；图像理解与计算机视觉；多智能体协同控制；指挥控制与决策系统；无人系统智能控制；复杂系统分布式仿真。

(3) Navigation, Guidance and Control: Inertial navigation for positioning and orientation; Integral navigation and intelligent navigation; Inertial devices and system testing; Bionic navigation; Geophysical field information matching assisted navigation; Guidance, control and simulation of aircraft; New-type inertial devices; Multi-source navigation information sharing and control.

(3)导航、制导与控制：惯性定位定向导航；组合导航与智能导航；惯性器件及系统测试；仿生导航；地球物理场信息匹配辅助导航；飞行器制导、控制与仿真；新型惯性器件；多源导航信息共享与控制

(4) Control Theory and Control Engineering: Modeling, control, optimization, decision and simulation of complex systems; Robust control and self-adaptive control; Nonlinear filtering and control; Integrated control and optimization of engineering systems; Design and analysis of motion control systems; Advanced control theory and methodologies; Biomedical information processing; Autonomous control of unmanned systems.

(4)控制理论与控制工程：复杂系统的建模、控制、优化、决策与仿真；鲁棒控制与自适应控制；非线性系统分析与控制；工程系统的综合控制与优化；运动控制系统分析与设计；先进控制理论与方法；生

物医学信息处理；无人系统自主控制。

(5) Intelligent Information Processing and Control: Systems engineering theory and its applications; Modeling, optimization and synthesis of systems; Analysis and control of complex systems; Network information processing and control; Neural network and deep learning; Fault diagnosis and reliability analysis; cloud control systems and its application.

(5)智能信息处理与控制：系统工程理论及应用；系统建模、优化与集成；复杂系统分析与控制；网络信息处理与控制；神经网络与深度学习；故障诊断与可靠性分析；云控制系统及应用。

(6) Electrical Engineering and Control: Power electronics conversion and control; Motor control and new-type motor design; High precision servo control; Renewable energy technology and its applications; New energy power systems and control; Control and management of smart grid; Theory and new technology of electrical engineering.

(6)电气工程与控制：电力电子变换与控制；电机控制与新型电机设计；高精度伺服控制；可再生能源技术及其应用；新能源电力系统与控制；智能电网控制与管理；电工理论新技术。

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.

培养具有良好的国际常识，具有传播中外文化能力的高层次创新人才，充分发挥国际研究生作为文化桥梁的作用。

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.

硕士研究生基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生的最长学习年限在 2 年的基础上延长 0.5 年。博士研究生的基本学制为四年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士研究生最长学习年限在 4 年的基础上再延长 2 年。

4. Curriculum and Credit Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course	0601003	Stochastic Processes Theory and Applications 随机过程理论及应用	32	2	1	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional Course	0601001	Linear Algebra in Automatic Control 自动控制中的线性代数	48	3	1	Compulsory	Master	Master≥6 Ph.D.≥2
	0601002	Linear Systems Theory 线性系统理论	48	3	1	Compulsory	Master	
	0601004	Optimal and Robust Control 最优与鲁棒控制	32	2	2	Optional	Master /Ph.D.	
	0601005	Computer and Distributed Control Systems 计算机与分布式控制系统	32	2	2	Optional	Master /Ph.D.	
	0601006	Kalman Filter and Multisensor Data Fusion 多源信息滤波与融合	32	2	2	Optional	Master /Ph.D.	
	0601007	Systems Engineering Principles and Applications 系统工程原理与应用	32	2	1	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course	0601008	Modern Power Electronics 现代电力电子学	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0601009	Game Theory and Control 博弈论与控制	32	2	2	Optional	Master /Ph.D.	
	0601010	Robot Perception 机器人感知	32	2	2	Optional	Master /Ph.D.	
	0601011	Modeling and Simulation of Intelligent Manufacturing System 智能制造系统建模与仿真	32	2	2	Optional	Master /Ph.D.	
	0600002	Progress in Control Science 控制科学进展	48	3	1	Compulsory	Ph.D.	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes：

1. Public Course

(1) Chines 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. Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3. Major Course

(1) Discipline Core Course

Different Programs can set their own Discipline Core Course.

(2) Major Optional Course

International students should choose course from their own program or from other programs. 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.

4. Courses in Chinese

Foreign students can take courses in Chinese from the program for the Academic Graduate Students.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学、物理、化学、生物、管理、人文类等学科基础课。

3）专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予工学硕士和工学博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation

Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

This discipline grants Master and Ph.D. degrees respectively to qualified Master's and Doctoral degree applicants.

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

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.

北京理工大学计算机科学与技术学科源于 1958 年设立的计算机专业，是我国最早建立的计算机专业之一。 1980 年成立计算机科学与工程系， 2005 年成立计算机科学技术学院， 2009 年 更名为计算机学院。学院为中国计算机科学与技术的教学、研究和产业发展做出了突出贡献。学院拥有“计算机科学与技术”一级学科博士点和博士后工作站。

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.

计算机科学是研究计算机如何进行信息获取、表示、存储、处理、控制等的理论、原则、方法和技术的学科。计算机科学与技术课程旨在为学生提供全面深入的计算机系统设计、编程、研究和应用等专业理论知识和技能，培养学生对计算机科学和计算机工程的基本原理和当前重要问题产生深刻的理解，使学生具备从事本专业领域技术工作或进一步深造的能力。

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.

研究生采用全日制管理模式， 实行在校课程学习和项目研究相结合的培养方式，旨在培养掌握计算机科学技术基础理论和专业知识，能够解决实际问题，承担专业技术任务的高层次专业人才。学生修满学分，在导师的指导下参与计算机科学与技术的研究或项目，并在此基础上完成学位论文的撰写，对符合要求的学位申请人将被授予硕士/博士学位。

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.

培养具有良好的国际视野，具有传播中外文化能力的高层次创新人才，充分发挥国际研究生作为文化桥梁的作用。

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.

硕士研究生基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生的最长学习年限在 2 年的基础上延长 0.5 年。博士研究生的基本学制为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士研究生最长学习年限在 4 年的基础上再延长 2 年。

4. Curriculum and Credit Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master=2 Ph.D. =2
Discipline Core Course	0701001	Computer Science and Technology Frontier 计算机科学与技术前沿	32	2	1	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional Course	0701002	Theory of Computation 计算理论	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0701003	Advanced Operating Systems 高级操作系统	32	2	1	Optional	Master /Ph.D.	
	0701004	Machine Learning and Knowledge Discovery 机器学习与知识发现	32	2	2	Optional	Ph.D.	
	0701005	Computer Graphics and Image Processing 计算机图形与图像处理	32	2	2	Optional	Master /Ph.D.	
	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	32	2	2	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course	0701008	Social Network Analysis 社交网络分析	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	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.	
	0701013	Network and Information Security 网络与信息安全	32	2	1	Optional	Master /Ph.D.	
	0701014	Advanced Computer Networks 高级计算机网络	32	2	1	Optional	Master /Ph.D.	
Total Credits	Master≥24 credits Ph.D.≥20 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. Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3. Major Optional Course

Under the guidance of the supervisor, International students are free to choose major optional course from their own program or from other programs.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学基础课。

3）专业选修课

在导师的指导下，学生可在本学科培养方案或全校专业课程库中选修专业选修课。

5. Practice Part

1. Academic Activity (1 credit) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2. Innovative Practice (1 credit) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

1. 文献综述与开题报告；2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Chemical Engineering and Technology

化学工程与技术

(081700)

1. Overview of the Program 概述

Chemical Engineering and Technology discipline of Beijing Institute of Technology is originated from the department of chemical engineering of Yan'an Academy of Natural Sciences which was founded in 1940. In 1952, department of chemical engineering and department of chemistry of Institut Franco-Chinoisof were merged to form the Department of Chemical Engineering of Beijing Institute of Technology, where famous teachers gathered together and laid the foundation for the development of the discipline.

北京理工大学化学工程与技术学科起源于 1940 年成立的延安自然科学院化学工程系，在 1952 年中法大学化学工程系和化学系合并加入，成立了北京理工大学化学工程系，汇聚了众多著名教师，为本学科的发展奠定了基础。

The discipline was authorized to confer master's degree in Chemical Engineering in 1982, doctor's degree in Applied Chemistry in 1984, master's degree in Chemical Technology and Biochemical Engineering in 1998, doctor's degree in Chemical Technology and Biochemical Engineering in 2003 and 2005 respectively, master's degree in Chemical Engineering and Technology in 2006, and doctor's degree in Chemical Engineering and Technology. In 2002, Applied Chemistry became the national key discipline, and it was recognized as the key basic discipline of Ministry of Industry and Information Technology in 2007. In 2012, Chemical Engineering and Technology was recognized as the key discipline of Ministry of Industry and Information Technology. In 2003, the post-doctoral station of Chemical Engineering and Technology was established. There are 31 PhD supervisors in the discipline, including 1 Cheung Kong Scholars Program distinguished professor, 2 winners of National Outstanding Youth Science Fund, 2 new century talents, 1 innovation team of the Ministry of Education. The discipline has Chemical power and green catalytic Beijing key laboratory, "Fuel cell distributed generation technology" international science and technology cooperation base, "Pharmaceutical Molecular Science and Pharmaceutical Engineering" of the Ministry of Industry and Information Technology key laboratory.

本学科在 1982 年获批化学工程硕士学位点，1984 年获批应用化学博士学位点，1998 年获批化学工艺和生物化工硕士学位点，2003 年获批化学工艺博士学位点，2005 年获批生物化工博士学位点，2006 年获批化学工程与技术硕士学位点和博士学位点。2002 年，应用化学专业成为国家重点学科，2007 年被认定为工业和信息技术部重点基础学科。2012 年，化学工程与技术专业被认定为工业和信息化部重

点学科。2003 年，成立化学工程与技术博士后流动站。本学科共有博士导师 31 人，包括长江学者杰出教授 1 人，国家优秀青年科学基金获得者 2 人，新世纪人才 2 人，教育部创新团队 1 人。本学科拥有化学电源与绿色催化北京市重点实验室、燃料电池分布式发电技术北京市国际科技合作基地、医药分子科学与制剂工程工信部重点实验室。

Through the hard work of several generations of colleagues for more than half a century, the discipline has developed a teaching and research system with obvious advantages and distinctive characteristics. The research direction extensively involves the basic theory and applied technology in the fields of new energy, applied chemistry, organic chemistry, biological chemistry, pharmaceutical engineering and so on. The discipline undertook a number of national and local major basic and applied research projects, reflecting the great demand of the frontiers of science and national economy. People in this discipline won many awards including Second Prize of National Natural Science Award and second prize of National Scientific and Technological Progress Award. A large number of outstanding talents have been cultivated, including Academician Xu Gengguang, Academician Dong Haishan and Academician Cui Guoliang.

经过几代人半个多世纪以来的勤奋工作，本学科形成了具有明显优势和显著特色的教学科研体系。研究方向涉及新能源、应用化学、有机化学、生物化学、制药工程等领域的基本理论和应用技术。本学科聚焦国民经济和科技发展前沿重大需求，承担了众多国家、地方基础和应用研究项目。本学科教师曾荣获国家自然科学二等奖、国家科技进步二等奖等多项奖励。本学科培养了大量优秀人才，包括徐更光院士、董海山院士、崔国梁院士。

The discipline is globally ranked 100th to 150th in the 2021 QS World University Rankings. In the fourth round of national discipline evaluation results released by the Ministry of Education in 2017, the discipline of Chemical Engineering and Technology ranked A-.

在 2021 年 QS 世界大学排名中，本学科位列全球排名第 100 至 150 位。在 2017 年教育部第四次学科评估中，化学工程与技术学科排名 A-。

The main research directions are as follows:

主要研究方向如下：

1. Chemical power and green catalysis 化学电源与绿色催化

This direction is mainly focused on electrochemical engineering, energy storage & conversion and green catalysis, had a strong advantage in the research and industrialization of solid oxide fuel cell, power system and battery.

该方向聚焦电化学工程、能源存储与转化、绿色催化等领域，在固体氧化物燃料电池、电源系统和电池基础研究与产业化方面具有很强的优势。

2. Chemical engineering 化学工程

This direction is mainly focused on the interface phenomena in the transfer process of multiphase systems, the basic laws of thermodynamics and dynamics of transfer and reaction processes, process intensification, integration and recombination of chemical processes, including the transfer mechanism intensification of reaction and separation processes, the coupling, simulation and controlling of integration and operation of reaction separation processes, novel membrane materials and membrane process, special separation materials and separation process, and catalytic materials and catalytic process, etc.

该方向聚焦多相体系转移过程中的界面现象、转移反应过程中的热力学和动力学基本规律、过程强化、化学过程整合与重组，包括反应分离过程的转移强化机理，反应分离过程的耦合、模拟与控制，新型膜材料和膜过程，特种分离材料和分离过程，催化材料和催化过程等。

3. Applied Chemistry 应用化学

This direction is mainly focused on the synthesis of energetic materials, physical and chemical properties and safety evaluation, synthesis technology of polyazocyclic compounds, biochemical sensing technology of explosives and dangerous goods, conductive film materials and flame retardant materials, etc.

该方向聚焦含能材料合成、理化性质和安全性评价，多氮化合物合成技术，炸药和危险品的生化传感技术，导电膜材料和阻燃材料等。

4. Novel drug creation and green synthesis 新药物创制与绿色合成

This direction is mainly focused on novel drugs, preparations, intermediates and synthesis technology, green and chiral synthesis technology, advanced manufacturing technology of special fluorine containing fine chemicals, synthesis technology and performance of functional ionic liquid materials.

该方向聚焦新型药物、制剂、中间体及合成技术，绿色和手性合成技术，特殊含氟精细化学品先进制造技术、功能离子液体材料的合成技术和性能等。

5. Biochemical engineering 生物化工

This direction is mainly focused on biomedical engineering, biocatalytic engineering, metabolic engineering and synthetic biology, space biotechnology, biological separation and analysis technology, etc., with the advantages in biomedical engineering, natural product biosynthesis, anti-stress biotransformation and engineering applications, new biological reactions and enzyme design and transformation.

该方向聚焦生物医学工程，生物催化工程，代谢工程与合成生物学，空间生物技术，生物分离分析技术等，在生物医学工程、天然产物合成、抗应激生物转化与工程应用、新生物反应与酶设计转化等方面具有优势。

2. Training Target 培养目标

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.

目标是培养具有良好国际常识知识、具备传播中外文化能力的高水平创新人才，充分发挥国际研究生作为文化桥梁的作用。

3. Length of Schooling 学制

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.

硕士生的基本修业年限为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生最长修业年限在 2 年基础上延长 0.5 年。博士生的基本修业年限为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士生的最长学习年限在 4 年的基础上延长 2 年。

4. Curriculum and Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕/博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕/博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕/博	
Basic Course 基础课	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	
	1701007	Modern Regression Techniques in Data Sciences 现代回归方法	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Discipline Core Course 学科核心课	1001012	Pharmaceutic-al Dosage Forms and Technology 药物制剂与工艺	32	2	1	Optional 选修	Master /Ph.D. 硕/博	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	1001013	Synthetic Biotechnology 合成生物技术	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1001020	Chemistry and Chemical Engineering Statistical Thermodynamics 化学与化学工程统计热力学	48	3	2	Optional 选修	Master /Ph.D. 硕/博	
	1001021	Heterogeneous Catalysis For Energy Applications 能源应用当中的多相催化	32	2	1	Optional 选修	Master /Ph.D 硕/博.	
	1001022	Principles of Membranes and Membrane Processes 膜与膜过程原理	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1001023	Carbon neutral chemical technology 碳中和化工技术	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
Major Optional Course 专业选修课	1001011	Chemical Biology 化学生物学	32	2	2	Optional 选修	Master /Ph.D. 硕/博	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	1001014	Drug Design 药物分子设计	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1001017	Coordination Chemistry 配位化学	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1001018	X-Ray Crystallography X 射线晶体学	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1001006	Spectrometric Identification of Organic Compound 有机波谱分析	32	2	1	Optional 选修	Master /Ph.D. 硕/博	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	1001024	Advanced Instrumental Analysis 高等仪器分析	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1001025	Organometallic Chemistry 金属有机化学	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1001026	Fundamentals of Materials Science and Engineering 材料科学与工程基础	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
Total Credits	Master≥24 credits Ph.D.≥20 credits 硕士≥24 博士≥20							

Notes：

1).Public Course

(1) Chines 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) Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3) Discipline Core Course

Different Programs can set their own Discipline Core Course.

4) Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

如果表中列出的数学课程不能满足要求，不同的课程计划可以设置自己的基础课程。

3）学科核心课

不同的学科培养方案可以设置自己的学科核心课程。

4）专业选修课

国际留学生可在本学科培养方案或其他培养方案中选修课程。在导师的指导下，硕士留学生可以根据需要选修本科课程，博士留学生可以根据需要选修本科课程。

5. Practice Part

1) Academic Activity (1 credits) 学术活动（1 学分）

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.

