北京工商大学
留学研究生培养方案
(2025 年)

研究生院

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目　录

留学研究生培养方案总体框架要求及模板(2025 版) 4

经管学部 7

经济学院 8

产业经济学硕士留学研究生培养方案 9

Master of Industrial Economics program 13

国际商务硕士留学研究生培养方案 17

Master of International Business Program 20

商学院 24

国际工商管理硕士留学研究生培养方案 25

Postgraduate Training Program of International Master of Business Administration (IMBA) of Business School 28

轻工与食品学部 31

食品与健康学院 32

食品科学与工程博士留学研究生培养方案 33

Doctoral Program for Food Science and Engineering 38

生物与医药（食品工程）硕士留学研究生培养方案 44

Professional Master Degree Program of Food Engineering for International Students 48

轻工科学与工程学院 52

化学工程与技术博士留学研究生培养方案 53

Chemical Engineering and Technology PhD Training Program for International Graduate Students 60

轻工技术与工程博士留学研究生培养方案 70

Doctoral Program for Light IndustryTechnology and Engineering 75

环境科学与工程硕士留学研究生培养方案 80

Master of Environmental Science and Engineering 83

材料与化工硕士留学研究生培养方案 88

Cultivation Scheme for Postgraduate Studying for Degrees in Materials and Chemical Engineering 91

数据科学与人工智能学部 94

计算机与人工智能学院 95

电子信息（计算机技术）硕士留学研究生培养方案 96

Electronic Information (Computer Technology) Master of Computer Technology for International Students 100
电子信息（控制工程）硕士留学研究生培养方案 104
Electronic Information (Control Engineering) Master of International Postgraduate Training Program 107
电子信息（人工智能）硕士留学研究生培养方案 111
Electronic Information (Artificial Intelligence) Master of International Postgraduate Training Program 114
机械（机械工程）硕士留学研究生培养方案 117
Master of International Mechanical Program 120

人文社科学部 124

语言与传播学院 125

新闻与传播硕士留学研究生培养方案 126
Professional Master Training Program in Journalism and Communication 129

留学研究生培养方案总体框架要求及模板(2025 版)

一、培养目标

来华留学生在学科/专业学位上的培养目标和毕业要求与所在学校和专业的中国学生一致，符合相应教育层次、专业的教育教学标准或相关规范。来华留学生应当熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。

二、学科简介与研究方向

参照国内生培养方案。

三、学制和学习年限

参照国内生培养方案。

四、课程设置与学分要求

来华留学生的课程设置，汉语和中国概况应作为必修课；要加强中文能力的训练。根据教育部《来华留学生高等教育质量规范》（教外〔2018〕50 号）文件要求“（1）以中文为专业教学语言的学科、专业中，来华留学生应当能够顺利使用中文完成本学科、专业的学习和研究任务，并具备使用中文从事本专业相关工作的能力；毕业时中文能力应当达到《国际汉语能力标准》五级水平。（2）以外语为专业教学语言的学科、专业中，来华留学生应当能够顺利使用相应外语完成本学科、专业的学习和研究任务，并具备使用相应外语从事本专业相关工作的能力；毕业时，硕士研究生、博士研究生的中文能力应当至少达到《国际汉语能力标准》三级水平。”

根据学校要求，研究生汉语课程实行年级教学。（1）选择英文授课方式的专业：研究生一年级学生每学期授课学时为 64 学时，4 学分；研究生二年级学生每学期授课学时为 64 学时，4 学分。若学生已通过汉语水平考试，可申请免修相应等级的汉语课程。

表 1 留学研究生课程设置及学分要求（英文授课方式）

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课		中国概况	2	32	1	必修
		汉语（一级）	4	64	1	必修
		汉语（二级）	4	64	2	必修
		汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课		参见国内生培养方案制定				必修
						必修
	应修					
专业课		参见国内生培养方案制定				必修/选修

						必修/选修
	应修					
选修课		参见国内生培养方案制定				必选/选修
						必选/选修
	应修					
课程总学分要求			≥14 学分			

说明：具体要求参照同学历层次国内生相应要求。

（2）选择中文授课方式的专业：研究生一年级学生每学期授课学时为 32 学时，2 学分；研究生二年级学生每学期授课学时为 32 学时，2 学分。若学生已通过汉语水平考试，可申请免修相应等级的汉语课程。

表 2 留学研究生课程设置及学分要求（中文授课方式）

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课		中国概况	2	32	1	必修
		汉语（四级）上	2	32	1	必修
		汉语（四级）下	2	32	2	必修
		汉语（五级）上	2	32	3	必修
		汉语（五级）下	2	32	4	必修
	应修		10 学分			
基础课		参见国内生培养方案制定				必修
						必修
	应修					
专业课		参见国内生培养方案制定				必修/选修
						必修/选修
	应修					
选修课		参见国内生培养方案制定				必选/选修
						必选/选修
	应修					
课程总学分要求			≥10 学分			

五、授课语言

中文或英文

六、必修环节（2 学分）

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，各专业根据实际情况制定可考核标准。

2.专业实践（1 学分）

“来华留学生的实践教学应当在满足专业要求的同时，与来华留学生的职业规划相结合，适应国际化人才培养的需要”，各专业根据实际情况制定可考核标准。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。

八、教学大纲

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、适用学科或专业学位（领域）、先修课程、主要教学内容和学时分配、参考文献等。

经管学部

经济学院

产业经济学硕士留学研究生培养方案

授予学位类别：经济学

一级学科代码及名称：0202 应用经济学

二级学科代码及名称：020205 产业经济学

制订单位：经济学院

一、培养目标

遵守中国宪法法治；掌握产业经济学基础理论和系统的专门知识，了解学科发展前沿；注重理论联系实际，在强化产业经济学基础的同时，加强对中国和国际现实产业经济问题的剖析，在流通产业研究、产业组织理论与产业政策、期货市场与产业发展等领域形成创造性的成果。

二、学科简介与研究方向

产业经济学学科前身是北京商学院的贸易经济学专业，至今有 50 多年的历史。1979 年开始招收商业经济学硕士研究生，1981 年正式获批商业经济硕士点，1997 年更名为产业经济学硕士点，1997 年成为原商业部重点学科，2003 年至今是北京市重点学科，2018 年获批“应用经济学”一级学科博士学位授权点（产业经济学方向）。

本学科教师的社会兼职有中国农业经济学会副会长、中国商业联合会专业工作委员会副秘书长、中国商业经济学会副秘书长、中国市场学会常务理事、流通专业委员会副秘书长、中国市场指导委员会副会长、中国物流学会副秘书长等。