国际留学研究生需要参加自己领域的学术活动、学术讲座和学术会议，并强烈建议在校内或校外的学术会议上做口头报告。

2) Innovative Practice (1 credits) 实践活动（1 学分）

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

国际留学研究生在学习期间应参与科研培训和社会实践，并由导师负责考核与评价。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

1. 文献综述与开题报告； 2. 中期检查；3. 论文撰写与博士论文预答辩；4. 论文答辩；5. 学位申请。

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前

Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周（含）前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、课程内容、参考文献。

Aeronautics & Astronautics Science & Technology

航空宇航科学与技术

(082500)

1. Overview of the Program 学科简介

Aerospace engineering is the primary branch of engineering concerned with the design, construction, operation and those of related to flight vehicles. It consists of two major branches: aeronautical engineering and astronautical engineering, respectively dealing with flight vehicles that operate inside and outside the Earth's atmosphere. The full-time graduate student program of Aerospace Engineering will provide our students with opportunities for further development in aerospace technical areas, aiming at cultivating the high-level professionals with solid theoretical and practical background in aerospace engineering. This program involves both fundamental courses and research project. Coursework will focus on aerospace fundamentals, mainly including guidance and control, fluid mechanics, and propulsion. The project will investigate challenging and fundamental problems in aerospace science and technology under the guidance of a supervisor.

航空宇航科学与技术是涉及飞行器相关设计、建造、运行的工程学的主要分支。它由两个主要分支组成：航空工程和航天工程，分别涉及在地球大气层内部和外部运行的飞行器。航空宇航科学与技术全日制研究生项目将为学生提供在航空航天技术领域进一步发展的机会，旨在培养具有扎实的航空航天工程理论和实践基础的高层次专门人才。该研究生项目包括基础课程和研究项目。基础课程将侧重于航空航天基础知识，主要包括制导和控制、流体力学和推进。研究项目将在导师的指导下研究航空航天科学技术中具有挑战性的基本问题。

2. Training Target 培养目标

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.

目标是培养具有国际意识、传播中外文化能力的高层次创新人才，充分发挥留学研究生的文化桥梁作用。

3. Length of Schooling 学制

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.

硕士生基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不少于一年。硕士生最长学制在 2 年的基础上延长 0.5 年。博士学位的基本学制为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不少于三年。博士学位的最长学制在 4 年的基础上延长 2 年。

4. Curriculum and Credits Requirements 课程设置与学分要求

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
Public Course	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course	0101005	Control Theory 控制理论	32	2	1	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	0101006	Orbital Mechanics 轨道力学	48	3	1			
	0101003	Fundamentals of Aerospace Propulsion 宇航推进原理	48	3	1			
	0101015	Fluid Mechanics 流体力学	48	3	2			
Major Optional Course	0101004	Guidance and Control Theory for Flight Vehicle 飞行器制导与控制理论	32	2	1	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0101013	Optimal Control 最优控制	32	2	2			

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course	0101016	Analytical Mechanics and Nonlinear Control for Spacecraft Attitude 航天器姿态分析力学与非线性控制	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0101017	Cooperative Control over Networked Systems and its Applications 网络系统的协同控制及其应用	32	2	2			
	0101018	Modern Aircraft Configuration Design 现代飞行器布局设计	32	2	2			
	0101007	Reactive Flow in Jet Propulsion 喷气反应流	32	2	2			
	0101011	Introduction of Combustion Instability 燃烧不稳定性概论	32	2	2			
	0101019	Introduction to Unmanned Intelligent Swarm 无人智群导论	32	2	2			
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes：

1. Public Course

(1) Chines 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. Basic Course

If the mathematic courses listed in the chart can’t meet the requirement, different programs can set their own basic course.

3. Major Course

(1) Discipline Core Courses

Different Programs can set their own Major Core Course.

(2) Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1. 公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2. 基础课

研究生需要必修一门学科基础课。

3. 选修课

（1）学科核心课

不同专业可以设置自己的专业核心课程。

（2）专业选修课

留学生应从自己的项目或其他项目中选择课程。硕士留学生在导师指导下，根据需要可以选修本科课程。博士留学生根据需要也可选修本科课程。

5. Practice Part 实践环节

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.

1. 学术活动（1 学分）

留学研究生需要参加本领域的学术活动、学术讲座和学术会议。强烈建议在校内或者校外学术会议上进行口头报告。

2. 实践活动（1 学分）

留学研究生在学习期间应当进行科学研究训练和社会实践，并由导师负责组织实施和考核。

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 and 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, and methods of research, technical route, implementary plan, arrangements and expected results.

2. Mid-Term Evaluation (for Ph.D. students)

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.

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*.

1. 文献综述及开题报告

留学研究生应在导师的指导下，选择研究方向，同时阅读一定量的中外文参考书。

硕士生应在阅读本研究领域的 30 篇以上中外文论文的基础上，撰写不少于 4000 字的文献综述。

博士生应在阅读本研究领域的 50 篇以上中外文论文的基础上，撰写不少于 5000 字的文献综述。

在文献综述的基础上，开题报告应主要包含以下内容：研究目标、研究意义、研究方法、技术路线、实施计划、安排和预期结果。

2. 中期检查（博士生）

学校组织对留学生进行中期检查，包括对其课程学习、文献综述、开题报告、发表论文和学位论文研究进展等进行检查。

3. 论文写作及论文预答辩（博士生）

国际研究生应在导师指导下完成学位论文。博士生完成导师批准的初稿后可以参加论文预答辩。

4. 论文答辩

论文获得批准并经学位评定委员会授权后，留学研究生即可参加论文答辩。

5. 学位授予

国际学生申请硕士或博士学位时应按规定取得一定的学业成绩。每个项目应明确硕士和博士学位的类别。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程代码、课程名称、学时、学分、课程描述及课程目标、教学方法、评价与考试、适合专业、先修科目、课程内容、参考资料。

Armament Science and Technology

兵器科学与技术

(082600)

1. Overview of the Program（项目概览）

The Armament Science and Technology Discipline, founded in1950s, is the earliest national defense discipline in China and has been qualified to recruit PhD students since 1984. In 2007, it is awarded the national first-level discipline and ranks Top 1 in the national discipline assessments in 2008, 2012, and 2017. The discipline now has research teams with profound academic knowledge, reasonable structure, solidify cooperation, innovation, and outstanding contributions, led by a lot of talent researchers including academician, Chang Jiang scholars, outstanding youth fund winners, etc. and has a high-level innovative research platform consists of the Science and Technology Innovation Team and the National Defense Science and Technology Innovation Team honored by Ministry of Education and the Ministry of Industry Information Technology. Together with National Key Laboratory, National Defense Science and Technology Key Laboratory, and the Key Laboratory of the Ministry of Education,.

兵器科学与技术学科创建于上世纪 50 年代，是我国最早的国防学科，1984 年获得招收博士研究生资格。2007 年被评为国家一级学科，2008 年、2012 年和 2017 年在全国学科评估中名列前茅。目前，本学科拥有学术造诣深厚、结构合理、团结协作、勇于创新、贡献突出的研究团队，拥有包括院士、长江学者、杰出青年基金获得者等在内的一大批科研人才，拥有由教育部和工信部授予的科技创新团队和国防科技创新团队、国家重点实验室、国防科技重点实验室、教育部重点实验室等高水平创新研究平台。

The Armament Science and Technology is consist of six secondary disciplines as following:

兵器科学与技术由以下六个二级学科组成：

(1) Weapon Design and Application Engineering. It mainly studies theory and method of weapon system design, weapon integration and system confrontation, integrated design of weapon and platform, weapon launch and ballistic planning, unmanned aerial vehicle system technology, intelligent robot, precision guided weapon, intelligent and dexterous weapon cross-domain coordination accusation technology and new probability, the new concept of system, and so on.

(1）武器设计与应用工程。主要研究武器系统设计理论与方法、武器集成与系统对抗、武器与平台集成设计、武

器发射与弹道规划、无人机系统技术、智能机器人、精确制导武器、智能灵巧武器跨域协同指控技术与新概率、系统新概念等。(2) Damage Technology and Ammunition Engineering. It mainly studies damage mechanism and theory, warhead technology, ammunition design theory, damage assessment, integrated damage, ammunition and platform integration, photo electricity and magnetic damage, cyber damage, new concept of damage, and so on.

(2) 毁伤技术与弹药工程。主要研究损伤机理与理论、弹头技术、弹药设计理论、损伤评估、综合损伤、弹药与平台集成、光电与磁损伤、网络损伤、新概念损伤等

(3) Explosion impact and advanced protection. It mainly studies theory of detonation and explosion, shock dynamics of material and structure, theory and application of high speed penetration, calculation of explosion mechanics, shock wave physics and chemistry, underwater explosion and impact, mechanism of biological damage, hypervelocity collision, new concept explosion theory, and so on.

(3）爆炸冲击与先进防护。主要研究爆轰理论、材料与结构的冲击动力学、高速侵彻理论与应用、爆炸力学计算、冲击波物理与化学、水下爆炸与冲击、生物损伤机理、超高速碰撞、新概念爆炸理论等。(4) Energetic Materials and Special Energy. It mainly studies high energy density compounds, green energetic compounds, high energy mixed explosives, complex system energetic materials, high active energy storage materials, high efficiency functional materials, advanced pyrotechnics, military pyrotechnics and materials, special energy devices and materials, solid state storage batteries and materials, new concept energetic materials, new concepts of energy, and so on.

(4）含能材料与特种能源。主要研究高能量密度化合物、绿色高能化合物、高能混合炸药、复杂体系高能材料、高活性储能材料、高效功能材料、先进烟火、军用烟火与材料、特种能源器件与材料、固态储能电池与材料、新概念高能材料、新概念能源等。

(5) Target Detection and Ammunition Information. It mainly studies target detection, ammunition intelligent control, weapon terminal information confrontation, ammunition information, intelligent information processing, intelligent cluster technology, damage control, single soldier equipment digitalization, new concept of detection technology, and so on.

(5) 目标探测与弹药信息。主要研究目标探测、弹药智能控制、武器终端信息对抗、弹药信息化、智能信息处理、智能集群技术、毁伤控制、单兵装备数字化、新概念探测技术等。

(6) Intelligent Unmanned Technology and System. It mainly studies the overall design of intelligent unmanned systems, intelligent perception and information processing technologies, intelligent drive and control

technologies, multi-agent collaborative planning and decision-making technologies, artificial intelligence algorithms and their applications, integrated technology of intelligence, surveillance, and reconnaissance (ISR) and its applications, micro-intelligent ammunition technology and its applications, and general quality characteristics of intelligent unmanned systems ,and so on.

(6）智能无人技术与系统。主要研究智能无人系统体系架构及总体设计，智能感知与信息处理技术，智能驱动控制技术，多智能体集群协同规划与决策技术，人工智能算法及其应用技术、智能察打一体技术及其应用、微小型智能弹药技术及其应用、智能无人系统通用质量特性等。

2. Training Target（培养目标）

The target is to train high-level innovative talents who have 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.

目标是培养具有国际视野、拥有中外文化传播能力的高层次创新型人才，充分发挥国际研究生的文化桥梁作用。

3. Length of Schooling（学制）

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.

硕士生的基本学制为 2 年。学生原则上应在第一学年完成课程。论文工作时间不得少于一年。硕士生的最长学习年限在 2 年的基础上延长 0.5 年。博士生的基本修业年限为 4 年。学生原则上应在第一学年完成课程学习。论文工作时间不得少于 3 年。博士生最长学习年限在 4 年的基础上延长 2 年。

4. Curriculum and Credit Requirements

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 必修/选修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory	Master /Ph.D.	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 必修/选修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
Basic Courses 基础课	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	modern regression techniques in data sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course 学科核心课	0201007	Engineering Design of Conventional Warheadsy 常规战斗部工程设计	32	2	1	Optional	Master	Master≥2 Ph.D.≥2
	0201008	Mobile Computing 移动计算	32	2	2		Master /Ph.D.	
	0201009	Chemistry of energetic materials 含能材料化学	32	2	1		Master /Ph.D.	
	0201010	Continuum Mechanics 连续介质力学	32	2	2		Master /Ph.D.	
	0201011	Dynamic Behaviors of Materials 材料动态力学行为	32	2	2		Master /Ph.D.	
Major Optional Course	0201006	Flight Dynamics Principles 飞行系统动力学	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0201018	Theory of elasticity 弹性理论	32	2	1		Master /Ph.D.	
	0201012	Physical Gas Dynamic 气体动力学	32	2	1		Master /Ph.D.	
	0201013	Micro- & nanoscale Energetic Materials and Devices 微纳含能材料与器件	32	2	2		Master /Ph.D.	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 必修/选修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Major Optional Course 专业选修课	0201014	Molecular dynamics theory and computation 分子动力学理论与计算	32	2	1	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0201015	Structural Response to Blast Loading 结构冲击动力学响应	32	2	2		Master /Ph.D.	
	0201016	Shock physics and chemistry 冲击波物理与化学	32	2	1		Master	
	0201005	Safety Engineering: Theory and Practice 安全工程：理论与实践	32	2	2		Master /Ph.D.	
	0201001	Introduction to Combustion and Detonation 燃烧与爆轰基础	32	2	1		Master /Ph.D.	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes：

1. Public Course（公共课程）

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

(1) 中文： 由北京理工大学留学生中心开设。所有留学生必须选修。

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

(2) 《中国概况》： 由北京理工大学留学生中心开设。所有留学生必须选修此必修课。

2. Basic Course（基础课程）

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

如果图表中列出的数学课程不能满足要求，不同的专业可以设置自己的基础课程。

3. Discipline Core Course（学科核心课）

Different Programs can set their own Discipline Core Course.

不同专业可设置自己的学科核心课程。

4. Major Optional Course（专业选修课）

International students should choose course from their own program or from other programs. 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.

留学生应选择本专业或其他专业的课程。在导师的指导下，硕士留学生可根据需要选修本科课程。博士留学生可根据需要选修本科课程。

5. Practice Part

1. Academic Activity (1 credit) **学术活动（1 学分）**

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.

国际研究生需要参加本专业的学术活动、学术讲座和学术会议。强烈建议在校内外的学术会议上做口头汇报。

2. Innovative Practice (1 credit) **实践活动（1 学分）**

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

国际研究生在培养期间应参加科研训练和社会实践，并由导师进行考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

1. 文献综述和开题报告；2.中期检查；3.论文写作和论文预答辩（针对博士生）；4.论文答辩；5.学位授予

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

更多详情，请参阅《北京理工大学来华留学生培养程序规定》、《北京理工大学博士生学位论文预答辩规定》和《北京理工大学学位授予工作实施细则》。

Time Nodes of Relevant Procedure

培养环节时间节点要求

The Dissertation Related Work **培养环节及学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献调研&开题报告	Before week 1 of the 3rd semester 第 3 学期前一周	Before week 1 of the 5th semester 第 5 学期前一周
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester
Thesis Pre-Defense 博士论文预答辩	——	Before Review
Thesis Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 12 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位授予	The application should be raised in a certain time after the Thesis Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Safety Science and Engineering

安全科学与工程

(083700)

1. Overview of the Program（项目概览）

The construction of safety science and engineering relies on the National Key Laboratory of Explosive Science and Safety Protection, which has established a discipline system featuring combustion and explosion safety. The discipline has a high academic level, a reasonable structure of the academic team and advanced systematic research platform, to provide superior conditions for personnel training and scientific research.

安全科学与工程学科建设依托爆炸科学与安全防护全国重点实验室，建立了以燃烧与爆炸安全为特色的学科体系。该学科具有较高的学术水平、合理的学术队伍结构和先进的系统研究平台，为人才培养和科学研究提供了优越的条件。

This subject develops postgraduate training programs according to first-level disciplines. There are five major research directions.

该学科根据一级学科制定研究生培养计划。主要有五个研究方向。

1. Systematic safety theory and evaluation: Multi-factor system safety theory and method, system safety evaluation theory and method, hazard identification and evaluation method, accident causation theory under multi-factor cooperation, risk analysis and evaluation of complex system, Regional quantitative risk assessment (AQRA) theory and methods.

1. 系统安全理论与评价： 多因素系统安全理论与方法、系统安全评价理论与方法、危险辨识与评价方法、多因素耦合作用下的事故因果理论、复杂系统的风险分析与评价、区域定量风险评价（AQRA）理论与方法。

2. Dangerous substances and safety engineering: hazardous characteristics of inflammable and explosive and other dangerous substances, critical explosion criteria, hazard identification, reaction mechanism and safety theory, design, preparation and safety of flammable and explosive hazardous substances.

2. 危险物质及其安全性：易燃易爆等危险物质的危险特性、临界爆炸标准、危险识别、反应机理与安全理论、易燃易爆危险物质的设计、制备与安全。

3. Disaster evolution dynamics: kinetic theory of the initiation, propagation, combustion and explosion of explosive hazards, the induction mechanism and process of explosion accidents, environmental conditions and physical and chemical properties of hazards, etc.

3. 灾害演化动力学：爆炸危险物的起爆、传爆、燃烧和爆炸的动力学理论，爆炸事故的诱发机理和过程，环境条件和危险物的物理和化学性质等对事故诱导过程的影响，事故诱导临界条件和演化规律。

4. Safety monitoring and accident reconstruction: real-time on-line monitoring of system parameters before accidents and accidents, rapid disposal of insecure conditions, on-sits and effects, accident investigation and analysis, and accidents Prevent emergency plans.

4. 安全监控与事故再现：事故发生前和事故发生后系统参数的实时在线监测，不安全状态、现场及影响的快速处置，事故调查分析，事故预防应急预案。

5. Engineering safety and control technology: Engineering safety system research, major dangerous installations and accident prevention, emergency plan design, blasting engineering safety theory, engineering blasting effect and shock absorption control technology, engineering disaster numerical simulation technology.

5. 工程安全与控制技术： 工程安全系统研究、重大危险工程隐患与事故预防、应急预案设计、爆破工程安全理论、工程爆破地震效应与减震控制技术、工程灾害数值模拟技术。

2. Training Target（培养目标）

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.

目标是培养具有国际视野、拥有中外文化传播能力的高层次创新型人才，充分发挥国际研究生的文化桥梁作用。

3. Length of Schooling（学制）

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.

硕士生的基本学制为 2 年。学生原则上应在第一学年完成课程。论文工作时间不得少于一年。硕士生的最长修业年限在基本学制的基础上增加 0.5 年。博士生的基本修业年限为 4 年。学生原则上应在第一学年完成课程学习。论文工作时间不得少于 3 年。博士生最长修业年限在基本学制基础上增加 2 年。

4. Curriculum and Credit Requirements

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory/ Optional 必修/选修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course 基础课	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	modern regression techniques in data sciences 现代回归法	32	2	1/2	Optional	Master /Ph.D.	
Discipline Core Course 学科核心课	0201001	Introduction to Combustion and Detonation 燃烧与爆轰基础	32	2	1	Compulsory	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional course 专业选修课	0201002	Combustion and Explosion Measurement Technology 燃烧与爆炸测试基础	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	0201003	Principals of System Safety Evaluation 系统安全评估原理	32	2	2	Optional	Master /Ph.D.	
	0201004	Introduction & Application of	32	2	2	Optional	Master	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 必修/选修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
		Hazardous Chemicals 危险化学品概论及应用						Master≥6 Ph.D.≥2
	0201005	Safety Engineering: Theory and Practice 安全工程：理论与实践	32	2	2	Optional	Master	
Total Credits	Master≥24 credits Ph.D.≥20 credits							

Notes（说明）：

1. Public Course（公共课程）

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

(1) 中文：由北京理工大学留学生中心开设。所有留学生必须选修。

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

(2) 《中国概况》： 由北京理工大学留学生中心开设。所有留学生必须选修。

2. Discipline Core Course（学科核心课）

Academic postgraduates and PhD students should take at least 2 credits of Discipline Core Course.

学术研究生和博士生应修读至少 2 个学分的学科核心课程。

3. Major Optional Course（专业选修课）

International students should choose course from their own program or from other programs. 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.

留学生应选择本专业或其他专业的课程。在导师的指导下，硕士留学生可根据需要选修本科课程。博士留学生可根据需要选修本科课程。

5. Practice Part（实践环节）

1. Academic Activity (1 credit) 学术活动（1 学分）

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.

国际研究生需要参加本专业的学术活动、学术讲座和学术会议。建议在校内外的学术会议上做口头汇报。

2. Innovative Practice (1 credit) 实践活动（1 学分）

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

国际研究生在培养期间应参加科研训练和社会实践，并由导师进行考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

1. 文献综述和开题报告；2.中期检查；3.论文写作和论文预答辩（针对博士生）；4.论文答辩；5.学位授予

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

更多详情，请参阅《北京理工大学来华留学生培养程序规定》、《北京理工大学博士生学位论文预答辩规定》和《北京理工大学学位授予工作实施细则》。

Time Nodes of Relevant Procedure

培养环节时间节点要求

The Dissertation Related Work **培养环节及学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献调研&开题报告	Before week 1 of the 3rd semester 第 3 学期前一周	Before week 1 of the 5th semester 第 5 学期前一周
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第 7 学期前一周
Thesis Pre-Defense 博士论文预答辩	——	Before Review 论文评阅送审前完成
Thesis Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 12 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位授予	The application should be raised in a certain time after the Thesis Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Cyberspace Science

网络空间安全

(083900)

1. Overview of the Program（概述）

The program of network and information security comprises four major directions, including Cyberspace Security Fundamentals, Cryptography and Application, Space Network and Secure Communication, and Information Security and Confrontation. This program is designed to meet the critical demand of cyberspace security and is intended to both exercise the concept of "new engineering" to cultivate talents and train students who possess solid theoretical, professional and practical abilities in the fields of information security, computer and network engineering and advanced computing and information security (i.e. artificial intelligence security, data security, etc.). Furthermore, in this program we can systematically master the professional knowledge of electromagnetic space security, cyberspace security, computing system security and Internet governance. The program of network and information security is the main construction specialty of the college, which mainly serves the general needs of various industries for talents in cyberspace science and technology. The employment rate is among the highest across all fields and the career prospect is promising.

网络与信息安全专业包括四个主要方向：网络空间安全基础、密码学与应用、空天网络与安全通信、信息安全与对抗。该专业是满足网络空间安全领域关键技术需求，旨在践行“新工程”理念，培养在信息安全领域具有扎实理论、专业实践能力，以及在计算机与网络工程方面和高级计算与信息安全（即人工智能安全、数据安全等）方面的专业人才。此外，在该课程中，我们可以系统地掌握电磁空间安全、网络空间安全、计算系统安全和互联网治理的专业知识。网络与信息安全专业是学院的主要建设专业，主要服务于各行业对网络空间科技人才的普遍需求。具有非常好的就业前景。

2. Training Target（培养目标）

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.

目标是培养具有良好国际常识、具有传播中外文化能力的高层次创新人才，充分发挥国际研究生的文化桥梁作用。

3. Length of Schooling（学制）

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.

硕士研究生的基本教育年限为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于一年。硕士研究生的最长学习年限在 2 年的基础上延长 0.5 年。博士生的基本教育年限为 4 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于三年。博士生的最长学习年限在 4 年的基础上延长 2 年。

4. Curriculum and Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory	Master /Ph.D.	Master=14 Ph.D.=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory	Master /Ph.D.	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	
Basic Course	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional	Master /Ph.D.	
	1701007	Modern Regression Techniques in Data Sciences 现代回归方法	32	2	1/2	Optional	Master /Ph.D.	
DisciplineCore Course	1201005	网络空间安全导论 Introduction to Cybersecurity	32	2	1	Optional	Master /Ph.D.	Master≥2 Ph.D.≥2
Major Optional Course	1201001	数字媒体安全 Digital Media Security	32	2	2	Optional	Master /Ph.D.	Master≥6 Ph.D.≥2
	1201002	移动通信安全理论与技术 Mobile Communications: Threats and Countermeasures	32	2	2	Optional	Master /Ph.D.	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	1201003	智能信号处理 Intelligent Signal Processing	32	2	2	Optional	Master /Ph.D.	
	1201004	物联网安全 Internet of Things Security	32	2	1	Optional	Master /Ph.D.	
TotalCredits	Master≥24credits Ph.D.≥20credits							

Notes：

1).Public Course

(1) Chines 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)Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3)Discipline Core Course

Different Programs can set their own Discipline Core Course.

4) Major OptionalCourse

International students should choose course from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学、物理、化学、生物、管理、人文类等学科基础课。

3）专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予工学硕士和工学博士学位。

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT*and*Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成

Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Management Science and Engineering

管理科学与工程

(120100)

1. Overview of the Program

Management Science and Engineering was established in 1980. Our program is one of the first universities that were approved to offer the degree of Management Science and Engineering. The program consists of six main research areas: Decision-Making Theory and Methods, Information Management and Information Systems, System Reliability and Risk Management, Complex System Modeling and Management Systems Engineering, Knowledge Management and Innovation Management, and Defense Mobilization Theory and Methods.

管理科学与工程学科始建于 1980 年，我校是全国首批获得管理科学和工程学位授予权的单位之一，该学科主要包括六个研究方向：决策理论与方法，信息管理与信息系统，系统可靠性与风险管理，复杂系统建模与管理系统工程，知识管理与创新管理，国民经济动员理论与方法。

2. Training Target

The aim of our program is to cultivate high-level innovative talents with good international vision and cross-cultural communication, serving as the bridge of communication between Chinese and foreign cultures.

培养具有良好国际视野、跨文化沟通能力，能充分发挥文化交流桥梁作用的高水平创新人才。

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. 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.

硕士研究生的基本学制是 2 年，学生应在第一学年完成课程，论文写作时间不应少于一年，最长修业年限在 2 年学制基础上可延长 0.5 年。博士生学制为 4 年，学生应在第一学年完成课程。论文写作时间不得少于三年，最长学习年限在 4 年学制基础上可延长 2 年。

4. Curriculum and Credit Requirements

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博	
Basic Course 基础课	2101001	Intermediate Microeconomics 中级微观经济学	32	2	1/2	Optional 选修	Master 硕士	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	2101002	Advanced Microeconomics 高级微观经济学	32	2	1/2	Optional 选修	Ph.D. 博士	
	2101003	Research Methodology 研究方法	32	2	1/2	Optional 选修	Master 硕士	
	2100154	Advanced Probability and Mathematical Statistics 高等概率与数理统计	32	2	1/2	Compulsory 必修	Master 硕士	
	2100135	Application of Fuzzy Mathematics 应用模糊数学	32	2	1/2	Optional 选修	Master 硕士	
	2100145	Decision Theory and Applications 决策理论及应用	32	2	1/2	Compulsory 必修	Ph.D. 博士	
Discipline Core Course 学科核心课	2101004	Efficiency and Productivity Analysis of	32	2	1/2	Optional 选修	Master /Ph.D. 硕博	Master≥2 Ph.D.≥2 硕士≥2

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
		Energy and Environment 能源环境效率与生产率分析						博士≥2
	2101005	Industry Green Management and Optimization 行业绿色管理及优化	32	2	1/2	Optional 选修	Master /Ph.D. 硕博	
	2100134	Operations Research II 运筹学II	32	2	1/2	Compulsory 必修	Master 硕士	
	2100146	Introduction to Decision-Making Methods 决策方法导论	32	2	1/2	Compulsory 必修	Master 硕士	
Major Optional Course 专业选修课	2101006	Management Information Systems 管理信息系统	32	2	1/2	Optional 选修	Master 硕士	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	2101007	Operations Research 运筹学	48	3	1/2	Optional 选修	Master 硕士	
	2101008	Intermediate Econometrics 中级计量经济学	32	2	1/2	Optional 选修	Master 硕士	
	2101009	Macroeconomics 宏观经济学	32	2	1/2	Optional 选修	Master /Ph.D. 硕博	
	2101010	Advanced Econometrics 高级计量经济学	32	2	1/2	Optional 选修	Master /Ph.D. 硕博	
	2100031	Logistics and Supply Chain Management 物流与供应链管理	32	2	1/2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	2100098	Industrial Engineering: Theory and Methods 工业工程理论与方法	32	2	2/2	Optional 选修	Master 硕士	
	2100156	Advanced Theory of Service Quality and Service Innovation 服务质量与服务创新理论前沿	32	2	1/2	Optional 选修	Master 硕士	
	2100157	Services Science 服务科学	32	2	2/2	Optional 选修	Ph.D. 博士	
	2100155	Complex System Modeling and Simulation 复杂系统建模与仿真	32	2	2/2	Optional 选修	Ph.D. 博士	
Total Credits 合计	Master≥24 credits 硕士≥24 Ph.D.≥20 credits 博士≥20							

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. Basic Course

Different Programs can set their own Basic Course.

3. Discipline Core Course

Different Programs can set their own Discipline Core Course.

4. Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学、物理、化学、生物、管理、人文类等学科基础课。

3）专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予 XX 硕士和 XX 博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Business Administration

工商管理

(120200)

1. Overview of the Program

The discipline of Business Administration was established in 1980, and was granted a master's degree in enterprise management secondary discipline in 1990 and a doctoral degree in enterprise management secondary discipline in 2003. In 2001, a second-level master's degree in Technology Economics and Management was added, and in 2005, a second-level master's degree in Accounting was added.The center for post-doctoral studies in business administration first-level discipline was added in 2009. Besides, the degree-granting of doctor's degrees in business administration first-level discipline was received in 2010. Business administration discipline for the bachelor's degree includes three disciplines: marketing, accounting and business administration.

工商管理学科建于 1980 年，1990 年获企业管理专业二级学科硕士学位授予权，2003 年获企业管理专业二级学科博士学位授予权，2006 年企业管理专业被评为北京市重点学科。2001 年增设技术经济及管理专业二级学科硕士学位授权，2005 年增设会计专业二级学科硕士学位授权。2009 年增设工商管理一级学科博士后科研流动站，2010 年工商管理学科获得一级学科博士学位授权。工商管理类本科专业有市场营销、会计和工商管理三个专业。

After thirty years of construction and development, it has achieved fruitful results in education and research in training undergraduates, master students, doctoral students, MBA and EMBA, and has accumulated rich experience and delivered a large number of senior management talents to the society.

经过三十年的建设和发展，在培养本科生、硕士研究生、博士研究生、MBA、EMBA 的教育和科研方面取得了丰硕成果，并积累了丰富的经验，为社会输送了大量的高级管理人才。

The first-level discipline of business administration has strong faculty strength and distinctive professional orientation. There are nearly 50 full-time faculty members, including 12 professors, 23 associate professors and 11 doctoral supervisors; the discipline has six professional research directions: military-civilian integration and organizational innovation, technology economics and management, innovation management and sustainable development, organizational behavior and human resource management, marketing, accounting and financial management; together with the three professional degrees of EMBA, MBA and Master of Accounting, business

administration first-level discipline in our school includes almost all the disciplines and programs from undergraduate to doctoral level. In addition, according to the structure of our administrative organization system, the first level of business administration covers the Department of Technology Economics and Management, the Department of Marketing, the Department of Accounting and the Department of Human Resource Management.

我院工商管理一级学科师资力量雄厚，专业方向特色鲜明。现有全职教师近 50 人，其中教授 12 人，副教授 23 人，博士生导师 11 人；学科下设六个专业研究方向：军民融合与组织创新、技术经济及管理、创新管理与可持续发展、组织行为与人力资源管理、市场营销、会计与财务管理；加上 EMBA、MBA 和专业会计硕士三个专业学位，我院工商管理学科几乎包括了从本科到博士的所有下设的学科专业领域和项目。另外，按我院行政组织体系架构，工商管理一级学科涵盖技术经济及管理系、市场营销系、会计系和人力资源管理系。

The academic specialties and their strengths and characteristics are as follows :(1) Military and civilian integration and organization innovation: Highlighting the characteristics of national major demand areas, it achieves key breakthroughs in the fields of integrated military-civilian development, organizational models, and innovation methods to meet the broad needs of national development and social progress. The research focuses on the construction of a science and technology innovation system that integrates the military with the people, the two-way spillover, expansion and transfer of dual-use technologies, organizational innovation and mechanism design, the construction of high-level innovation teams, and science and technology human resource development strategies.

学科专业方向及其优势特色如下：

1.军民融合与组织创新

突出国家重大需求领域特色，在军民融合发展、组织模式、创新方法等领域实现重点突破，以适应国家发展与社会进步的广泛需求。重点研究寓军于民、军民融合的科技创新体系构建，军民两用技术的双向溢出、扩张与转移，组织创新与机制设计，高层次创新团队构建，科技人力资源开发战略等问题。

(2) Technological economics and management: This discipline firstly focuses on the strategic deployment of national independent innovation, with emphasis on technological innovation, technology diffusion, industrial transfer, regional economy, and the development of new strategic industries, providing an important decision-making basis for relevant government departments to formulate policies. Secondly, it pays close attention to the practical problems in national economic development, researches the theory and methods of technical and

economic evaluation, and studies the decision evaluation of large construction projects and enterprise investment and financing projects. Third, focusing on technology catching up and surpassing strategies, the research focuses on major theoretical and practical issues such as enterprise technology innovation, high-tech parks, science and technology management evaluation systems, innovative science and technology industrial development strategies and national science and technology policies. The fourth is to follow the academic frontier, focusing on research on Internet+ innovation model, crowdsourcing, crowdfunding, sharing economy and green innovation, etc.