本学科的研究方向分为三类，具体如下：

1．流通产业研究

2．产业组织理论与产业政策

3．期货市场与产业发展

三、学制和学习年限

产业经济学专业来华留学硕士研究生学制 3 年，最长修业年限 5 年。

四、课程设置与学分要求

1.课程设置

产业经济学专业来华留学硕士研究生所修课程分必修课和选修课，总学分不得少于 40 学分。学分组成为：必修课程不少于 30 学分，其中公共基础课程不少于 14 学分，学科基础课程 6 学分，专业课程 10 学分。选修课程在导师指导下选择教学计划所列的选修课不少于 8 学分。在完成课程学习同时，研究生还需获得必修环节 2 学分。

在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其它学院开设的研究生课程。

2.课程考核

培养计划中所有课程和必修环节均要进行考核，考核通过后方能取得学分。研究生课程考核分为考试和考查两种方式，学生选修的学位课一律闭卷考试，非学位课程可采用考试或考查方式。

研究生课程考核成绩按百分制评定，60 分为合格。课程考核成绩由平时成绩和期末成绩组成，平时成绩占总成绩的 30%-50%。平时成绩可采用课程论文、平时测验、读书报告、作业成绩、课堂讨论等方式进行。

必修课考试不合格须申请随下一年级重修，不单独进行补考；选修课不合格允许随下一年级重考或经导师同意改选课程。

重修或重考合格的课程可以取得学分，经重修或重考仍不合格者，不能参加学位论文答辩。研究生在修满规定课程学分后必须参加课程中期考核，考核合格方可参加学位论文答辩。

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	6
专业课	10	选修课	≥8
必修环节	2	总学分	≥40
学分说明	总学分 = 课程总学分 + 必修环节学分 在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其它学院开设的研究生课程。		

类别	课程编码	课程名称	学分	学时	开课学期	是否必
公共课	020205IMG2001	中国概况	2	32	1	必修
	020205IMG4002	汉语（一级）	4	64	1	必修
	020205IMG4003	汉语（二级）	4	64	2	必修
	020205IMG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	020205IMJ2001	产业经济学导读	2	32	1	必修
	020205IMJ2002	管理研究方法论	2	32	3	必修
	020205IMJ2003	经济学分析与应用	2	32	3	必修
	应修		6 学分			
专业课	020205IMZ2001	产业组织理论	2	32	2	必修
	020205IMZ2002	现代农业产业研究	2	32	2	必修
	020205IMZ2003	期货市场研究	2	32	3	必修
	020205IMZ2004	流通经济前沿问题研究	2	32	4	必修
	020205IMZ2005	电子商务产业研究	2	32	2	必修
	应修		10 学分			
	020205IMX2001	消费经济专题研究	2	32	4	选修

	020205IMX2002	STATA 数据管理及应用	2	32	1	选修
	020205IMX2003	经济问题研讨	2	32	2	选修
	020205IMX2004	学术论文写作与研究方	2	32	2	选修
	020205IMX2005	能源经济学	2	32	3	选修
	020205IMX2006	数字产业经济学	2	32	4	选修
	020205IMX2007	行为经济学	2	32	4	选修
	020205IMX2008	国际金融理论与实务	2	32	2	选修
	020205IMX2009	一带一路专题研究	2	32	2	选修
	应修		≥8 学分			
必修环节	学术活动		1		1-4	
	专业实践		1		1-4	
	应修		2 学分			
学位论文	开题答辩				3 末	
	中期检查				5 初	
	科研成果审核（文字重复 率检测、匿名评审、				6 初	
总学分要求			≥40 学分			

说明：具体要求参照同学历层次国内生相应要求。

五、授课语言

英文

六、必修环节（2 学分）

1. 学术讲座（1 学分）

产业经济学专业硕士研究生在校期间必须参加至少 10 场由研究生院、学院或学科组织或认可的专题讲座、学术报告或研究生论坛。

2. 专业创新实践（1 学分）

产业经济学专业硕士研究生专业创新实践包括学术研讨班、科学研究、专业实践、学科竞赛、社会服务等活动，应按要求从 5 项活动中至少选择 4 项完成，详情见《北京工商大学全日制学术学位硕士研究生培养工作管理规定》。

七、培养环节及学位论文

产业经济学专业来华留学硕士研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学来华留学研究生博士、硕士学位授予工作细则》、《经济学

院硕士研究生在学期间公开发表论文的标准》等。

八、教学大纲

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 Industrial Economics program

1. TRAINING TARGET

Abiding by the Chinese constitution and the rule of law; master the basic theory and systematic expertise of industrial economics, and understand the frontier of discipline development; pay attention to the combination of theory and practice, strengthen the foundation of industrial economics and, at the same time, strengthen the ability to analyze realistic industrial economic problems in China, gain creative results in the fields of circulation industry research, industrial organization and theory and industrial policy, and futures market research.

2. OVERVIEW OF THE PROGRAM

Industrial economics, formerly known as trade economics, has been established more than 50 years. In 1979, it began to recruit postgraduate students of business economics. In 1981, the master's degree of business economics was officially approved. In 1997, it was renamed as the master's degree of industrial economics. It became the key discipline of the former ministry of commerce of China in 1997, and has been the key discipline of Beijing since 2003. Moreover, it has approved "Applied Economics" discipline doctoral degree authorization point (Industrial Economics direction) in 2018.

The research and academic employment of the teachers mainly include the vice-chairman of the Chinese agricultural economics society, the vice secretary of the professional committee of China commercial federation, the vice secretary of the China commercial economy society, and the Executive director of China marketing society, etc.

The research direction of this discipline is divided into three categories, which is listed as follows:

(1) Circulation Industry Research

(2) Industrial Organization Theory and Industrial Policy

(3) Futures Market and Industry development

3. LENGTH OF SCHOOLING

The length of schooling is three years, with a maximum of five years.

4. CURRICULUM AND CREDITS REQUIREMENTS

1. Curriculum setting

To complete the whole program, students should complete 48 credits, including 40 credits in course study and 38 credits in practices. The 38 credits include 30 credits in compulsory courses and 8 credits in elective courses. The 2 credits include 1 credit in participating at least 10 seminars and 1 credit in participating innovation practice by following the supervisor's instructions.

2. Curriculum assessment

All courses and compulsory parts in the training program should be examined and the credits can be obtained by passing examination. Postgraduate course assessment is divided into examination and test.

Degree courses are all closed-book examination, whereas non-degree courses can be passed by examination or test.

The aggregate score is 100 and the bottom line to pass is 60. The score is made of usual grades and final examination grades, and the usual grades account for 30%-50%. The usual grades must include course paper and also can be measured by usual test, reading report, assignment, discussion, etc. The usual grades of social science must include the score of short paper.

Those who don't pass the compulsory course examination will not be allowed to take examination again but to retake the course with the next grade. Those who don't pass the elective course examination are allowed to retake the course or change the course with the permission of the tutor.