2.技术经济及管理

本学科方向一是围绕国家自主创新的战略部署，重点研究技术创新、技术扩散、产业转移、区域经济、新兴战略产业发展等，为政府有关部门制定政策提供重要决策依据。二是密切关注国民经济发展中的实际问题，研究技术经济评价理论与方法，研究大型建设项目和企业投融资项目的决策评估问题。三是着眼于技术追赶与超越战略，重点研究企业技术创新、高新技术园区、科技管理评价体系、创新型科技工业发展战略和国家科技政策等重大理论和实践问题。四是跟踪学术前沿，重点研究“互联网+”创新模式、众包、众筹、分享经济及绿色创新等。

(3) Innovation management and sustainable development: This specialization focuses on the major strategic needs of the country and the hot issues of national economy in the field of innovation and sustainable development. In the process of building an innovative country in China, the sustainable development of economy, environment and society deserves attention in the face of increasingly serious resource and environmental problems. Based on this, this discipline direction is problem-oriented and effectively integrates innovation theory and sustainable development theory, based on Chinese scenario, focusing on: theory and method of green technology innovation management; theory and method of industrial (enterprise) ecological innovation management; theory, method and policy modeling of circular economy and low carbon economy; green supply chain and reverse logistics management; innovation and entrepreneurship management, etc.

3.创新管理与可持续发展

本专业方向将重点围绕创新与可持续发展领域中的国家重大战略需求和国民经济热点问题开展相关工作。在我国建设创新型国家过程中，面对日益严峻的资源和环境问题，推动经济、环境和社会的可持续转型至关重要。基于此，本学科以问题为导向，将创新理论与可持续发展理论有效融合，立足中国情景，重点开展：绿色技术创新管理理论与方法；产业（企业）生态化创新管理理论与方法；循环经济与低碳经济理论方法和政策建模；绿色供应链与逆向物流管理；创新与创业管理等。

(4) Organizational behavior and human resource management: This discipline direction uses theoretical analysis, simulation modeling, game analysis and empirical research to conduct in-depth research on enterprise employee health and safety, mobile personnel health risks, emergencies, and industrial policies.

4.组织行为与人力资源管理

本学科方向通过采用理论分析、仿真建模、博弈分析和实证研究等方法，对企业员工健康安全、流动人员健康风险、突发事件、产业政策等方面展开深入研究。

(5) Marketing: based on practice, this discipline focuses on the enterprise marketing strategy, international operation, brand management, business model innovation, consumer behavior, marketing performance, relationship marketing, green marketing, strategic marketing transformation of civil-military integration, enterprise business ethics and social responsibility in the new situation.

5.市场营销

本学科方向立足实践，研究新形势下企业营销战略、国际化经营、品牌管理、商业模式创新、消费者行为、企业营销绩效、关系营销、绿色营销、军民融合的战略营销转变以及企业商业伦理和社会责任等。

(6) Accounting and financial management: this discipline pays attention to firm contracts, accounting information quality, internal control and informatization, incentive and evaluation of human resources, enterprise merger, enterprise reorganization and theories and methods of project investment and financing decision analysis.

6.会计与财务管理

本学科方向主要研究企业契约、会计信息质量、内部控制与信息化、人力资源激励与评价、企业并购与重组以及项目投融资决策分析的理论与方法。

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.

培养具有良好国际知识、具有传播中外文化能力的高水平创新人才，使国际研究生能充分发挥文化桥梁作用。

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.

硕士研究生的基本学制是 2 年，原则上，学生应在第一学年完成课程，论文写作时间不应少于一年，最长修业年限在 2 年学制基础上可延长 0.5 年。博士生学制为 4 年，原则上，学生应在第一学年完成课程。论文写作时间不得少于 3 年，最长修业年限在 4 年学制基础上可延长 2 年。

4. Curriculum and Credits Requirements

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory/ Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语 Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese Language Ⅱ 基础汉语 Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博	
Basic Course 基础课	2101009	Macroeconomics 宏观经济学	32	2	1/2	Optional 选修	Master /Ph.D. 硕博	Master≥2 Ph.D.≥2 硕士≥2 博士≥
	2101002	Advanced Microeconomics 高级微观经济学	32	2	1/2	Optional 选修	Ph.D. 博士	
	2100163	Intermediate Microeconomics 中级微观经济学	32	2	1	Optional 选修	Master 硕士	
	2100164	Intermediate Macroeconomics 中级宏观经济学	32	2	1	Optional 选修	Master 硕士	
	2100125	Advanced Microeconomics 高级微观经济学	32	2	2	Optional 选修	Ph.D. 博士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	2100128	Advanced Macroeconomics 高级宏观经济学	32	2	2	Optional 选修	Ph.D. 博士	
Discipline Core Course 学科核心课	2101008	Intermediate Econometrics 中级计量经济学	32	2	1/2	Optional 选修	Master 硕士	Master≥2 Ph.D.≥2 硕士≥2 博士≥
	2101010	Advanced Econometrics 高级计量经济学	32	2	1/2	Optional 选修	Master /Ph.D. 硕博	
	2100112	Intermediate Econometrics 中级计量经济学	32	2	1	Optional 选修	Master 硕士	
	2100126	Advanced Econometrics 高级计量经济学 I	32	2	1	Optional 选修	Ph.D. 博士	
Major Optional Course 专业选修课	2101001	Intermediate Microeconomics 中级微观经济学	32	2	1/2	Optional 选修	Master 硕士	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	2101007	Operations Research 运筹学	48	3	1/2	Optional 选修	Master 硕士	
	2101016	International Finance 国际金融学	32	2	1/2	Optional 选修	Master 硕士	
	2101005	Industry green management and optimization 行业绿色管理及优化	32	2	1/2	Optional 选修	Master /Ph.D. 硕博	
	2100161	Organization and Management Research Methods 组织与管理研究方法	32	2	1	Optional 选修	Master 硕士	
	2101016	International Finance 国际金融学	32	2	1/2	Optional 选修	Master 硕士	
	2100301	Digital Innovation and Industry	32	2	1	Optional 选修	Master 硕士	

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory/ Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
		Development 数字创新与产业发展						
	2100168	Frontiers in Marketing Innovation 营销创新前沿	32	2	1	Optional 选修	Master 硕士	
	2100079	Frontiers in Management Accounting 管理会计前沿	32	2	2	Optional 选修	Master 硕士	
	2100171	Special Topics in Marketing 市场营销专题	32	2	2	Optional 选修	Ph.D. 博士	
Total Credits 合计	Master≥24 credits 硕士≥24 Ph.D.≥20 credits 博士≥20							

Notes：

1).Public Course

(1) Chines 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) Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3) Major Course

(1) Major Core Courses

Different Programs can set their own Major Core Course.

(2) Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）基础课

表中所列数学类课程若不能满足本学科对基础课要求，可另行制定其他相关的数学、物理、化学、生物、管理、人文类等学科基础课。

3）专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1) Academic Activity (1 credits) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2) Innovative Practice (1 credits) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. 文献综述与开题报告； 2. 中期检查；3. 博士论文预答辩；4. 论文答辩；5. 学位申请。

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予 XX 硕士和 XX 博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation

Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT and Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.
所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Master of Business Administration

工商管理硕士

(125100)

1. Overview of the Program（学科简介与研究方向）

Beijing Institute of Technology, resuming management education and establishing graduate school in 1980s, was authorized by Ministry of Education to be one of the first two batches of 26 universities in China with the right to confer MBA degrees. In 1994, Beijing Institute of Technology started to recruit MBA students. After nearly thirty years' development, its MBA program has become one of the most influential and branded MBA, which has passed the AMBA international accreditation in 2011 and re-accreditation in 2014. In 2015, the School of Management & Economics (SME) has passed the EQUIS accreditation, becoming the seventh business school in mainland China to pass both the EQUIS and AMBA accreditations. In 2016, the SME has successfully passed Chinese Advanced Management Education Accreditation, which is the 13th university in China to obtain the accreditation. In 2018, the SME was re-accredited by EQUIS and in 2019, the SME successfully passed the AACSB accreditation, becoming a business school with three major accreditations, which is achieved by less than 1% of business schools in the world.

Adhering to the rigorous academic attitude, the MBA program of Beijing Institute of Technology has been always attaching great importance to high quality of teaching and paying great attention to the combination of theory and practice. Also, the MBA program of Beijing Institute of Technology takes the advantage of coordinated development of our university’s science, engineering, management and art disciplines. Besides that, through providing quality educational system and systematic professional training, the MBA program of Beijing Institute of Technology has developed excellent management talents who aware general operating rules of economic market, understand the situation of China, have a global vision, a sense of social responsibility and team work spirit, possess efficient and progressive personality, for Chinese enterprises and institutions, multinational enterprises and international organizations. After nearly thirty years’ development, the MBA program of Beijing Institute of Technology has become a distinctive MBA program with professional faculties, solid discipline foundation, outstanding student teams, diverse teaching methods, rich teaching achievements, good teaching environment, and perfect management system.

作为我国最早恢复管理教育和首批开设研究生院的高校，北京理工大学在 1993 年经教育部批准成为具有 MBA 学位授予权的全国前二批 26 所院校之一，1994 年，开始招收第一届工商管理硕士研究生（MBA）。

经过近三十年的发展，我校 MBA 项目已经成为中国最具影响力和品牌效应的 MBA 项目之一，并于 2011 年通过了 AMBA 国际认证，2014 年通过了再认证。2015 年，学院通过 EQUIS 首次认证，成为我国大陆地区第 7 个同时通过 EQUIS 和 AMBA 认证的管理与经济学院。2016 年，学院通过中国高质量 MBA 教育认证，是我国第 13 所获得该认证的单位。2018 年学院通过 EQUIS 再认证。2019 年，学院顺利通过 AACSB 认证，成为全球不超过 1%同时持有三大认证的管理学院。

秉承严谨的治学态度，北京理工大学 MBA 项目一直高度重视教学质量、重视理论与实践的结合，发挥我校理、工、管、文协调发展、办学基础雄厚的优势，通过提供精品课程体系和系统的专业训练，为中国企事业单位、跨国企业和国际组织培养掌握市场经济一般运行规律，了解我国国情，具有全球化视野、富有社会责任感和团队精神、高效进取的卓越管理人才。经过近三十年的发展，北京理工大学 MBA 项目已经成为师资力量强大、学科基础雄厚、办学经验丰富、学生团队出色、教学方式多样、教学成果丰厚、教学环境良好、管理体系完善的 MBA 项目。

2. Training Target（培养目标）

The MBA program of Beijing Institute of Technology devotes to cultivating students' professional quality of benefiting the people and society with sincerity and honesty and behaving according to morality and law. Also, we devote to training excellent management talents with a sense of social responsibility and team work spirit as well as efficient and progressive personality.And devote to cultivating modern citizens with integrate Chinese and foreign civilizations and possess cross-cultural perspective. Moreover, MBA talents are required to have strong analysis, judgment, decision-making, organizational and leadership skills as well as the courage to develop, hard work and entrepreneurial and pioneering spirit. Besides that, they are also required to have a healthy and confident mentality and be good at communication and coordination. The graduates should be able to qualify in the middle or senior management positions in all kinds of enterprises and institutions.With the ability of understanding Chinese and foreign cultures , so that to bring international graduate students into full play as a cultural bridge.

北京理工大学 MBA 项目的培养目标是致力于培育学生经世济民、诚信服务、德法兼修的职业素养；培养富有社会责任感和团队精神、高效进取的卓越管理人才；培养融汇中外文明，具有跨文化视野的现代公民。要求 MBA 专业学位获得者具有较强的分析、判断、决策、组织和领导能力；具有勇于开拓，艰苦创业的事业心和进取心；具有健康自信的心理素质，善于沟通和协调，能胜任各类企事业单位中、高级管理职位；同时，应了解中外文化，能够充分发挥留学生的文化桥梁作用。

3. Length of Schooling（学制）

The basic length of schooling for MBA 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 MBA students is extended by 0.5 years on the basis of 2 years.

MBA 留学生的基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于一年。MBA 留学生的最长学习年限在 2 年的基础上延长 0.5 年。

4. Curriculum and Credits Requirements（课程设置与学分要求）

MBA students are required to achieve no less than 45 credits in total.

For English-cultivated students, they should achieve no less than 42 credits for courses, including 16 credits for public courses, 4 credits for basic courses, 14 credits for discipline core courses, 8 credits for optional courses, and 3 credits for compulsory part.

For Chinese-cultivated students, they should achieve no less than 43 credits for courses, including 16 credits for public courses, 4 credits for basic courses, 14 credits for discipline core courses, 9 credits for optional courses, and 2 credits for compulsory part.

MBA 留学生总学分不少于 45 学分。

英文培养的学生，课程总学分不少于 42 学分，其中公共课 16 学分，基础课 4 学分，学科核心课 14 学分，选修课不少于 8 学分，必修环节不少于 3 学分。

中文培养的学生，课程总学分不少于 43 学分，其中公共课 16 学分，基础课 4 学分，学科核心课 14 学分，选修课不少于 9 学分，必修环节不少于 2 学分。

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master 硕士	16
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master 硕士	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master 硕士	
	3701007	Business Ethics and Corporate Social Responsibility （英）商业伦理与企业社会责任	32	2	1/2	Compulsory 必修	Master 硕士	
	2100002	Business Ethics and Corporate Social Responsibility 商业伦理与企业社会责任	32	2	1/2	Compulsory 必修	Master 硕士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Basic Course 基础课	2101019	Managerial Economics （英）管理经济学	32	2	1/2	Compulsory 必修	Master 硕士	4
	2100005	Managerial Economics 管理经济学	32	2	1/2	Compulsory 必修	Master 硕士	
	2101023	Strategic Management (For Professional Degree) （英）战略管理（专硕）	32	2	1/2	Compulsory 必修	Master 硕士	
	2100012	Strategic Management (For Professional Degree) 战略管理（专硕）	32	2	1/2	Compulsory 必修	Master 硕士	
Discipline Core Course 学科核心课	2101020	Operation Management （英）运作管理	32	2	1/2	Compulsory 必修	Master 硕士	14（With Specialization in International Organization & Global Governance, 16） 14（国际组织和全球治理方向 16）
	2100006	Operation Management 运作管理	32	2	1/2	Compulsory 必修	Master 硕士	
	2101024	Managerial Statistics （英）管理统计学	32	2	1/2	Compulsory 必修	Master 硕士	
	2100007	Managerial Statistics 管理统计学	32	2	1/2	Compulsory 必修	Master 硕士	
	2101021	Accounting （英）会计学	32	2	1/2	Compulsory 必修	Master 硕士	
	2100008	Accounting 会计学	32	2	1/2	Compulsory 必修	Master 硕士	
	2101025	Financial Management （英）财务管理	32	2	1/2	Compulsory 必修	Master 硕士	
	2100009	Financial Management 财务管理	32	2	1/2	Compulsory 必修	Master 硕士	
	2101026	Marketing Management （英）市场营销管理	32	2	1/2	Compulsory 必修	Master 硕士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Discipline Core Course 学科核心课	2100010	Marketing Management 市场营销管理	32	2	1/2	Compulsory 必修	Master 硕士	14（With Specialization in International Organization & Global Governance, 16） 14（国际组织和全球治理方向 16）
	2101022	Human Resource Management （英）人力资源管理	32	2	1/2	Compulsory 必修	Master 硕士	
	2100011	Human Resource Management 人力资源管理	32	2	1/2	Compulsory 必修	Master 硕士	
	2101027	Management Information System （英）管理信息系统	32	2	1/2	Compulsory 必修	Master 硕士	
	2100013	Management Information System 管理信息系统	32	2	1/2	Compulsory 必修	Master 硕士	
	2101052	International Organization and International Law （英）国际组织和国际法	32	2	1/2	Compulsory for Students with Specialization in International Organization & Global Governance 国际组织和全球治理方向必修	Master 硕士	
	2100280	International Organization and International Law 国际组织和国际法	32	2	1/2		Master 硕士	
or Optional Course 专业选修课	2101028	International Business Management （英）国际商务管理	32	2	1/2	Optional 选修	Master 硕士	For English-cultivated Students≥8（With Specialization in International Organization & Global Governance, ≥6） 英文培养的留学生≥8（国
	2100243	International Business Management 国际商务管理	32	2	1/2	Optional 选修	Master 硕士	
	2101029	Intercultural Management (For MBA) （英）跨文化管理	32	2	1/2	Optional 选修	Master 硕士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course 专业选修课	2100115	Intercultural Management 跨文化管理	32	2	1/2	Optional 选修	Master 硕士	际组织和全球治理方向≥6） For Chinese-cultivated Students≥9（With Specialization in International Organization & Global Governance, ≥7） 中文培养的留学生≥9（国际组织和全球治理方向≥7） For English-cultivated Students≥8（With Specialization in International Organization & Global Governance, ≥6） 英文培养的留学生≥8（国际组织和全球治理方向≥6） For Chinese-
	2101030	International Business Law （英）国际商法	32	2	1/2	Optional 选修	Master 硕士	
	2100017	International Business Law 国际商法	32	2	1/2	Optional 选修	Master 硕士	
	2101053	Enterprise Resource Planning and Digital Operation （英）企业资源计划与数字化运营	32	2	1/2	Optional 选修	Master 硕士	
	2100284	Enterprise Resource Planning and Digital Operation 企业资源计划与数字化运营	32	2	1/2	Optional 选修	Master 硕士	
	2101044	Supply Chain Management in Digital Intelligence Era （英）数智时代的供应链管理	32	2	1/2	Optional 选修	Master 硕士	
	2100285	Supply Chain Management in Digital Intelligence Era 数智时代的供应链管理	32	2	1/2	Optional 选修	Master 硕士	
	2101045	Energy Policy and Enterprise Management Practice （英）能源政策与企	32	2	1/2	Optional 选修	Master 硕士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course 专业选修课		业管理实践						cultivated Students≥9（With Specialization in International Organization & Global Governance, ≥7） 中文培养的留学生≥9（国际组织和全球治理方向≥7） For English-cultivated Students≥8（With Specialization in International Organization & Global Governance, ≥6） 英文培养的留学生≥8（国际组织和全球治理方向≥6） For Chinese-cultivated Students≥9（With Specialization in International
	2100290	Energy Policy and Enterprise Management Practice 能源政策与企业管理实践	32	2	1/2	Optional 选修	Master 硕士	
	2101034	Entrepreneurship and Family Business Management （英）创业与家族企业管理	32	2	1/2	Optional 选修	Master 硕士	
	2100024	Entrepreneurship and Family Business Management 创业与家族企业管理	32	2	1/2	Optional 选修	Master 硕士	
	2101035	Entrepreneurial Management （英）创业管理	32	2	1/2	Optional 选修	Master 硕士	
	2100044	Entrepreneurial Management 创业管理	32	2	1/2	Optional 选修	Master 硕士	
	2101036	Innovation & Revolution Management （英）创新与变革管理	32	2	1/2	Optional 选修	Master 硕士	
	2100014	Innovation & Revolution Management 创新与变革管理	32	2	1/2	Optional 选修	Master 硕士	
	2101037	Brand Management(For Professional Degree) （英）品牌管理（专硕）	32	2	1/2	Optional 选修	Master 硕士	
	2100221	Brand Management(For Professional Degree) 品牌管理（专硕）	32	2	1/2	Optional 选修	Master 硕士	
	2101038	Art of Leadership	32	2	1/2	Optional	Master	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course 专业选修课		（英）管理者的领导艺术				选修	硕士	Organization & Global Governance, ≥7） 中文培养的留学生≥9（国际组织和全球治理方向≥7） For English-cultivated Students≥8（With Specialization in International Organization & Global Governance, ≥6） 英文培养的留学生≥8（国际组织和全球治理方向≥6） For Chinese-cultivated Students≥9（With Specialization in International Organization & Global Governance,
	2100015	Art of Leadership 管理者的领导艺术	32	2	1/2	Optional 选修	Master 硕士	
	2101039	Organizational Behavior （英）组织行为学	32	2	1/2	Optional 选修	Master 硕士	
	2100004	Organizational Behavior 组织行为学	32	2	1/2	Optional 选修	Master 硕士	
	2101040	Employee Relations （英）员工关系管理	32	2	1/2	Optional 选修	Master 硕士	
	2100035	Employee Relations 员工关系管理	32	2	1/2	Optional 选修	Master 硕士	
	2101041	International Finance (For MBA) （英）国际金融	32	2	1/2	Optional 选修	Master 硕士	
	2100018	International Finance 国际金融	32	2	1/2	Optional 选修	Master 硕士	
	2101046	Service Management （英）服务管理	32	2	1/2	Optional 选修	Master 硕士	
	2100038	Service Management 服务管理	32	2	1/2	Optional 选修	Master 硕士	
	2101047	E-commerce and Big Data （英）电子商务与大数据	32	2	1/2	Optional 选修	Master 硕士	
	2100213	E-commerce and Big Data 电子商务与大数据	32	2	1/2	Optional 选修	Master 硕士	
	2101048	Public Relations and Crisis Management （英）公共关系与危机管理	32	2	1/2	Optional 选修	Master 硕士	
	2100037	Public Relations and Crisis Management 公共关系与危机管理	32	2	1/2	Optional 选修	Master 硕士	
	2101049	Climate Change and Sustainable	32	2	1/2	Optional 选修	Master 硕士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course 专业选修课		Development （英）气候变化与可持续发展						≥7） 中文培养的留学生≥9（国际组织和全球治理方向≥7） For English-cultivated Students≥8（With Specialization in International Organization & Global Governance, ≥6） 英文培养的留学生≥8（国际组织和全球治理方向≥6） For Chinese-cultivated Students≥9（With Specialization in International Organization & Global Governance, ≥7） 中文培养的留
	2100281	Climate Change and Sustainable Development 气候变化与可持续发展	32	2	1/2	Optional 选修	Master 硕士	
	2101050	Fundamentals of Global Governance （英）全球治理概论	32	2	1/2	Optional 选修	Master 硕士	
	2100282	Fundamentals of Global Governance 全球治理概论	32	2	1/2	Optional 选修	Master 硕士	
	2101051	Global Competence （英）全球胜任力	32	2	1/2	Optional 选修	Master 硕士	
	2100283	Global Competence 全球胜任力	32	2	1/2	Optional 选修	Master 硕士	
	2100272	Literature Retrieval and Thesis Writing 文献检索与论文写作	16	1	2	Compulsory for Chinese-cultivated Students 中文培养的留学生必修	Master 硕士	
	2100266	Overview of Transformation of Scientific and Technological Achievements 科技成果转化概述	32	2	1/2	Optional 选修	Master 硕士	
	2100227	Management 管理学	32	2	1/2	Optional 选修	Master 硕士	
	2100215	Economics 经济学	32	2	1/2	Optional 选修	Master 硕士	
	2100286	Energy and Economy 能源与经济	32	2	1/2	Optional 选修	Master 硕士	
	2100287	Energy Project Management	32	2	1/2	Optional 选修	Master 硕士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course 专业选修课		能源项目管理						学生≥9（国际组织和全球治理方向≥7） For English-cultivated Students≥8（With Specialization in International Organization & Global Governance, ≥6） 英文培养的留学生≥8（国际组织和全球治理方向≥6） For Chinese-cultivated Students≥9（With Specialization in International Organization & Global Governance, ≥7） 中文培养的留学生≥9（国际组织和全球
	2100288	Industry Green Management Practice 行业绿色管理实践	32	2	1/2	Optional 选修	Master 硕士	
	2100289	Intelligent Energy Management Practice 智慧能源管理实践	32	2	1/2	Optional 选修	Master 硕士	
	2100291	Carbon Market Practice 碳市场实践	32	2	1/2	Optional 选修	Master 硕士	
	2100267	Science and Technology Policy and Law 科技政策与法律	32	2	1/2	Optional 选修	Master 硕士	
	2100268	Technology Finance Management 科技金融管理	32	2	1/2	Optional 选修	Master 硕士	
	2100269	Technical Economics (For Professional Degree) 技术经济学(专硕)	32	2	1/2	Optional 选修	Master 硕士	
	2100270	Technology Transfer Practice 技术转移实务	32	2	1/2	Optional 选修	Master 硕士	
	2100019	Theory and Practice of International Trade 国际贸易理论与实务	32	2	1/2	Optional 选修	Master 硕士	
	2100217	Business Intelligence and Data Analysis 商务智能与数据分析	32	2	1/2	Optional 选修	Master 硕士	
	2100276	Introduction to Intelligent Manufacturing 智能制造概论	32	2	1/2	Optional 选修	Master 硕士	
	2100279	Introduction to Digital Economy 数字经济概论	32	2	1/2	Optional 选修	Master 硕士	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Course 专业选修课	2100045	Project Management 项目管理	32	2	1/2	Optional 选修	Master 硕士	治理方向≥7） For English-cultivated Students≥8（With Specialization in International Organization & Global Governance, ≥6） 英文培养的留学生≥8（国际组织和全球治理方向≥6） For Chinese-cultivated Students≥9（With Specialization in International Organization & Global Governance, ≥7） 中文培养的留学生≥9（国际组织和全球治理方向≥7）
	2100228	Operations Research (For Professional Degree) 运筹学（专硕）	32	2	1/2	Optional 选修	Master 硕士	
	2100293	Quality and Reliability Management 质量与可靠性管理	32	2	1/2	Optional 选修	Master 硕士	
	2100087	Project Planning and Control 项目计划与控制	32	2	1/2	Optional 选修	Master 硕士	
	2100219	Sand Table Simulation of Enterprise Management Decision 企业经营决策沙盘模拟	32	2	1/2	Optional 选修	Master 硕士	
	2100260	National Defense Science and Technology and Industrial Management 国防科技与工业管理	32	2	1/2	Optional 选修	Master 硕士	
	2100026	Financial Analysis and Business Decision-making 财务分析与经营决策	32	2	1/2	Optional 选修	Master 硕士	
	2100027	Investments 投资学	32	2	1/2	Optional 选修	Master 硕士	
	2100223	Theory and Practice of Tax 税收理论与实务	32	2	1/2	Optional 选修	Master 硕士	
	2100222	Special Topic on Real Estate Management Decision 房地产经营决策专题	32	2	1/2	Optional 选修	Master 硕士	
	2100043	Economic Law 经济法	32	2	1/2	Optional 选修	Master 硕士	
	2100047	Enterprise Decision	32	2	1/2	Optional	Master	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
		Simulation 企业决策模拟				选修	硕士	
	2100034	Channel Management 渠道管理	32	2	1/2	Optional 选修	Master 硕士	
	2100294	Consumer Behavior 消费者行为学	32	2	1/2	Optional 选修	Master 硕士	
	2100292	Corporate Governance (For Professional Degree) 公司治理（专硕）	32	2	1/2	Optional 选修	Master 硕士	
	2100036	Management Communication 管理沟通	32	2	1/2	Optional 选修	Master 硕士	
	2100224	Chinese Management Philosophy and Chinese Classics 中国管理哲学与国学经典	32	2	1/2	Optional 选修	Master 硕士	
	2100225	Design and Design Aesthetics 设计与设计审美	32	2	1/2	Optional 选修	Master 硕士	
	2100277	Art Appreciation 艺术鉴赏	32	2	1/2	Optional 选修	Master 硕士	
Total Credits	For Chinese-cultivated Students ≥43 credits 中文培养的留学生≥43 For English-cultivated Students ≥42 credits 英文培养的留学生≥42							

Notes：

1) Public Course

(1) Chines 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 Optional Course

MBA students should choose courses from their own program. Chinese-cultivated MBA students must take Literature Retrieval and Thesis Writing.

3) The credits of Discipline Core Course can be counted into the credits of Major Optional Course.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）专业选修课：MBA 学生应在本学科培养方案的课程库中选修。中文培养的 MBA 留学生必修《文献检索与论文写作》课程。

3）核心选修课学分可抵专业选修课学分。

5. Compulsory Part（必修环节）

1) Literature Retrieval and Thesis Writing (1credit, only for English-cultivated students)

文献检索与论文写作（1 学分，仅适用于英文培养的留学生）

English-cultivated MBA students need to attend a training program about Literature Retrieval and Thesis Writing organized by School of Management & Economics. Chinese-cultivated MBA students are not required to participate in this training as they are required to take the course "Literature Retrieval and Thesis Writing".

英文培养的 MBA 留学生需要参加由管理与经济学院组织的关于文献检索和论文写作的培训。中文培养的留学生因必修《文献检索与论文写作》课程，无需参与本培训。

2) Practice Part (1 credit) 实践环节（1 学分）

MBA students should take scientific research training and social practices during their training period, which should be carried-out and evaluated by their supervisors. The practice report should be more than 3000 words.

MBA 留学生在学期间应进行科研训练和社会实践，并由其导师进行评估。实践报告不少于 3000 字。

3) Academic Activities (1 credit) 学术活动（1 学分）

MBA students need to participate in at least 4 seminars about innovation, entrepreneurship, or other topics about business administration (For those with specialization in International Organization & Global Governance, students should participate in at least 4 seminars about international organization and global governance). Students need to write a report of each seminar, to summarize content of the seminar and illustrate their academic opinions. Each report should be more than 800 words.

MBA 留学生需要至少参加 4 次创新创业或工商管理相关（国际组织和全球治理方向的学生需至少参加 4 次国际组织和全球治理相关）的学术研讨活动。学生需撰写每次研讨会的报告，以简述内容并阐明自己对相关问题的学术观点或看法。每份报告不少于 800 字。

6. The Dissertation Related Work（培养环节及学位论文相关工作）

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Thesis Defense； 4. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology.*

Qualified applicants will be conferred with MBA professional degree.

1. 文献综述与开题报告； 2. 中期检查；3. 论文答辩；4. 学位申请。

具体要求见《北京理工大学留学研究生培养环节实施细则》，以及《北京理工大学学位授予工作细则》。

本专业学位类别（领域）对符合要求的硕士学位申请人授予工商管理硕士专业学位。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前
Mid-Term Evaluation 中期检查	Before the end of the 3rd semester 第三学期期末前
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请

7. Course Syllabus（课程大纲）

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

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Master of Engineering Management

工程管理硕士

(125600)

1. Overview of the Program（学科简介与研究方向）

Master of Engineering Management (MEM) Program is a professional master degree program established by the State Council Academic Degrees Committee for meeting the needs of modern engineering practice. Engineering management means planning, organizing, directing, coordinating, controlling, and decision-making scientifically for modern engineering practice, including technical and economic argumentation and decision-making of major engineering construction projects; management of key industries and their new products, facilities and equipment in the process of development, manufacturing and production; management of technological innovation, technological transformation, transition, and international integration; research and management of major layout and development strategy on the field of industry, engineering and technology.

Beijing Institute of Technology (BIT) is one of the first batch of training institutions of MEM program authorized by the State Council Academic Degrees Committee, and also one of the first batch of 25 training institutions approved to carry out the cooperation qualification of MEM and IPMP certification in China. MEM program in BIT offers the training for four professional fields, including energy and carbon neutral management, project management, big data and information engineering management, equipment engineering management.

工程管理专业硕士（Master of Engineering Management，简称 MEM）是因现代工程实践的需要而由国务院学位委员会设立的研究生专业学位。工程管理针对现代工程实践进行科学地计划、组织、指挥、协调、控制、决策等，包括：重大工程建设项目的技术经济论证和决策，重点产业及其新产品、设备、装备在开发、制造、生产过程中的管理；技术创新、技术改造、转型、与国际接轨的管理；产业、工程和科技的重大布局与发展战略的研究与管理等。

北京理工大学是国务院学位委员会第一批授权的工程管理硕士培养单位，也是全国首批获准开展 MEM 与 IPMP 认证合作资格的 25 所培养单位之一。我校工程管理硕士主要分为四个专业领域，包括能源与碳中和管理、项目管理、大数据与信息工程管理、装备工程管理。

2. Training Target（培养目标）

The MEM program of BIT devotes to cultivating students' professional quality of benefiting the people and society with sincerity and honesty and behaving according to morality and law. Also, we devote to training high-level talents with good political accomplishment and professional ethics, strong career-ambition and sense of

social responsibility, who have a good knowledge of systematic engineering management theory and expertise, and the ability of planning, organizing, directing, coordinating, controlling and decision-making, and can independently undertake the engineering management work. With the ability of understanding Chinese and foreign cultures , so that to bring international graduate students into full play as a cultural bridge.

培养目标是培育学生经世济民、诚信服务、德法兼修的职业素养；培养具备良好的政治素质和职业道德，具有强烈的事业心和社会责任感，掌握系统的工程管理理论和专门知识，具有计划、组织、指挥、协调、控制和决策能力，能够独立担负工程管理工作的高层次人才。同时，应了解中外文化，能够充分发挥留学生的文化桥梁作用。

3. Length of Schooling（学制）

The basic length of schooling for MEM 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 MEM students is extended by 0.5 years on the basis of 2 years.

MEM 留学生的基本学制为 2 年。原则上，学生应在第一学年完成课程。论文工作时间不得少于一年。MEM 留学生的最长学习年限在 2 年的基础上延长 0.5 年。

4. Curriculum and Credits Requirements（课程设置与学分要求）

The curriculum of MEM Program is based on the engineering management discipline, combining with engineering disciplines related. Besides the public courses and basic courses, optional courses are mainly set up in the four professional fields of energy and carbon neutral management, project management, big data and information engineering management, and equipment engineering management, so as to meet the knowledge and quality requirements of the corresponding engineering management practice field for specialized talents.

MEM students are required to achieve no less than 34 credits in total (no less than 32 credits for courses), including 17 credits for public courses, 2 credits for basic courses, 8 credits for discipline core courses, 5 credits for optional courses and 2 credits for compulsory part.