The score can be obtained by taking the course or passing the examination again, or the students will not be allowed to take part in the thesis defense.Postgraduates must take part in the mid-term assessment after obtaining the required course credits. Only passing this assessment, students can take part in the process of evaluating their thesisqualification.

Table 1 Curriculum categories and structure

Course Classification	**Credit Requirements**	**Categories**	**Credit Requirements**
Public course	14	Basic course	6
Discipline course	10	Major Optional course	≥8
Compulsory course	2	**Total credits**	≥40

Table 2 Curriculum and Credits Requirements

Course Classification	**Course Code**	**Course Name**	**Credits**	**Course Hours**	**Semester**	**Compulsory/ Optional**
Public Course	020205IMG2001	Chinese Culture	2	32	1	Compulsory
	020205IMG4002	HSK（Level Ⅰ）	4	64	1	Compulsory
	020205IMG4003	HSK（Level Ⅱ）	4	64	2	Compulsory
	020205IMG4004	HSK（Level Ⅲ）	4	64	3	Compulsory
	Credits Requirement		14 credits			
Basic Courses	020205IMJ2001	Introduction to Industrial Economics	2	32	1	Compulsory
	020205IMJ2002	Management Research Methodology	2	32	3	Compulsory
	020205IMJ2003	Economic Analysis and Application	2	32	3	Compulsory

	Credits Requirement		6 credits			
Discipline Core Course	020205IMZ2001	Industria lOrganizational Theory	2	32	2	Compulsory
	020205IMZ2002	Modern Agricultural Industry	2	32	2	Compulsory
	020205IMZ2003	Futures Market Research	2	32	3	Compulsory
	020205IMZ2004	Research on the Frontier of Circulation Economy	2	32	4	Compulsory
	020205IMZ2005	E-commerce Industry Research	2	32	2	Compulsory
	Credits Requirement		10 credits			
Major Optional Course	020205IMX2001	Study on Consumer Economy	2	32	4	Optional
	020205IMX2002	Data management and analysis using STATA	2	32	1	Optional
	020205IMX2003	Discussion on Economic Issues	2	32	2	Optional
	020205IMX2004	Academic Paper Writing and Research Methods	2	32	2	Optional
	020205IMX2005	Energy Economics	2	32	3	Optional
	020205IMX2006	Digital Industrial Economics	2	32	4	Optional
	020205IMX2007	Behavioral Economics	2	32	4	Optional
	020205IMX2008	International Finance and Practices	2	32	2	Optional
	020205IMX2009	Seminar on the "Belt and Road" Initiative	2	32	2	Optional
	Credits Requirement		⩾8 credits			
Practice Part	Academic Activities		1		1~4	
	Professional Practice		1		1~4	
	Credits Requirement		2 credits			
Dissertation Works	Capstone presentation		End of third term			
	Process inspection		The beginning of fifth term			

	Review of scientific research results (repetition rate detection, anonymous review, oral defense)	The beginning of sixth term
Total Credits		⩾40credits

5. TEACHING LANGUAGE

English

6. COMPULSORY COURSE (2 CREDITS)

1. Academic lectures (1 credit)

Master students majoring in industrial economics must attend at least 10 special lectures, academic reports or graduate forums organized or recognized by graduate schools, colleges or specialized subject.

2. Professional innovation practice (1 credit)

The professional innovation practices of master degree students majoring in industrial economics include academic seminars, scientific research, professional practice, discipline specialized subject competitions, social services and other activities. At least 4 of the 5 activities should be completed as required. For details, see the regulations on the management of the cultivation of full-time Master degree students of Beijing Technology and Business University.

7. THE DISSERTATION RELATED WORK

The related parts and dissertation work in the training process of industrial economics master degree candidates include thesis opening defense, mid-term examination, scientific research results examination, paper repetition rate detection, anonymous evaluation and dissertation defense. For specific requirements, please refer to the “Dissertation Norms for Doctoral Students in Beijing Technology and Business University”, “Implementation Rules on Conferring Doctor's and Master's Degrees for International Students in Beijing Technology and Business University”, and “Master Degree Candidates Thesis Publication Standards in the School of Economics ”.

8. TRAINING PROGRAMSCHEDULE

The course syllabus includes course code, course name, class hours, credits, teaching objectives, teaching methods, assessment methods, applicable subjects, prerequisite courses, main teaching contents and class hour distribution, references, etc.

国际商务硕士留学研究生培养方案

授予学位类别：国际商务

专业学位类别代码及名称：0254 国际商务

制订单位：经济学院

一、培养目标

国际商务专业培养胜任在涉外企事业单位、政府部门和社会组织从事国际商务经营运作与管理工作的高层次、应用型、复合型商务专门人才。

国际商务专业来华留学硕士研究生应当熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。

二、领域简介与研究方向

国际商务专业硕士学位授予权于 2010 年获批，2014 年开始同时招收国内生和留学生。本专业现有专任教师 14 人，其中教授 2 人、副教授 6 人、讲师 6 人。博士生导师 2 人，硕士生导师 10 人。国际商务专业硕士学位教育以培养高层次的复合型应用人才为重点，服务对象包括从事传统的货物与服务贸易企业，从事新兴制造业、现代服务业、跨国直接投资和外包的企业，以及政府管理部门、行业协会、贸易与投资促进机构、教育科研机构、国际组织等。本专业学位突出学校和行业培养的紧密结合，强调以国际化、开放式的教育体系和多元化的师资配备为基本特色，注重创新精神和实践能力的培养。

国际商务专业现设“一带一路”国际商务、跨国公司经营、国际大宗商品贸易三个研究方向。

三、学制和学习年限

国际商务专业来华留学硕士研究生学制 2 年，最长修业年限 4 年。不得申请提前毕业。

四、课程设置与学分要求

1. 课程设置

国际商务专业来华留学硕士研究生所修课程分必修课和选修课，总学分不得少于 48 学分。学分组成为：必修课程共计 33 学分，其中公共基础课程不少于 14 学分，学科基础课程 7 学分，专业课程 12 学分，选修课程在导师指导下选择教学计划所列的选修课不少于 8 学分。

在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其它学院开设的研究生课程。

在完成课程学习同时，还需获得必修环节 7 学分。

2. 课程考核

培养计划中所有课程和必修环节均要进行考核，考核通过后方能取得学分。研究生课程考核分为考试和考查两种方式，学生选修的学位课一律闭卷考试，非学位课程可采用考试或考查方式。

研究生课程考核成绩按百分制评定，60 分为合格。课程考核成绩由平时成绩和期末成绩组成，平时成绩占总成绩的 30%-50%。平时成绩可采用课程论文、平时测验、读书报告、作业成绩、课堂讨论等方式进行。

必修课考试不合格须申请随下一年级重修，不单独进行补考；选修课不合格允许随下一年级重考或经导师同意改选课程。

重修或重考合格的课程可以取得学分，经重修或重考仍不合格者，不能参加学位论文答辩。研究生在修满规定课程学分后必须参加课程中期考核，考核合格方可参加学位论文答辩。

国际商务专业来华留学硕士研究生毕业时中文能力应当至少达到《国际汉语能力标准》三级水平。

表 1 研究生课程类别及构成说明

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	7
专业课	12	选修课	≥8
必修环节	7	总学分	≥48
学分说明	总学分 = 课程总学分 + 必修环节学分		

表 2 专业学位硕士研究生课程设置及学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	025400IMG2001	中国概况	2	32	1	必修
	025400IMG4002	汉语（一级）	4	64	1	必修
	025400IMG4003	汉语（二级）	4	64	2	必修
	025400IMG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	025400IMJ3001	商务英语	3	48	2	必修
	025400IMJ2002	国际商务	2	32	1	必修
	025400IMJ2003	经济学分析与应用	2	32	1	必修
	应修		7 学分			
专业课	025400IMZ2001	国际贸易政策与实务	2	32	1	必修
	025400IMZ2002	国际投资与跨国企业管理	2	32	2	必修
	025400IMZ2003	国际金融理论与实务	2	32	2	必修
	025400IMZ2004	国际商务谈判	2	32	1	必修
	025400IMZ2005	国际商法	2	32	2	必修
	025400IMZ2006	研究方法与论文写作	2	32	2	必修
	应修		12 学分			
选修课	025400IMX2001	“一带一路”专题研讨	2	32	2	选修
	025400IMX2002	跨文化沟通	2	32	1	选修
	025400IMX2003	数字贸易专题研讨	2	32	2	选修

	025400IMX2004	电子商务产业研究	2	32	2	选修
	025400IMX2005	WTO 专题研讨	2	32	2	选修
	025400IMX2006	中国对外贸易专题	2	32	1	选修
	025400IMX2007	国际市场营销	2	32	2	选修
	025400IMX2008	国际结算专题	2	32	2	选修
	应修		≥8 学分			
课程总学分要求			≥41 学分			

说明：具体要求参照同学历层次国内生相应要求。

五、授课语言

英文

六、必修环节（7 学分）

1. 学术活动（1 学分）

国际商务专业来华留学硕士研究生修学期间参加行业前沿讲座或学术会议 5 场以上，或参加学科竞赛 1 次以上，经导师审核认定完成创新实践活动。

2. 专业实践（6 学分）

国际商务专业来华留学硕士研究生应与导师一起制订并填写《北京工商大学全日制专业学位硕士研究生专业实践计划表》，提交实践学习计划。研究生在导师指导下完成专业实践或课题研究。实践时间不少于 6 个月，实践结束提供相关证明和接受单位鉴定，撰写不少于 5000 字的实践学习总结报告；或课题研究不少于 96 学时，撰写不少于 5000 字的案例研究/专题调研报告。

七、培养环节及学位论文

国际商务专业来华留学硕士研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。

八、教学大纲

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 International Business Program

1. TRAINING TARGET

MIB Program at BTBU aims to foster the high-level, application-oriented and inter-disciplinary business professionals who can meet the demand of economic globalization, compete in international business operation, practice and management in foreign enterprises, government departments and social organizations.

Students studying in China should be familiar with history, geography, society, economy and other basic knowledge of China's national conditions and culture; understand China's political system and foreign policies; understand the mainstream values and public morality of Chinese society; and form a good concept of rule, law and moral consciousness.

2. OVERVIEW OF THE PROGRAM

Since 2010, BTBU has been approved the right to grant MIB degree. We have started to enroll both domestic and international graduate students since 2014. There are 14 teachers in this major, including 2 professors, 6 associate professors, 6 lecturers. We have 2 doctoral supervisors and 10 master supervisors.

BTBU MIB program focuses on cultivating the high-level comprehensive applied talents, in order to serve trade enterprises engaged in traditional and emerging manufacturing industry, modern service industry, international direct investment and outsourcing companies, government management departments, industrial associations, trade and investment promotion agencies, education, scientific research institutions and international organizations, etc. This program highlights the close combination of theory study and practice training, emphasizes the international education system and pays attention to the cultivation of innovative spirit and practical ability.

This major includes three research directions: The "Belt and Road Initiative" International Business (BRI); Transnational Corporation Operation (TNC Operation); International bulk commodity trade.

3. LENGTH OF SCHOOLING

The duration is generally 2 years for full-time students which should not be longer than 4 years.

4. CURRICULUM AND CREDITS REQUIREMENTS

(1) Curriculum Setting

The courses of MIB program are divided into compulsory courses and optional courses. Students should complete no less than 48 credits, including 33 credits in compulsory courses and 8 credits in optional courses. The credits in compulsory courses include 14 credits of public courses, 7 credits of basic courses and 12 credits of professional courses. And the optional courses should be chosen under the supervisor's guide and suggestion.

On the basis of completing the above required credits, the student may take postgraduate courses offered by other schools of BTBU under the guidance of the supervisor.

At the same time of completing the course, 7 credits in practice is also required.

(2) Course Assessment

All courses in the plan should be assessed, and credits can be obtained after passing assessment. The assessment of postgraduate courses can be organized in two ways: exam or test. Degree courses should be assessed by closed book exam, and non-degree courses can be assessed by test or exam.

Postgraduate course assessment results are assessed according to the 100 mark system, and 60 is qualified. The course assessment result is composed of the class performance score and the final exam score. Class performance accounts for 30%-50% of the total score. The class performance score can be conducted in the form of course papers, tests, reading reports, homework scores, class discussions, etc.

If you fail in the examination of compulsory courses, you should apply for retaking them with the next grade. If the optional course is not qualified, it is allowed to retake the exam with the next grade or change to another optional course with the supervisor's approval.

Those who pass retaking exam or test can get credits. Those who still fail to pass the retaking exam cannot participate in the dissertation defense. After completing the required course credits, MIB students must attend the mid-term assessment. Only after passing the mid-term assessment, students can participate in the dissertation defense.

All MIB students should pass at least the HSK 3 before graduation.