课程设置以工程管理学科为基础，与相关工程学科相结合。在公共课、基础课基础上，以能源与碳中和管理、项目管理、大数据与信息工程管理、装备工程管理四个专业领域为主设置选修课程，以满足相应工程管理实践领域对专门人才的知识与素质要求。

课程实行学分制，总学分不少于 34 学分（课程总学分不少于 32 分），其中公共课 17 学分，基础课 2 学分，学科核心课 8 学分，选修课不少于 5 学分，必修环节不少于 2 学分。

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master 硕士	17
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master 硕士	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master 硕士	
	2100235	Engineering Ethics (For Professional Degree) 工程伦理学（专硕）	32	2	1/2	Compulsory 必修	Master 硕士	
	2100272	Literature Retrieval and Thesis Writing 文献检索与论文写作	16	1	2	Compulsory 必修	Master 硕士	
Basic Course 基础课	2100007	Managerial Statistics 管理统计学	32	2	1/2	Optional 选修	Master 硕士	≥2
	2100228	Operations Research (For Professional Degree) 运筹学（专硕）	32	2	1/2	Optional 选修	Master 硕士	
Discipline Core Course 学科核心课	2100100	Engineering Economics 工程经济学	32	2	1/2	Compulsory 必修	Master 硕士	8
	2100013	Management Information System 管理信息系统	32	2	1/2	Compulsory 必修	Master 硕士	

Course Classification 类别	**Course Code 课程代码**	**Course Name 课程名称**	**Course Hours 学时**	**Credits 学分**	**Semester 学期**	**Compulsory / Optional 是否必修**	**Master /Ph.D. 课程层次**	**Credits Requirement 学分要求**
	2100293	Quality and Reliability Management 质量与可靠性管理	32	2	1/2	Compulsory 必修	Master 硕士	
	2100101	Introduction to Engineering Management 工程管理概论	32	2	1/2	Compulsory 必修	Master 硕士	
Major Optional Course 专业选修课	2100102	Legal Practice of Engineering Management 工程管理法律实务	32	2	1/2	Optional (Public Optional Courses) 选修（公共选修课）	Master 硕士	≥5
	2100005	Managerial Economics 管理经济学	32	2	1/2		Master 硕士	
	2100036	Management Communication 管理沟通	32	2	1/2		Master 硕士	
	2100295	Systems Engineering 系统工程	32	2	1/2		Master 硕士	
	2100286	Energy and Economy 能源与经济	32	2	1/2	Optional (Energy and Carbon Neutral Management) 选修（能源与碳中和管	Master 硕士	
	2100288	Industry Green Management Practice 行业绿色管理实践	32	2	1/2		Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Major Optional Course 专业选修课	2100289	Intelligent Energy Management Practice 智慧能源管理实践	32	2	1/2	理专业领域）	Master 硕士	≥5
	2100290	Energy Policy and Enterprise Management Practice 能源政策与企业管理实践	32	2	1/2		Master 硕士	
	2100291	Carbon Market Practice 碳市场实践	32	2	1/2		Master 硕士	
	2100087	Project Planning and Control 项目计划与控制	32	2	1/2	Optional (Project Management) 选修（项目管理专业领域）	Master 硕士	
	2100104	Risk Management 风险管理	32	2	1		Master 硕士	
	2100088	Project Management Practices 项目管理实务	16	1	2		Master 硕士	
	2100011	Human Resource Management 人力资源管理	32	2	1/2		Master 硕士	
	2100111	Data Warehouse and Data Mining 数据仓库与数据挖掘	32	2	1/2	Optional (Big Data and Information Engineering	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Major Optional Course 专业选修课	2100213	Electronic Commerce and Big Data 电子商务与大数据	32	2	2	Management) 选修（大数据与信息工程管理专业领域）	Master 硕士	≥5
	2100217	Business Intelligence and Data Analysis 商务智能与数据分析	32	2	1		Master 硕士	
	2100256	Machine Learning Theory and Practice 机器学习理论和实践	32	2	1/2		Master 硕士	
	2100279	Introduction to Digital Economy 数字经济概论	32	2	2		Master 硕士	
	2100275	Enterprise Resource Planning and Digital Operation 企业资源计划与数字化运营	32	2	1/2	Optional (Equipment Engineering Management) 选修（装备工程管理专业领域）	Master 硕士	
	2100006	Operation Management 运作管理	32	2	1/2		Master 硕士	
	2100233	Discrete System Simulation (For Professional Degree) 离散系统仿真（专	32	2	1		Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory / Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
		硕）						
	2100276	Introduction to Intelligent Manufacturing 智能制造概论	32	2	2		Master 硕士	
	2100260	National Defense Science and Technology and Industrial Management 国防科技与工业管理	32	2	2		Master 硕士	
	2100038	Service Management 服务管理	32	2	1		Master 硕士	
	2100224	Chinese Management Philosophy and Chinese Classics 中国管理哲学与国学经典	16	1	2	Optional (Humanities and Arts) 选修（人文艺术专题）	Master 硕士	
	2100225	Design and Design Aesthetics 设计与设计审美	16	1	1/2		Master 硕士	
	2100277	Art Appreciation 艺术鉴赏	32	2	1		Master 硕士	
Total Credits 合计	≥ 32 credits ≥ 32 学分							

Notes：

1) Public Course

(1) Chines 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) Students are free to choose professional fields and optional courses under the guidance of their supervisors.

3）The major optional courses related to the four professional fields are as follows separately.

(1) Professional field of Energy and Carbon Neutral Management: Energy and Economy, Industry Green Management Practice, Intelligent Energy Management Practice, Energy Policy and Enterprise Management Practice, Carbon Market Practice.

（2）Professional field of Project Management: Project Planning and Control, Risk Management, Project Management Practices, Human Resource Management.

（3）Professional field of Big Data and Information Engineering Management: Data Warehouse and Data Mining, Electronic Commerce and Big Data, Business Intelligence and Data Analysis, Machine Learning Theory and Practice, Introduction to Digital Economy.

（4）Professional field of Equipment Engineering Management: Enterprise Resource Planning and Digital Operation, Operation Management, Discrete System Simulation (For Professional Degree), Introduction to Intelligent Manufacturing, National Defense Science and Technology and Industrial Management, Service Management.

4) Students who have passed IPMP A/B/C level Certification or PMP Certification can apply for exemption from the following three courses: Quality and Reliability Management, Human Resource Management and Introduction to Engineering Management. Scores of the courses are consistent with the scores in the qualification examination.

5) Students who have passed the examinations of the 5 courses, i.e. Introduction to Engineering Management, Engineering Economics, Quality and Reliability Management, Project Planning and Control, and Project Management Practices, with all scores of more than 70 points, can be exempted from the written examination when applying for IPMP C/D level Certification.

说明：

1）公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2）学生可在导师指导下自由选择专业领域及选修课程。

3）与四个专业领域相关的专业选修课程如下：

（1）能源与碳中和管理专业领域：能源与经济、行业绿色管理实践、智慧能源管理实践、能源政策与

企业管理实践、碳市场实践。

（2）项目管理专业领域：项目计划与控制、风险管理、项目管理实务、人力资源管理。

（3）大数据与信息工程管理专业领域：数据仓库与数据挖掘、电子商务与大数据、商务智能与数据分析、机器学习理论和实践、数字经济概论。

（4）装备工程管理专业领域：企业资源计划与数字化运营、运作管理、离散系统仿真（专硕）、智能制造概论、国防科技与工业管理、服务管理。

4）通过《国际项目管理专业资质认证（IPMP）》A/B/C 级、通过《项目管理专业人士资格认证（PMP）》的学生可申请替换以下三门课程《质量与可靠性管理》、《人力资源管理》、《工程管理概论》，分数以资质认证考试中的实际成绩为准。

5）通过《工程管理概论》、《工程经济学》、《质量与可靠性管理》、《项目计划与控制》、《项目管理实务》5 门课程考试，而且成绩在 70 分以上，申请《国际项目管理专业资质认证（IPMP）》C、D 级认证考试可免笔试。

5. Compulsory Part（必修环节）

1) Practice Part (1 credit) 实践环节（1 学分）

MEM students should take scientific research training and social practices during their training period, which should be carried-out and evaluated by their supervisors. The practice report should be more than 3000 words.

MEM 留学生在学期间应进行科研训练和社会实践，并由其导师进行评估。实践报告不少于 3000 字。

2) Academic Activities (1 credit) 学术活动（1 学分）

MEM students need to participate in at least 4 seminars about innovation, entrepreneurship, or other topics about engineering management, and write a report of each seminar, to summarize content of the seminar and illustrate their academic opinions. Each report should be more than 800 words.

MEM 留学生在学期间需要至少参加 4 次创新创业或工程管理相关的学术研讨活动。每次学术研讨活动要有 800 字左右的总结报告，简述内容并阐明自己对相关问题的学术观点或看法。

6. The Dissertation Related Work（培养环节及学位论文相关工作）

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Thesis Defense； 4. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*.

Qualified applicants will be conferred with MEM professional degree.

1. 文献综述与开题报告； 2. 中期检查；3. 论文答辩；4. 学位申请。

具体要求见《北京理工大学留学研究生培养环节实施细则》以及《北京理工大学学位授予工作细则》。

本专业学位类别（领域）对符合要求的硕士学位申请人授予工程管理硕士专业学位。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前
Mid-Term Evaluation 中期检查	Before the end of the 3rd semester 第三学期期末前
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请

7. Course Syllabus（课程大纲）

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

所有课程教学大纲。内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Design

设计学

(130500)

1.Overview of the Program 学科简介

The faculty of this discipline is strong. Interdisciplinary research and an equal emphasis on 'science and humanities' are featured; moreover, the development of design innovation and comprehensive abilities are valued.

本学科师资力量雄厚，以跨学科研究和“科学与人文并重”为特色，注重设计创新及综合能力培养。

There are five research directions for postgraduate students of Design Master:

设计学硕士研究生培养有以下五个研究方向：

（1） Industrial Design 工业设计及理论

The main research contains product innovation design, user requirements analysis, form design and interaction design.

以产品创新设计、用户需求分析、形态和交互设计为主要研究内容。

（2） Environmental Design 环境艺术设计

It established a research system which includes multi-faceted, systematic, theoretical and practical of 'planning, architecture, landscape and interior', with the core of spatial environment.

以空间环境为核心，建立“规划、建筑、景观、室内”多位一体、系统化、理论与实践并重的学科方向。

（3） Visual Communication Design 视觉传达设计

The main research contains information visualization design, font and graphic creativity, digital media, etc.

以信息可视化设计、字体与图形创意、视觉设计创意与方法、数字媒体、界面设计与交互设计、数字动态影像设计等为主要研究内容。

（4） Artistic Innovation Design 艺术创新设计及理论

Based on 'cultural heritage' and 'traditional arts and crafts', it focuses on exploring the sustainable development of excellent traditional culture by innovation design.

以文化遗产与传统工艺美术研究为基础，以设计创新为手段，寻求文化传承的可持续发展途径。

2. Training Target 培养目标

The target is to train high-level innovative talents in Design 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.

培养具有良好国际常识、传播中外文化能力的高层次设计创新人才，充分发挥国际研究生的文化桥梁作用。

3. Length of Schooling 学制

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.

硕士研究生的基本学制为 2 年。原则上，学生应在第一学年完成课程学习。论文工作时间不得少于一年。硕士研究生的最长学习年限在 2 年的基础上延长 0.5 年。

4. Curriculum and Credits Requirements 课程设置与学分要求

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master 硕士	Master=14 硕士=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master 硕士	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master 硕士	
Basic Course 基础课	2500095	Art and Design Cultural Trend 设计与艺术文化思潮	32	2	1	Compulsory 必修	Master 硕士	Master≥2 硕士≥2
Discipline Core Course 学科核心课	2500055	Design Methods Research 设计方法研究	32	2	1	Compulsory 必修	Master 硕士	Master≥2 硕士≥2
Major Optional Course 专业选修课	2500072	Visual Design and Aesthetics 视觉设计与审美	32	2	2	Optional 选修	Master 硕士	Master≥6 硕士≥6
	2500069	Analysis of Environmental Space Form 环境空间形态解析	32	2	2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
	2500075	Interaction Design and User Experience Research 交互设计与用户体验研究	32	2	2	Optional 选修	Master 硕士	
	2500076	Painting Form and Concept 绘画形式与观念	32	2	2	Optional 选修	Master 硕士	
	2500066	Heritage Regeneration design 遗产再生设计	32	2	2	Optional 选修	Master 硕士	
	2501001	(English)Color Design and Research （英）色彩设计与研究	32	2	2	Optional 选修	Master 硕士	
	2501002	(English)Behavior and Decision Research （英）行为与决策研究	32	2	2	Optional 选修	Master 硕士	
Total Credits 合计	Master≥24 credits 硕士≥24 学分							

Notes（说明）：

1) Public Course **公共课**

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

基础汉语：由北京理工大学留学生中心开课。本门课程为所有研究生留学生必修课。

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

中国概况：由北京理工大学留学生中心开课。本门课程为所有研究生留学生必修课。

2) Major Optional Course **专业选修课**

International students should choose course from their own program or from other programs. Under the guidance of the supervisor, Master international students can take undergraduate courses if needed.

留学生应在导师的指导下，在课程列表中选择课程。如果需要，研究生留学生可选修本科课程。

5. Practice Part 实践环节

1) Academic Activity (1 credits) 学术活动（1 学分）

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.

研究生留学生需要参加本领域的学术活动、学术讲座和学术会议。强烈建议在校内外的学术会议上发表口头演讲。

2) Innovative Practice (1 credits) 实践活动（1 学分）

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

研究生留学生在校期间应进行科技时间和社会实践，并由导师进行评估。

6. The Dissertation Related Work 培养环节及学位论文工作

1. Literature Review & Opening Report；文献综述与开题报告

2. Mid-Term Evaluation；中期检查

3. Thesis Defense；论文答辩

4. Degree Conferment. 学位申请

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

具体要求见《北京理工大学研究生培养环节实施办法》及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure

培养环节时间节点要求

The Dissertation Related Work **学位论文相关工作**	**Master** **学期**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 在第三学期第 1 周前
Mid-Term Evaluation 中期检查	——
Dissertation Pre-Defense 论文预答辩	——
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月

Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请

7. Course Syllabus 课程教学大纲要求

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

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

Integrated Circuit Science and Engineering

集成电路科学与工程

(140100)

1. Overview of the Program

The *Integrated Circuit Science and Engineering* (ICSE) discipline at Beijing Institute of Technology (BIT) has a long history that can be traced back to 1960 when the major of Semiconductor Materials and Devices was founded as one of the oldest majors in Electronics and Devices in China. Over the past 60 years, The ICSE discipline at BIT has always insisted on educating fostering high-end and urgently-needed talents for the country. In 2016, BIT was selected to establish the National Demonstration School of Microelectronics as an exemplary model; then in 2021, BIT was approved to set up a doctoral site for the discipline of *Integrated Circuit Science and Engineering*. This is one of the first batch of doctoral programs for this discipline in China and also the first batch of universities selected for the National Integrated Circuit Projects aiming at educating high-level talents in a short supply. The ICSE discipline at BIT focuses on the key issues in the fields of Integrated Circuits and aims to fulfill the major strategic requirements of the country as well as to lead the world frontier in science and technology. Our ICSE also persists leading to an engineering-oriented road with the combination of production and research, which may serve for the national defense in the future. This also helps to form an interdisciplinary layout with the majors of electronics, materials, information, optics, etc., as well as a joint school-enterprise training program with industry leaders such as *Empyrean Technology Co., Ltd., NAURA Technology Group Co., Ltd., the 6th Research Institute of China Electronics and Piotech Inc.*

北京理工大学集成电路科学与工程学科前身是创建于 1960 年的半导体材料与器件专业，是全国最早的电子与器件专业之一，60 年来始终坚持为党育人、为国育才，2016 年获批筹建国家级示范性微电子学院，2021 年获批全国首批集成电路科学与工程一级学科博士点，首批入选国家集成电路高层次紧缺人才培养专项。学科围绕集成电路领域关键“卡脖子”难题，瞄准国家重大战略需求和世界科技前沿，坚持走产学结合、面向工程、服务国防、特色发展的道路，形成了与电子、材料、信息、光学等学科深度交叉融合共同发展的学科布局，并与华大九天、北方华创、电子六所、拓荆科技等行业领军企业开展校企联合人才培养。

There are currently 90 full-time faculty in this discipline, including 33 professors and 37 associate professors. 80% of the faculty have overseas experience. In our faculty, there are two distinguished professors entitled with “Yangtze River Scholars”, two professors entitled with “Outstanding Youth”, one professor honored as the

technological innovation leader, one professor honored with the High-level Overseas Project, one IEEE Fellow, and six national scholars in the High-level Youth Talent Project. In addition, there are also one faculty member honored as the “Famous Teacher” and one as the “Young Famous Teacher” in Beijing.