Table 1 Description of Postgraduate Course Category and Composition

Course Classification	Credit Requirements	Course Classification	Credit Requirements
Public Course	14	Basic Course	7
Professional Course	12	Optional Course	⩾8
Practice	7	Total Credits	⩾48
Note	Total credits = Course credits + Practice credits		

Table 2 Curriculum Setting and Credits Requirements for Professional Degree Postgraduates

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	025400IMG2001	Chinese Culture	2	32	1	Compulsory
	025400IMG4002	HSK（Level I）	4	64	1	Compulsory
	025400IMG4003	HSK（Level II）	4	64	2	Compulsory
	025400IMG4004	HSK（Level III）	4	64	3	Compulsory
	Credits Requirement		14 Credits			
Basic Course	025400IMJ3001	Business English	2	32	1	Compulsory
	025400IMJ2002	International Business	3	48	2	Compulsory
	025400IMJ2003	Economic Analysis and Application	2	32	1	Compulsory

	Credits Requirement		7 Credits			
Professional Course	025400IMZ2001	International Trade Policy and Practice	2	32	1	Compulsory
	025400IMZ2002	International Investment and Transnational Enterprises Management	2	32	2	Compulsory
	025400IMZ2003	International Finance and Practice	2	32	2	Compulsory
	025400IMZ2004	International Business Negotiation	2	32	1	Compulsory
	025400IMZ2005	International Business Law	2	32	2	Compulsory
	025400IMZ2006	Research Methodology and Thesis Writing	2	32	2	Compulsory
	Credits Requirement		12 Credits			
Optional Course	025400IMX2001	Seminar on the “Belt and Road Initiative”	2	32	2	Optional
	025400IMX2002	Intercultural Communication	2	32	1	Optional
	025400IMX2003	Seminar on Digital Trade	2	32	2	Optional
	025400IMX2004	E-commerce Industry Research	2	32	2	Optional
	025400IMX2005	Study on WTO Issues	2	32	2	Optional
	025400IMX2006	China’s Foreign Trade	2	32	1	Optional
	025400IMX2007	International Marketing	2	32	2	Optional
	025400IMX2008	International Settlement	2	32	2	Optional
	Credits Requirement		≥8 Credits			
Total Credits			≥41 Credits			

Note: The detailed requirements refer to the corresponding requirements of domestic students at the same educational level.

5. TEACHING LANGUAGE

English

6. PRACTICE PART

(1) Academic Activity (1 credit)

During the study period of MIB program, students should participate in more than 5 lectures on the frontier topic of the industry or academic conference, or participate in the discipline competition for more than 1 time. The practice activities should be checked and approved by the supervisor.

(2) Professional Practice (6 credits)

Graduate students should work out and fill in the "Professional Practice Schedule for Full-time Professional Master Degree Students of Beijing Technology and Business University" together with their supervisors, and submit the practical learning plan. Graduate students should complete professional practice or project research under the guidance of supervisor. The internship duration should be no less than 6 months. Relevant certificates and unit identification should be provided after the practice. A practice report with no less than 5000 words should be submitted. Students who choose survey/case study, should work no less than 96 class hours and write a survey/case study report with no less than 5000 words.

7. THE DISSERTATION RELATED WORK

In the process of cultivating foreign graduate students, relevant dissertation work includes thesis proposal defense, mid-term examination, review of scientific research results, paper repetition rate detection, anonymous review, and thesis defense. For specific requirements, please refer to “Detailed Rules for Granting Doctoral and Master’s Degrees to Overseas Graduate Students of Beijing Technology and Business University (Trial)”.

8. COURSE SYLLABUS

The contents of the syllabus include course code, course name, course hours, credits, teaching objectives, teaching methods, examination methods, applicable majors, prerequisite courses, main teaching contents and time allocation, references, etc.

商学院

国际工商管理硕士留学研究生培养方案

授予学位类别：工商管理

专业学位类别代码及名称：1251 工商管理

制订单位：商学院

一、培养目标

掌握工商管理学基本原理，培养具有国际视野和新兴产业适应力及主导力的社会管理者、商界领袖、创业创新领域的开拓者以及为特定行业专门培养的专业人才。

二、学科简介与研究方向

本学科 MBA 项目设有财务与会计、金融与期货、运营与供应链管理等三个基本培养方向，涉及现代领导力、金融分析师（CFA）、注册会计师（CPA）、现代制造业、高新技术产业、现代零售业、现代服务业、投融资平台企业及现代农业等九个专业子方向，经典专业的稳定性和专业发展的前沿性充分结合，为学员提供了广泛的选择空间。

三、学制和学习年限

采用全日制学习方式，学制为 2 年，最长修业年限不超过 4 年。

四、课程设置与学分要求

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	6
专业课	16	必修环节	4
毕业论文	8	总学分	≥48
学分说明	1．必修环节为专业实践，学时不少于 3 个月 64 学时，以 4 学分计，具体要求见六、必修环节。 2. 攻读本专业学位的留学研究生总学分不得少于 48 学分。		

表 1 留学研究生课程设置及学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	125100IMG2001	中国概况	2	32	1	必修
	125100IMG4002	汉语（一级）	4	64	1	必修
	125100IMG4003	汉语（二级）	4	64	2	必修
	125100IMG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	125100IMJ2001	商业和经济研究中的统计方法	2	32	2	必修

	125100IMJ2002	管理学	2	32	1	必修
	125100IMJ2003	会计学	2	32	1	必修
	应修		6 学分			
专业课	125100IMZ2001	人力资源管理	2	32	1	必修
	125100IMZ2002	市场营销学	2	32	2	必修
	125100IMZ2003	生产运作管理	2	32	2	必修
	125100IMZ2004	战略管理	2	32	2	必修
	125100IMZ2005	组织行为学与领导力	2	32	2	必修
	125100IMZ2006	公司财务	2	32	1	必修
	125100IMZ2007	管理会计控制	2	32	2	必修
	125100IMZ2008	物流与供应链管理	2	32	2	必修
	应修		16 学分			
毕业论文		硕士论文	8	128	4	必修
课程总学分要求			≥44 学分			

五、授课语言

英文

六、必修环节（4 学分）

必修环节为 4 学分的专业实践，安排在第 3 学期，由导师指导调研，根据本专业的前沿研究方向进行选题，完成学时不少于 3 个月 64 学时的研究专题实践。学生需要上交实践报告，考核合格后获得学分。

七、培养环节及学位论文

学位论文是研究生培养工作的重要环节。通过学位论文工作，培养研究生从事科学研究和独立工作能力，培养分析、综合能力，发现问题和解决问题的能力，培养实事求是的工作作风和严谨踏实的治学态度。

1.学位论文选题

硕士学位论文选题应直接来源于工商管理学科领域生产实际或者具有明确的工商管理学科背景和应用价值，密切结合所从事的企业面临的技术改造、革新、引进等技术难题或科研攻关项目。

2.学位论文开题

学位论文工作应在导师指导下于第三学期开始，在查阅文献、调查研究的基础上做好开题报告。开题报告主要包括立题意义、文献综述初步、研究计划及目标和拟解决方案等。开题报告应在学科范围内公开宣讲，并广泛征求意见。

3.学位论文中期检查

学位论文中期检查应在第四学期完成。

4.学位论文内容和形式

学位论文必须在导师指导下由硕士生本人独立完成。论文要有一定的工作量，在论文题目确定后，用于论文工作的时间为半年。论文要求资料可靠、理论正确、思路清晰，对所研究专业和方向的最新成就有所了解，对所研究的课题有新的见解，并在该研究方向上有新的研究成果。论文书写必须符合《北京工商大学研究生学位论文格式要求》。

5.学位论文如用英文撰写，必须要有中文摘要。

6.论文答辩与学位申请

论文评审实行匿名评阅制度。所有研究生学位论文必须经过答辩，具体要求详见《北京工商大学专业学位硕士研究生学位论文管理办法》。

八、教学大纲

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。

Postgraduate Training Program of International Master of Business Administration (IMBA) of Business School

1. TRAINING TARGET

Students should grasp the basic principles of business administration. We cultivate social leaders, business leaders, pioneers of entrepreneurship and innovation, and professionals trained for specific industries.