学科目前共有专职教师 90 人，其中正高级职称 33 人，副高级职称 37 人，具有海外经历的教师占比 80%。师资队伍汇聚了 2 名教育部“长江学者”特聘教授、2 名国家杰青、1 名国家“万人计划”科技创新领军人才、1 名海外高层次人才、1 名 IEEE fellow，以及 6 名国家级高层次青年人才计划人选者，另有北京市教学名师 1 名，北京市青年教学名师 1 名。

The discipline of *Integrated Circuit Science and Engineering* has high-level laboratories such as the Key Laboratory of Low-Dimensional Quantum Structures and Devices of the Ministry of Industry and Information Technology, the Beijing Key Laboratory of Millimeter Wave and Terahertz Technology, the Beijing Engineering Technology Research Center for Silicon-based High-speed Systems on a Chip, the National Defense Key Discipline Laboratory of Multiple Information Systems and the National Demonstration Center for Electrical and Electronics Experimental Teaching. There are also school-local cooperation institutions built together with the local governments like the BIT Chongqing Center for Microelectronics and Microsystems, the Innovation Center of MEMS/NEMS Devices and Systems (Yangtze River Delta Graduate School) and so on. Until now, the total laboratory area is nearly 10,000 square meters and the total value of experimental equipment exceeds 100 million Yuan.

学科建有低维量子结构与器件工信部重点实验室、毫米波与太赫兹技术北京市重点实验室、硅基高速片上系统北京市工程技术研究中心、多元信息系统国防重点学科实验室等高水平创新平台和电工电子国家级实验教学示范中心，与地方政府联合建设北理工重庆微电子中心、微纳器件与系统创新中心（长三角研究生院）等校地合作机构。目前，拥有实验室面积近 1 万平方米，实验设备总值超 1 亿元。

The discipline undertakes scientific research projects such as the National Key R&D Projects, the projects of National Natural Science Foundation of China, the Outstanding Youth Projects, the Excellent Youth Project, the major projects of the Science and Technology Commission of the Military Commission, and key projects of the Beijing Science and Technology Plan, with an average annual research funding of over 100 million Yuan. A series of international and domestic leading achievements have been made in the fields of new low-dimensional quantum structures and devices, intelligent MEMS micromirrors, special processing chips and system applications for spaceborne signals, etc. The discipline consists of four main research directions that are described below.

学科承担国家重点研发计划项目，国家自然科学基金重点、杰青、优青项目，军委科技委重大项目，北

京市科技计划重点项目等国家和国防重要科研项目，年均科研经费过 1 亿元。在新型低维量子结构与器件、智能 MEMS 微镜、可穿戴电子设备、星载信号专用处理芯片与系统应用等领域取得一系列国际和国内领先的成果，具有明显的特色与优势，形成以下 4 个主要研究方向：

1) Integrated Micro-Nano Electronics Science

Aiming at the major strategic requirements of the country in the field of Integrated Circuits, *Integrated Micro-Nano Electronics Science* carries out research on low-dimensional electronic materials, extreme bandgap semiconductor materials like ultra-wide bandgap semiconductors, as well as the device construction based on these materials, including new concept devices, power semiconductor devices, long-wavelength and solar-blind detection devices, etc. The goal is to develop intelligent, lightweight, miniaturized and multi-functional integrated extreme bandgap semiconductor functional devices, as well as provide insights into their applications in the major national strategic fields such as power transmission, new energy vehicles, high-frequency communication, and intelligent perception. The direction aims at cultivating professionals in the direction of micro-nano electronics, therefore creating a special direction of *Integrated Micro-Nano Electronics Science* in BIT, as well as promoting the discipline of Integrated Circuits and its related fields.

1）集成微纳电子科学

集成微纳电子科学方向面向国家在集成电路领域的重大战略需求，开展低维电子材料、超宽带隙半导体等极端带隙半导体材料的制备与器件构筑研究，包括新概念器件、功率半导体器件、长波与日盲探测器件等。研制智能化、轻量化、微型化多功能集成的极端带隙半导体功能器件，并探索其在电力传输、新能源汽车、高频通信、智能感知等国家重大战略领域的应用，培养集成微纳电子科学方向的高级专业人才，打造具有北理工标签的集成微纳电子科学方向，服务集成电路学科及相关领域发展。

2) MEMS and Integrated Microsystems

MEMS and Integrated Microsystems is dedicated to the design and fabrication of MEMS micro-nano sensors and actuators as well as microfluidic chips, featuring optical MEMS, acoustic MEMS, resonant MEMS, and the integration of CMOS-MEMS. It emphasizes on the joint interdisciplines of electronics, optics, acoustics, thermal and material science, and biology, aiming to develop intelligent, multi-energy-domain, lightweight, miniaturized, and integrated microsystems with multi-functions, which can be further applied in the major national strategic fields such as intelligent sensing, intelligent manufacturing, precision medicine, unmanned driving, intelligent environmental protection, smart robots, remote sensing, and telemetry. This direction is aimed at cultivating high-quality engineers in the fields of *MEMS and Integrated Microsystems* and promoting the development of integrated circuits as well as the related disciplines.

2）MEMS 与集成微系统

MEMS 与集成微系统方向致力于研究 MEMS 微纳传感器与执行器芯片设计、制造和微流控技术，以光学 MEMS、声学 MEMS、谐振 MEMS、CMOS-MEMS 集成为特色，强调电学、光学、热学、声学、材料学与生物学等多学科融合，研制智能化、轻量化、微型化多功能集成声光电系统，并探索其在智能感知、智能制造、精准医疗、无人驾驶、智慧环保、灵巧机器人、遥感遥测等国家重大战略领域的应用，培养 MEMS 与集成微系统方向的高级专业人才，推动集成电路及相关学科发展。

3) Integrated Circuit Design and Advanced Packaging

To meet the major national requirements in the fields of new-generation radar information systems, low-orbit satellite Internet, and high-efficiency signal processing, *Integrated Circuit Design and Advanced Packaging* has been focusing on the following directions: the design methods and theory of integrated circuit, the design of analog and mixed-signal integrated circuit, the design and applications of silicon-based RF/millimeter wave integrated circuit, the system-on-chip (SOC) design. Aiming at major scientific issues such as new design theories, new functional devices, and new micro-nano systems for integrated circuits in the post-Moore era, the direction have been dedicated to the fields of three-dimensional vertical interconnection technology, transition board and heterogeneous integration technology, sensor-memory-computing integrated design technology, as well as basic and applied research on new forms of information devices. The goal is to feature advantages in the fields of millimeter-wave ASIC design, through-silicon via (TSV) complete process with small diameter, ultra-high aspect ratio and ultra-high depth, ultra-large-scale special signal processing chip design and application, special anti-irradiation chips for aerospace applications, etc.

3）集成电路设计与先进封装

集成电路设计与先进封装方向面向新一代雷达信息系统、低轨卫星互联网、高效能信号处理等领域的国家重大需求，开展集成电路设计方法与理论、模拟与混合信号集成电路设计、硅基射频/毫米波集成电路设计与应用、片上系统（SOC）设计等方面的研究。瞄准后摩尔时代集成电路的新设计理论、新功能器件、新微纳系统等重大科学问题，开展三维垂直互连技术、转接板与异质异构集成技术、感存算一体化设计技术、新形态信息器件的基础与应用研究。在毫米波专用集成电路设计，小直径、超高深宽比与超大深度硅通孔（TSV）成套工艺，超大规模专用信号处理芯片设计与应用等领域形成特色优势。

4) Flexible Electronic Devices and Intelligent Manufacturing

Aiming at multiple bottlenecks faced by flexible electronic devices in terms of structure design, preparation of semiconductor materials, large-scale manufacturing technologies and development of special equipment, etc., *Flexible Electronic Devices and Intelligent Manufacturing* is dedicated to develop new structures, new

functional devices and systems in the post-Moore era. Through the in-depth interdiscipline of microelectronics, optoelectronics, quantum information, materials, mechanics, biomedicine, and artificial intelligence, etc., this direction aims to develop flexible intelligent robot perception (vision, touch, smell), bionic sensors and systems for precision medicine and personalized physiotherapy, as well as multifunctional flexible and wearable electronic systems. The goal is to cultivate professionals in the field of flexible electronics with an international perspective, and to develop Integrated Circuits and its related disciplines.

4）柔性电子器件与智造

柔性电子器件与智造方向面向后摩尔时代新结构、新功能器件和系统，针对柔性电子器件在器件结构设计、半导体材料制备、大规模制造新技术和专用设备研发等方面面临的多重瓶颈，通过微电子、光电子、量子信息、材料、力学、生物医学、人工智能等多学科领域深度交叉，开展柔性智能机器人感知（视觉、触觉、嗅觉）、面向精准医疗和个性化理疗的仿生传感器与系统、多功能柔性与可穿戴电子系统等领域的基础与应用研究。培养具有国际视野的柔性电子学方向的高级专门人才，服务集成电路及相关学科的发展。

2. Training Target（培养目标）

1) To train students to understand the solid basic theory and systematic and specialized knowledge of the discipline, learn the modern experimental methods and skills of the discipline (direction), have an interdisciplinary academic background, and have the ability to engage in scientific research work or independently undertake specialized technical work in the field of Integrated Circuit Science and Engineering.

2) 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.

1）培养学生扎实理解本学科的基础理论和系统化的专业知识，学习本学科（方向）现代实验方法和技能，具备跨学科的学术背景，能够从事集成电路科学与工程领域的科学研究工作或独立承担专业技术工作的能力。

2）培养高水平、创新型人才，具备良好的国际常识和传播中外文化的能力，将国际研究生充分发挥成为文化桥梁。

3. Length of Schooling

1) The basic length for master students is 2 years. In principle, students must complete the courses in the first academic year. Thesis work time must be at least one year. The maximum length of study for master students can be extended by 0.5 years on the basis of 2 years.

2) The basic length for Ph.D. students is 4 years. In principle, students must complete the courses in the first academic year. Thesis work time must be at least three years. The maximum length of study for Ph.D. students can be extended by 2 years at maximum on the basis of 4 years.

1) 硕士研究生的基本学制为 2 年。原则上，学生必须在第 1 学年完成课程学习。论文工作时间必须至少为 1 年。最长修业年限在基本学制基础上增加 0.5 年；

2) 博士研究生的基本学制为 4 年。原则上，学生必须在第 1 学年完成课程学习。论文工作时间必须至少为 3 年。最长修业年限在基本学制基础上增加 2 年。

4. Curriculum and Credits Requirements

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Public Courses 公共课程	3700005	Chinese Language Ⅰ 基础汉语Ⅰ	96	6	1	Compulsory 必修	Master /Ph.D. 硕/博	Master=14 硕 =14Ph.D.=14 博=14
	3700006	Chinese Language Ⅱ 基础汉语Ⅱ	96	6	2	Compulsory 必修	Master /Ph.D. 硕/博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕/博	
Basic Courses 基础课程	1701002	Matrix Analysis 矩阵分析	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	Master≥2 硕≥2 Ph.D.≥2 博≥2
	1701003	Science and Engineering Calculation 科学与工程计算	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	
	1701007	Modern Regression Techniques in Data Sciences 现代回归方法	32	2	1/2	Optional 选修	Master /Ph.D. 硕/博	
Discipline Core Courses 学科核心课	1301004	Fundamentals of MEMS Transducers MEMS 原理	32	2	1	Optional 选修	Master /Ph.D. 硕/博	Master≥2 硕≥2 Ph.D.≥2 博≥2
	1301005	Microfabrication for IC and MEMS I 集成电路工艺 I	32	2	1	Optional 选修	Master /Ph.D. 硕/博	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
	1301006	Nano-Electronic Devices and Applications 纳米电子器件及应用	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
Major Optional Courses 专业选修课	0501004	Modern Antenna Theory and Technology 现代天线理论与技术	32	2	2	Optional 选修	Master 硕	Master≥6 硕≥6 Ph.D.≥2 博≥2
	0501005	RF Circuit Design Theory and Application 射频电路设计理论与应用	32	2	2	Optional 选修	Master 硕	
	0501009	Foundation of FPGA and SoPC Design FPGA 与 SoPC 设计基础	32	2	2	Optional 选修	Master 硕	
	0501011	Multi-source Data Fusion Theory and Application 多源数据融合理论与应用	32	2	2	Optional 选修	Master 硕	
	0501014	Advanced Digital Communication 高等数字通信	32	2	1	Optional 选修	Master 硕	
	0501021	Probability, Radom Process and Stochastic Geometry in Engineering 概率、随机过程和随机几何及其应用	32	2	1	Optional 选修	Master 硕	
	0501022	Medical Image Processing and Artificial Intelligence 医学图像处理与人工智能	32	2	1	Optional 选修	Master 硕	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Courses 专业选修课	1301019	Semiconductor Optoelectronics 半导体光电子学	32	2	1	Optional 选修	Master /Ph.D. 硕/博	Master≥6 硕≥6 Ph.D.≥2 博≥2
	1301021	Radar remote sensing and channel modeling 微波遥感与信道建模	32	2	1	Optional 选修	Master 硕	
	1301026	MEMS Design MEMS 设计	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1301027	Microfabrication of IC and MEMS II 集成电路工艺 II	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1301028	Introduction to Biophotonics 生物光子学	32	2	1	Optional 选修	Master /Ph.D. 硕/博	
	1301029	Integrated Microsystems 智能集成微系统	32	2	2	Optional 选修	Master /Ph.D. 硕/博	
	1301030	Advanced MEMS -- Optical MEMS MEMS 专题—光学	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301031	Advanced MEMS -- Acoustic MEMS MEMS 专题—声学	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301032	Advanced MEMS -- BioMEMS MEMS 专题—生物	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301033	Advanced MEMS -- CMOS MEMS Integration MEMS 专题—CMOS-MEMS 集成技术	16	1	2	Optional 选修	Master /Ph.D. 硕/博	

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Compulsory/ Optional	Master /Ph.D.	Credits Requirement
Major Optional Courses 专业选修课	1301034	Advanced MEMS -- Thermal MEMS MEMS 专题—热电	16	1	2	Optional 选修	Master /Ph.D. 硕/博	Master≥6 硕≥6 Ph.D.≥2 博≥2
	1301035	Advanced MEMS -- Inertial MEMS MEMS 专题—惯性	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
	1301036	Advanced MEMS -- Resonant MEMS MEMS 专题—谐振	16	1	2	Optional 选修	Master /Ph.D. 硕/博	
Total Credits	Master≥24 credits Ph.D.≥20 credits 硕≥24 学分 博≥20 学分							

Notes：

1). Public Courses

(1) Chines 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) Basic Courses

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3) Discipline Core Courses

Different Programs can set their own Discipline Core Course.

4) Major Optional Courses

International students should choose course from their own program or from other programs. 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.

说明:

1)公共课

(1)汉语:由北京理工大学留学生中心设置。 所有国际学生都必须修这门必修课程。

(2)中国概况:由北京理工大学留学生中心制定。 所有国际学生都必须修这门必修课程。

2)基础课程

如果图表中列出的数学课程不能满足要求，不同的专业可以设置自己的基础课程。

3)学科核心课程

不同的项目可以设置自己的学科核心课程。

4)专业选修课

留学生应选择本专业或其他专业的课程。 在导师的指导下，硕士留学生可以根据需要选修本科课程。博士留学生可根据需要选修本科课程。

5. Practice Part

1) Academic Activity (1 credits)

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) Innovation Practice (1 credits)

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

1. 学术活动(1 学分)

国际研究生需要参加本专业的学术活动、学术讲座和学术会议。 强烈建议在学术会议上做口头演讲，无论是在校内还是校外。

2. 创新实践(1 学分)

国际研究生在研修期应进行科研训练和社会实践，由导师进行考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report；2. Mid-Term Evaluation； 3. Dissertation Writing and Dissertation Pre-Defense（for Ph.D. students）； 4. Thesis Defense； 5. Degree Conferment

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology.*

1. 文献综述及开题报告; 2. 中期评估; 3. 博士学位论文写作及论文预答辩(博士生); 4. 论文答辩; 5. 学位授予

详见《北京理工大学留学生培养程序规定》、《北京理工大学博士生学位论文预答辩规定》和《北京理工大学学位授予实施规定》

Time nodes of relevant procedure

The Dissertation Related Work **论文相关工作**	**Master** **硕**	**Ph.D.** **博**
Literature Review& Opening Report 文献综述及开题报告	Before week 1 of the 3rd semester 第三学期第一周之前	Before week 1 of the 5th semester 第五学期第一周之前
Mid-Term Evaluation 中期评估	——	Before week 1 of the 7th semester 第七学期第一周之前
Thesis Pre-Defense 论文预答辩	——	Before review 送审前
Thesis Defense 论文答辩	At least 9 months after the Opening Report 开题报告完成后至少 9 个月	At least 18 months after the Opening Report 开题报告完成后至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 申请应在论文答辩后的一定时间内提出	

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.