2. SUBJECT INTRODUCTION AND RESEARCH DIRECTION

The MBA program has three basic training directions: finance and accounting, finance and futures, operation and supply chain management, involving nine professional sub-directions, including modern leadership, financial analyst (CFA), certified public accountant (CPA), modern manufacturing, high-tech industry, modern retail, modern service industry, investment and financing platform enterprises and modern agriculture. The content of classic majors and the cutting edge of this field are fully combined, which provides students with a wide choice space.

3.LENGTH OF SCHOOLING

A full - time study is adopted and the academic system is 2 years.The longest study period is no more than 4 years.

4.CURRICULUMAND CREDITS REQUIREMENTS

Table 1 Description of total credits

Course Classification	Credits Requirement	Course Classification	Credits Requirement
Public Course	14	Basic Course	6
Discipline Core Course	16	Compulsory Part	4
Master Thesis	8	Total Credits	≥48
Credit description	1. The compulsory part is a professional practice. The duration of the professional practice is not less than 3months and 64hours. It is with 4 credits. See “6. Compulsory Part” for more details. 2. The total number of credits shall not be less than 56credits.		

Table 2 Curriculum and credit requirements

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	125100IMG2001	Chinese Culture	2	32	1	Compulsory
	125100IMG4002	HSK（Level Ⅰ）	4	64	1	Compulsory

	125100IMG4003	HSK（Level Ⅱ）	4	64	2	Compulsory
	125100IMG4004	HSK（Level Ⅲ）	4	64	3	Compulsory
	Credits Requirement		14Credits			
Basic Course	125100IMJ2001	Statistical Methods Used in Business and Economic Research	2	32	2	Compulsory
	125100IMJ2002	Management	2	32	1	Compulsory
	125100IMJ2003	Accounting	2	32	1	Compulsory
	Credits Requirement		6Credits			
Discipline Core Course	125100IMZ2001	Human Resource Management	2	32	1	Compulsory
	125100IMZ2002	Marketing Management	2	32	2	Compulsory
	125100IMZ2003	Operation and Production Management	2	32	2	Compulsory
	125100IMZ2004	Strategic Management	2	32	2	Compulsory
	125100IMZ2005	Organizational Behavior and Leadership	2	32	2	Compulsory
	125100IMZ2006	Corporate Finance	2	32	1	Compulsory
	125100IMZ2007	Managerial Accounting Controls	2	32	2	Compulsory
	125100IMZ2008	Logistics and Supply Chain Management	2	32	2	Compulsory
	Credits Requirement		16Credits			
Master Thesis			8	128	4	Compulsory
Total Credits			⩾44 Credits			

5. TEACHING LANGUAGE

English

6. COMPULSORY PART

There is a compulsory professional practice with 4 credit points.This professional practiceis arranged in the third semester guided by asupervisor. The topic selection is to be aligned with cutting-edge research

directions. The duration of this practice should be no less than 3 months and 64 hours. The student is required to submit a report for this practice, and the credit points will be granted if the report passes the assessment.

7. THE DISSERTATION RELATED WORK

Degree thesis is the important part of graduate cultivation. Through the thesis, the graduate student should be trained to do scientific research and work independently. The analysis and comprehensive ability, and the ability of finding and solving problems, cultivation of seek truth from facts work style and rigorous practical attitude should be cultured.

1. Thesis topic selection

The topic selection of the degree thesis should be directly related to practical applications of business administration, or technical problems or scientific research projects that have a clear business administration background and application values.

2. Research proposal

The thesis work should be started in the third semester under the guidance of the supervisor.The student should finish a research proposal base on the literature review and preliminary investigation and study. The research proposal should include the significance of the research, literature review, research plan and targetand proposed solutions. The research proposal should be preached in the range of subjects, and solicit opinions extensively.

3.Mid-term examination of thesis

The mid-term examination of the thesis should be completed in the fourth semester.

4.Content and form of thesis

The thesis must be finished by the student independently under the guidance of the supervisor. The thesis should have a certain amount of workload. The thesis's working time, after the topic is determined, is generally half a year. The thesis is required to be with reliable information, correct theory, clear thinking, understanding of state-of-the-art research direction, new insights into the research direction, and new research achievement. Thesis writing must be consistent with the "Beijing Technology and Business University master's degree thesis writing rules".

5.If the thesis is written in English, it must have a Chinese abstract.

6.Thesis defense and degree application

The evaluation of the thesis will be conducted in a "double-blind" manner. The thesis must go through the defense process. More details can be found in"Working rules of University Master's degree awarded by Beijing Technology and Business University".

8. COURSE SYLLABUS

The content of the course syllabus includes the course code, course name, class hours, credits, teaching objectives, teaching methods, assessment methods, applicable disciplines, prerequisite courses, main teaching content and class hours allocation, references, etc.

轻工与食品学部

食品与健康学院

食品科学与工程博士留学研究生培养方案

授予学位类别：工学博士学位

一级学科代码及名称：0832 食品科学与工程

制订单位：食品与健康学院

一、培养目标

熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。培养掌握食品科学与工程领域的发展动态，具有国际化思维与视野，具有较强的创新意识和创新能力，掌握食品科学与工程领域坚实的基础理论和技术基础，具备践行健康中国行动与大食物观，独立创新从事食品相关领域科学研究、教学、生产开发与管理的高层次专门人才。

二、学科简介与研究方向

食品科学与工程学科源于原北京轻工业学院 1958 年设立的发酵工程专业和原北京商学院 1994 年设立的食品科学与工程专业。本学科现有“食品科学与工程”一级学科硕士和博士学位授权点，并设有博士后科研流动站，是北京市重点学科、北京市高精尖建设学科、国家级特色专业建设点。通过 IFT、IUFoST 两个食品专业权威国际认证，入选国家首批一流专业建设计划和国家首批“卓越农林人才教育培养计划”。学科立足国家战略需求和国际食品科学发展前沿，重点在食品添加剂与食品安全、农产品加工与贮藏工程、食品科学、食品营养等方面开展具有战略性、前瞻性的基础和应用创新研究，为推动中国传统食品工业化及产业升级提供科学依据和关键技术。

目前，学科有如下 4 个主要的研究方向：

1．食品添加剂与食品安全

主要研究食品添加剂绿色制造技术、食品添加剂构效关系、食品安全监测与控制等。该方向在含硫食品香料、手性香料、天然肉味香精、食品风味、天然食用色素、食品乳化剂、食品安全监测、食品中有毒有害成分检测新技术等方面特色突出。

2．农产品加工及贮藏工程

主要研究粮油、畜产、乳制品和果蔬的深加工及综合利用、特色资源研究开发等，并结合农产品加工生产实际问题,开展产学研合作，提升我国农产品加工价值链。

3．食品科学

以食品微生物学和食品酶学为基础，在分子水平上研究食品组分的化学组成、结构、性质，研究微生物和酶制剂在加工过程中对食品品质影响的基本规律；挖掘功能微生物资源，探讨特种酶催化的作用机制，研究食品应用过程的适应性。

4．食品营养与健康

主要研究食品中各种主要营养素及功能成分的特性，营养作用及量效关系，解决其加工技术和营养成分的保留及控制等关键技术问题。聚焦不同年龄人群代谢变化过程、机理和特点，重点研究和解

决食品中蛋白质，脂肪，低聚糖类等营养成分与人体健康的相关性。

三、学制和学习年限

博士研究生学制 4 年，最长修业年限 6 年。

四、课程设置与学分要求

本专业所修总学分不得少于 33 学分，其中公共课 22 学分，基础课 2 学分，专业课 3 学分；选修课不少于 4 学分；必修环节 2 学分。在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其它学院开设的研究生课程。

博士生的必修课考核成绩达 70 分为合格，选修课考核成绩达 60 分为合格。

表 1 留学博士研究生课程设置表

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	2
专业课	3	选修课	≥4
必修环节	2	总学分	≥25

表 2 留学博士研究生课程设置及学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	086000IDG2001	中国概况	2	32	1	必修
	086000IDG4002	汉语（一级）	4	64	1	必修
	086000IDG4003	汉语（二级）	4	64	2	必修
	086000IDG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	086000IDJ2001	高级食品化学	2	32	1	必修
	应修		2 学分			
专业课	086000IDZ2001	风味化学原理与技术	2	32	1	必修
	086000IDZ1002	营养素与营养化学	1	16	1	必修
	应修		3 学分			
选修课	086000IDX2001	食品质量评价	2	32	1	选修
	086000IDX2002	食品微生物学与生物技术原理与实践	2	32	1	选修
	应修		≥4 学分			
课程总学分要求		≥23 学分				

五、授课语言

英语（汉语课程除外）。

六、必修环节（2 学分）

1.学术活动（1 学分）

博士生在校期间，应累计参加 5 次以上的学术活动。学术活动包括作学术报告、参加学术报告会、参加国际国内学术会议等形式，其中参加国际国内学术会议应有会议论文摘要、口头报告或墙报。

2.专业实践（1 学分）

博士生在校期间，应参与社会实践或调查，就食品专业相关问题进行调研并提交实践报告。

七、培养环节及学位论文

1. 个人培养计划

导师为研究生培养的第一责任人。博士生导师应根据本学科的实际情况、培养方案要求，结合研究方向和博士生的特点，制定博士生的个人培养计划。培养计划中应有明确的学位论文选题范围，明确对课程学习、文献阅读、科学研究、学位论文、实践环节等要求和进度安排。培养计划要充分注意因材施教、切实可行，发挥博士生的主动性和创造性。培养计划经导师或指导小组讨论审核并报学院批准后实施。培养计划应在博士生入学二个月内完成。

培养计划表一式四份，学院、导师和博士生各保存一份，一份提交研究生院培养办公室备案。在执行过程中如因客观条件变化，可以修订培养计划，但须经学院主管负责人同意，并报研究生院培养办公室备案。在博士研究生学位论文答辩前，应审查培养计划执行情况。

2. 学科综合考核

为加强博士生培养过程管理，保证培养质量，学校建立博士生学科综合考核制度。博士生最迟须在入学后的第三学期末之前完成课程学习，修满学分，在博士学位论文开始前或初始阶段，参加学院组织的学科综合考核，逾期未能考核的，按不合格处理。

2.1 考核内容和方式

学科综合考核的内容应包括导师所指定学习的基础理论、专业知识、学科前沿知识；也应包括导师虽未指定，但作为博士生应该具备的知识以及分析问题、解决问题的能力。学科综合考核的方式可以是口试、笔试，也可以是口、笔兼试。

2.2 考核组织

博士生学科综合考核由学院组织安排，可根据各学科特点成立不少于 3 名本学科专家组成的学科综合考核委员会或考核小组，并根据学科专业对博士生培养的目标要求以及培养方案确定的考核形式和考核内容进行考核。学院综合考核委员会或考核小组针对考核内容进行评议，并按“合格”或“不合格”给出考核成绩。

2.3 考核结果处理

a．考核成绩评定后，应及时填写《北京工商大学博士研究生学科综合考核表》。学科综合考核成绩为“合格”的，可进入博士学位论文开题工作；

b．具有下列情形之一的，学科综合考核成绩为“不合格”：

（1）存在有违科学道德和学术不端行为；

（2）未按课程学习计划要求完成全部课程学习和考试；

（3） 已按课程学习计划要求完成全部课程考试，但有一门及以上学位必修课程考试不及格；

（4） 未完成必修环节的学习；

（5） 明显缺乏科学研究和实践能力；

（6） 因身心健康原因不能完成正常的学习和科研工作；

（7） 未经批准不参加学科综合考核。

学科综合考核不合格的博士生不能进入学位论文开题工作，学院考核委员会或考核小组应给予考核警告的书面通知，并在规定期限内对其重新考核，考核仍不合格的，应终止其培养过程。

3. 学位论文

博士学位论文是博士研究生学术水平的重要标志，表明作者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新性成果，并反映作者在本领域掌握了坚实宽广的基础理论和系统深入的专门知识。

3.1 开题答辩

博士生原则上应在入学后第三学期内，学科综合考核通过后进行论文开题答辩。原则上由各研究方向学科带头人统一组织，公开举行，并提前一周通知研究生教秘备案。

（1）开题报告由文献综述和研究计划两部分组成。博士生在至少阅读 100 篇参考文献（其中外文文献不得少于 70%）的基础上，结合研究方向和论文选题写出文献综述书面报告。文献综述报告应对本学科相关领域的近期国内外研究动态，包括这些领域的主要进展、前沿课题及主要研究方法和手段等给出详尽的介绍。文献综述由博士生本人完成，综述报告应提前 1 周，分送给考核小组每位成员。