课程编号、课程名称、课时、学分、课程描述和课程目标、教学方法、评估和考试、适合的专业、先决条件、课程内容、参考资料和讲师介绍。

National Economy Mobilization

国民经济动员学

(0202J1)

1. Overview of the Program

The National Economy Mobilization Discipline was founded in 2002 and was approved in the same year as a key construction discipline for the State Commission of Science and Technology for National Defense Industry of the “10th Five-year Plan”. In 2003, with the approval of the Ministry of Education, under the first-level discipline of "Management Science and Engineering", the second-level discipline of "National Economy Mobilization" was independently established; In 2004, it became an important supporting discipline for the "985 Project" (Phase II) of the "National Defense Science and Technology Management and National Defense Mobilization" Philosophy and Social Science Innovation Base of Beijing Institute of Technology; In 2005, it passed the review of experts organized by the Academic Office of the State Council; in 2008, it was approved by the Ministry of Industry and Information Technology as a national defense Characteristic discipline (ministerial key discipline).In 2011, the Ministry of Education approved the establishment of the nation's first doctoral program for national economy mobilization based on three first-level disciplines: management science and engineering, applied economics, and business management.

国民经济动员学学科始建于 2002 年，并于同年被批准为“十五”国防科工委重点建设学科；2003 年经教育部批准，在“管理科学与工程”一级学科下自主设立了“国民经济动员学”二级学科；2004 年成为北京理工大学“985 工程”（二期）“国防科技管理与国防动员”哲学社会科学创新基地的重要支撑学科；2005 年通过了国务院学位办组织的专家复审；2008 年被工业和信息化部批准为国防特色学科（部级重点学科）。2011 年经教育部批准依托管理科学与工程、应用经济、工商管理三个一级学科设立全国首个国民经济动员学博士点。

The discipline of national economy mobilization is an interdisciplinary subject supported by first-level disciplines such as management science and engineering, applied economics, and business management. With the goal of cultivating high-level personnel in fields such as national economy mobilization, military-civil integration, national defense mobilization, and emergency management, adhering to the concept of talent cultivation that combines teaching, research, and practice. In scientific research, it pays attention to the systematic summarization and research of practical problems. In teaching, it pays attention to the cultivation of the practical ability of doctoral and postgraduate students. With regard to the construction of the teaching staff, a first-class faculty has been formed which consists of full-time teachers, well-known domestic experts and

scholars.

国民经济动员学学科是交叉学科，以管理科学与工程、应用经济和工商管理等一级学科为支撑，以培养国民经济动员、军民融合、国防动员、应急管理、国防科技工业管理等领域高层次人才为目标，坚持教学、科研与实践相结合的人才培养理念。在科研方面，注重对实际问题的系统总结与研究；在教学方面，注重对博士、硕士研究生实践能力的培养；在师资队伍建设方面，已经形成了由专职教师、国内知名专家和学者组成的一流的师资队伍。

Through the construction of more than ten years, the teaching and research capability of the national economy mobilization discipline has taken a leading position in China. Many doctoral and master's degree students cultivated in our school has become the senior management talents and businesses backbones in the field of national economy mobilization and national defense mobilization, and has laid a solid foundation for safeguarding China's national security.

通过十余年的建设，我校的国民经济动员学学科教学科研能力居国内领先地位，培养的多名博士、硕士研究生已经成为国民经济动员与军民融合领域的高级管理人才与业务骨干，为维护我国的国家安全奠定了坚实的基础。

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.

目标是培养具有良好国际视野、跨文化沟通能力，能充分发挥文化交流桥梁作用的高水平创新人才。

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.

硕士研究生的基本学制是 2 年，学生应在第一学年完成课程，论文写作时间不应少于一年，最长修业年限在 2 年学制基础上可延长 0.5 年。博士生学制为 4 年，原则上学生应在第一学年完成课程。论文写作时间不得少于三年，最长学习年限在 4 年学制基础上可延长 2 年。

4. Curriculum and Credits Requirements

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese LanguageI 基础汉语I	96	6	1	Compulsory 必修	Master /Ph.D. 硕博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese LanguageII 基础汉语II	96	6	2	Compulsory 必修	Master /Ph.D. 硕博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博.	
Basic Course 基础课	2101008	Intermediate Econometrics 中级计量经济学	32	2	1/2	Optional 选修	Master 硕士	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	2101010	Advanced Econometrics 高级计量经济学	32	2	1/2	Optional 选修	Ph.D. 博士	
Discipline Core Course 学科核心课	2101011	Economics of defense policy 国防政策经济学	32	2	2	Compulsory 必修	Master /Ph.D. 硕博.	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	2101009	Macroeconomics 宏观经济学	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博.	
	2101001	Intermediate Microeconomics 中级微观经济学	32	2	1/2	Compulsory 必修	Master 硕士	
	2101002	Advanced Microeconomics 高级微观经济学	32	2	1/2	Compulsory 必修	Ph.D. 博士	
Major Optional Course 专业选修课	2101006	Management information systems 管理信息系统	32	2	1/2	Optional 选修	Master 硕士	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	2101007	Operations Research 运筹学	48	3	1/2	Optional 选修	Master 硕士	
	2101012	International Trade 国际贸易理论与政策	32	2	1/2	Optional 选修	Master 硕士	
	2101013	Development Economics	32	2	1/2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Major Optional Course 专业选修课		发展经济学（管理）						Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	2101014	Intercultural Management 跨文化管理	32	2	1/2	Optional 选修	Master 硕士	
	2101015	Laws and Regulations of the World Trade Organization 世界贸易组织法律法规	32	2	1/2	Optional 选修	Master 硕士	
	2101016	International Finance 国际金融学	32	2	1/2	Optional 选修	Master 硕士	
	2101017	Selective Readings in Energy Economics and Climate Policy 能源与气候经济文献选读	32	2	1/2	Optional 选修	Master 硕士	
	2101004	Efficiency and productivity analysis of energy and environment 能源环境效率与生产率分析	32	2	1/2	Optional 选修	Master 硕士	
	2101005	Industry green management and optimization 行业绿色管理及优化	32	2	1/2	Optional 选修	Master 硕士	
	2101018	Classic Literature on International Trade 国际贸易经典文献	32	2	1/2	Optional 选修	Ph.D. 博士	
Total Credits 合计	Master≥24 credits 硕士≥24 Ph.D.≥20 credits 博士≥20							

Notes：

1. Public Course

(1) Chines 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. Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3. Major Course

(1) Discipline Core Courses

Different Programs can set their own Major Core Course.

(2) Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1.公共课

（1）汉语：由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2.基础课

表中所列数学类课程若不能满足本学科对基础课要求，各学科可另行制定其他相关的学科基础课。

3.专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1. Academic Activity (1 credit) 学术活动（1 学分）

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2. Innovative Practice (1 credit) 实践活动（1 学分）

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

1.文献综述与开题报告； 2.中期检查；3.博士论文预答辩；4.论文答辩；5.学位申请。

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT*, *Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予 XX 硕士和 XX 博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（相关环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。

National Economy Mobilization

国民经济动员学

(1201J2)

1. Overview of the Program

The National Economy Mobilization Discipline was founded in 2002 and was approved in the same year as a key construction discipline for the State Commission of Science and Technology for National Defense Industry of the "10th Five-year Plan". In 2003, with the approval of the Ministry of Education, under the first-level discipline of "Management Science and Engineering", the second-level discipline of "National Economy Mobilization" was independently established; In 2004, it became an important supporting discipline for the "985 Project" (Phase II) of the "National Defense Science and Technology Management and National Defense Mobilization" Philosophy and Social Science Innovation Base of Beijing Institute of Technology; In 2005, it passed the review of experts organized by the Academic Office of the State Council; in 2008, it was approved by the Ministry of Industry and Information Technology as a national defense Characteristic discipline (ministerial key discipline).In 2011, the Ministry of Education approved the establishment of the nation's first doctoral program for national economy mobilization based on three first-level disciplines: management science and engineering, applied economics, and business management.

国民经济动员学学科始建于 2002 年，并于同年被批准为"十五"国防科工委重点建设学科；2003 年经教育部批准，在"管理科学与工程"一级学科下自主设立了"国民经济动员学"二级学科；2004 年成为北京理工大学"985 工程"（二期）"国防科技管理与国防动员"哲学社会科学创新基地的重要支撑学科；2005 年通过了国务院学位办组织的专家复审；2008 年被工业和信息化部批准为国防特色学科（部级重点学科）。2011 年经教育部批准依托管理科学与工程、应用经济、工商管理三个一级学科设立全国首个国民经济动员学博士点。

The discipline of national economy mobilization is an interdisciplinary subject supported by first-level disciplines such as management science and engineering, applied economics, and business management. With the goal of cultivating high-level personnel in fields such as national economy mobilization, military-civil integration, national defense mobilization, and emergency management, adhering to the concept of talent cultivation that combines teaching, research, and practice. In scientific research, it pays attention to the systematic summarization and research of practical problems. In teaching, it pays attention to the cultivation of the practical ability of doctoral and postgraduate students. With regard to the construction of the teaching staff, a first-class faculty has been formed which consists of full-time teachers, well-known domestic experts and

scholars.

国民经济动员学学科是交叉学科，以管理科学与工程、应用经济和工商管理等一级学科为支撑，以培养国民经济动员、军民融合、国防动员、应急管理、国防科技工业管理等领域高层次人才为目标，坚持教学、科研与实践相结合的人才培养理念。在科研方面，注重对实际问题的系统总结与研究；在教学方面，注重对博士、硕士研究生实践能力的培养；在师资队伍建设方面，已经形成了由专职教师、国内知名专家和学者组成的一流的师资队伍。

Through the construction of more than ten years, the teaching and research capability of the national economy mobilization discipline has taken a leading position in China. Many doctoral and master's degree students cultivated in our school has become the senior management talents and businesses backbones in the field of national economy mobilization and national defense mobilization, and has laid a solid foundation for safeguarding China's national security.

通过十余年的建设，我校的国民经济动员学学科教学科研能力居国内领先地位，培养的多名博士、硕士研究生已经成为国民经济动员与军民融合领域的高级管理人才与业务骨干，为维护我国的国家安全奠定了坚实的基础。

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.

目标是培养具有良好国际视野、跨文化沟通能力，能充分发挥文化交流桥梁作用的高水平创新人才。

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.

硕士研究生的基本学制是 2 年，学生应在第一学年完成课程，论文写作时间不应少于一年，最长修业年限在 2 年学制基础上可延长 0.5 年。博士生学制为 4 年，原则上学生应在第一学年完成课程。论文写作时间不得少于三年，最长学习年限在 4 年学制基础上可延长 2 年。

4. Curriculum and Credits Requirements

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
Public Course 公共课	3700005	Chinese LanguageI 基础汉语I	96	6	1	Compulsory 必修	Master /Ph.D. 硕博	Master=14 Ph.D.=14 硕士=14 博士=14
	3700006	Chinese LanguageII 基础汉语II	96	6	2	Compulsory 必修	Master /Ph.D. 硕博	
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博.	
Basic Course 基础课	2101008	Intermediate Econometrics 中级计量经济学	32	2	1/2	Optional 选修	Master 硕士	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	2101010	Advanced Econometrics 高级计量经济学	32	2	1/2	Optional 选修	Ph.D. 博士	
Discipline Core Course 学科核心课	2101011	Economics of defense policy 国防政策经济学	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博.	Master≥2 Ph.D.≥2 硕士≥2 博士≥2
	2101009	Macroeconomics 宏观经济学	32	2	1/2	Compulsory 必修	Master /Ph.D. 硕博.	
	2101001	Intermediate Microeconomics 中级微观经济学	32	2	1/2	Compulsory 必修	Master 硕士	
	2101002	Advanced Microeconomics 高级微观经济学	32	2	1/2	Compulsory 必修	Ph.D. 博士	
Major Optional Course 专业选修课	2101006	Management information systems 管理信息系统	32	2	1/2	Optional 选修	Master 硕士	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	2101007	Operations Research 运筹学	48	3	1/2	Optional 选修	Master 硕士	
	2101012	International Trade 国际贸易理论与政策	32	2	1/2	Optional 选修	Master 硕士	
	2101013	Development Economics 发展经济学	32	2	1/2	Optional 选修	Master 硕士	

Course Classification 类别	Course Code 课程代码	Course Name 课程名称	Course Hours 学时	Credits 学分	Semester 学期	Compulsory/ Optional 是否必修	Master /Ph.D. 课程层次	Credits Requirement 学分要求
		（管理）						
	2101014	Intercultural Management 跨文化管理	32	2	1/2	Optional 选修	Master 硕士	
	2101015	Laws and Regulations of the World Trade Organization 世界贸易组织法律法规	32	2	1/2	Optional 选修	Master 硕士	
	2101016	International Finance 国际金融学	32	2	1/2	Optional 选修	Master 硕士	
Major Optional Course 专业选修课	2101017	Selective Readings in Energy Economics and Climate Policy 能源与气候经济文献选读	32	2	1/2	Optional 选修	Master 硕士	Master≥6 Ph.D.≥2 硕士≥6 博士≥2
	2101004	Efficiency and Productivity Analysis of Energy and Environment 能源环境效率与生产率分析	32	2	1/2	Optional 选修	Master 硕士	
	2101005	Industry Green Management and Optimization 行业绿色管理及优化	32	2	1/2	Optional 选修	Master 硕士	
	2101018	Classic Literature on International Trade 国际贸易经典文献	32	2	1/2	Optional 选修	Ph.D. 博士	
Total Credits 合计	Master≥24 credits 硕士≥24 Ph.D.≥20 credits 博士≥20							

Notes：

1. Public Course

(1) Chines 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. Basic Course

If the mathematic courses listed in the chart can't meet the requirement, different Programs can set their own Basic Course.

3. Major Course

(1) Discipline Core Courses

Different Programs can set their own Major Core Course.

(2) Major Optional Course

International students should choose course from their own program or from other programs. 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.

说明：

1.公共课

（1）汉语:由留学生中心开设，所有留学生必修课。

（2）中国概况：由留学生中心开设，所有留学生必修课。

2.基础课

表中所列数学类课程若不能满足本学科对基础课要求，各学科可另行制定其他相关的学科基础课。

3.专业课

（1）专业核心课：各学科确定本学科的全英文核心课程。

（2）专业选修课：可在本学科培养方案或全校专业课程库中选修。在导师指导下，留学硕士生根据需要可选修本科生课程，学分按照本科课程学分的一半计算；留学博士生根据需要可选修硕士生课程，学分按照硕士课程学分计算，但不计入博士培养计划要求学分。

5. Practice Part

1. Academic Activity (1 credit) **学术活动（1 学分）**

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.

研究生在校期间参加重要的学术活动、学术讲座以及国内外学术会议等。鼓励留学生在校内外的各类学术会议上做报告。

2. Innovative Practice (1 credit) **实践活动（1 学分）**

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

由指导教师指导研究生进行科研技能训练、社会实践及创新能力培养并负责考核。

6. The Dissertation Related Work

1. Literature Review & Opening Report; 2. Mid-Term Evaluation; 3. Dissertation Writing and Dissertation Pre-Defense (for Ph.D. students); 4. Thesis Defense; 5. Degree Conferment

1.文献综述与开题报告； 2.中期检查；3.博士论文预答辩；4.论文答辩；5.学位申请。

More Details can be found in *Regulations of Training Procedures for International Graduates of BIT, Regulations of Dissertation Pre-Defense for Ph.D. Students of BIT* and *Implementation Regulations on Academic Degree Conferrals of Beijing Institute of Technology*

本学科对符合要求的硕士学位申请人和博士学位申请人分别授予 XX 硕士和 XX 博士学位。

具体要求见《北京理工大学留学研究生培养环节实施细则》、《北京理工大学博士学位论文预答辩细则》以及《北京理工大学学位授予工作细则》。

Time nodes of relevant procedure（培养环节时间节点要求）

The Dissertation Related Work **学位论文相关工作**	**Master** **硕士**	**Ph.D.** **博士**
Literature Review& Opening Report 文献综述与开题报告	Before week 1 of the 3rd semester 第三学期第一周（含）前	Before week 1 of the 5th semester 第五学期第一周（含）前
Mid-Term Evaluation 中期检查	——	Before week 1 of the 7th semester 第七学期第一周前
Dissertation Pre-Defense 论文预答辩	——	Before Review 论文评阅送审前完成
Dissertation Defense 论文答辩	At least 9 months after the Opening Report 距离开题至少 9 个月	At least 18 months after the Opening Report 距离开题至少 18 个月
Degree Application 学位申请	The application should be raised in a certain time after the Dissertation Defense 答辩后在规定时间内提出申请	

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.

课程教学大纲内容包括课程编码、课程名称、学时、学分、教学目标、教学方式、考核方式、适用学科专业、先修课程、主要教学内容和学时分配、参考文献等。