（2）开题答辩前张贴海报，公布开题者、导师、课题名、评审委员名单以及举行报告会日期和地点，并组织本学科和相关学科科研人员、教师以及研究生参加。

（3）评审委员会成员不少于 5 人，其中博导至少 2 人。提倡聘请相近专业、跨学科有关专业或科研单位、企业界的专家参加。

（4）博士生对拟开题作 30 分钟左右的全面汇报，就课题的研究范围、意义和价值、拟解决的问题、研究方案及研究进度做出说明，进行可行性论证，并当场回答评审委员提问。指导教师介绍该生的业务基础、研究能力以及对拟开课题的评价。评审小组经过讨论，对该生能否完成课题任务、能否进入学位论文阶段做出明确评定，并将提问和讨论的主要内容记录在案，要求每位评审委员在开题报告表上签名。

3.2 中期检查

中期检查在第五学期末进行，对博士生的论文工作进展情况进行全面考查，以保证论文能够如期顺利完成。中期检查具体组织形式参照“3.1 开题答辩”。中期检查结束后，应填写《北京工商大学博士研究生中期检查表》，由学院学术委员会审核。中期检查达不到要求的，应延期通过，需经再次考核通过或终止培养。对中期检查的具体要求见《北京工商大学博士研究生学位论文管理办法》。

3.3 学位论文撰写

博士生学位论文的详细要求，参见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学研究生学位论文文字重复率检测管理办法》、《北京工商大学博士、硕士学位授予办法》。

3.4 科研成果要求

全日制学术学位型博士研究生申请博士学位，在学期间（以入学时间为界，论文发表原则上以正式录用通知为准）须以第一作者身份或以第二作者（导师或副导师为第一作者）发表课题相关的学术论文或授权发明专利， 成果累计达到 4.0 分及以上（其中 C 级、D 级别论文积分之和应≤1.0 分）或满足高水平绿色通道要求。如共同第一作者论文成果，须由通讯作者和所有共同第一作者协商分配，并提供书面说明材料。学术论文、科研成果等须以北京工商大学为第一单位署名发表，与导师共同发表的学术论文原始稿件必须经过指导教师审核，投稿前必须由导师签字同意。如博士学位论文已完成，学术论文尚未正式刊出，须提交论文正式录用通知申请答辩，但领取博士学位证书时需有已刊出论文或符合以上要求的其他科研成果材料。

成果得分标准：

（1）发表 A1 级论文一篇计 4.0 分；

（2）发表 A2 级论文一篇计 3.0 分；

（3）发表 A3 级论文一篇或授权国际发明专利一项计 2.0 分；

（4）发表 B 级论一篇或国内发明专利一项计 1.5 分；

（5）发表 C 级论文一篇计 1.0 分；

（6）发表 D 级论文一篇计 0.8 分；

注：论文级别依据《北京工商大学自然科学类科研业绩认定办法》（北工商校发〔2024〕9 号）。

高水平绿色通道：

（1）在《Nature》《Science》《Cell》上发表课题相关的研究性学术论文 1 篇，排名不限；

（2）在《Nature》《Science》《Cell》的子刊、《Journal of the American Chemical Society》《Angewandte Chemie International Edition》《Plant Cell》《Proceedings of the National Academy of Sciences of the United States of America》或其他经学院一级学科博士点学位评定分委员会认定的高水平期刊上，以第一作者身份或以第二作者（导师或副导师为第一作者）发表课题相关的研究性论文 1 篇；

（3）以第一作者身份或以第二作者（导师或副导师为第一作者）发表课题相关的研究性论文成为 ESI 高被引或热点论文。

符合以上条件之一的，直接满足要求。

3.5 学位论文预答辩

博士生完成学位论文后，在论文送审之前，要完成学位论文的预答辩，以便根据预答辩的情况对学位论文进行进一步修改和完善。 学位论文预答辩通过的，方可进行论文送审和申请正式答辩。对学位论文预答辩的基本要求和执行办法见《北京工商大学博士研究生学位论文管理办法》。

3.6 博士学位论文评审与答辩

博士生在通过论文送审的资格审查后，其学位论文即可送交专家评审。具体评审办法按照《北京工商大学博士研究生学位论文管理办法》执行。

评审通过后可组织论文答辩。答辩程序和实施办法等规定按照《北京工商大学博士研究生学位论文管理办法》执行。

八、教学大纲

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。

Doctoral Program for Food Science and Engineering

1.TRAINING TARGET

Be familiar with China's history, geography, society, economy and other basic knowledge of China's national conditions and culture, understand China's political system and foreign policy, understand China's mainstream social values and public morality, and form a good concept of rule of law and moral awareness. It is our mission to empower tomorrow’s senior professionals in the field of food science and engineering by giving our students rewarding and fruitful learning experiences. Our students are nurtured to understand the developments of food science and engineering, build a solid foundation on basic theoretical knowledge, keep consciousness of innovation with strong innovation ability, especially the ability of exploiting new research fields and development orientations. All students are expected to be knowledgeable and wise enough to independently perform scientific research and teaching tasks, possess the ability to practice the Healthy China Action and the Great Food Concept, make collaborative discoveries and inventions, and become the high-level talents of scientific research, teaching, production, development and management in the food related-fields.

2.OVERVIEW OF THE PROGRAM

The Food Science discipline was merged from the Fermentation Engineering of former Beijing Technology College and Food Science and Engineering of former Beijing Business College. The old generation scholars represented by Peisong Jin and Guoxiong Yao made significant contributions in developing Food Science. Over 50 years of construction and historical accumulation, Food Science has boosted research abilities. Food Science is dominated by innovation, characterized by practical teaching and assisted by scientific personnel training strategy. Food Science is committed to cultivating the highest level of excellence with both advanced theories and practical skills, with both professional proficiency and personal integrity. The PhD graduates are engaged in research and teaching in industry, higher education, and research institutions. There are four directions for the current Doctoral Program of Food science and Engineering:

(1) Food Additives and Food Safety.

By mainly focusing on the research topics such as green manufacturing technology of food additives, the structure-effect relationship of food additives, and food safety monitoring and control, etc., this direction offers distinctive characteristics in sulfur-containing food flavors and spices, chiral flavors, natural meaty aromas, food flavors, natural edible pigment, food enzymes, and food emulsifiers, etc.

(2) Processing and Storage of Agriculture Products.

This direction mainly focuses on the deep processing and comprehensive utilization of grain, oil, livestock products, dairy products, fruits and vegetables, research and development of characteristic resources, quality and safety testing technology for agricultural products, etc., as well as pays attentions to the industry-university-research cooperation in solving practical problems in the production and processing of agricultural products, and improving the quality and safety of agricultural products.

(3) Food Science.

Based on food microbiology and food enzymology, this direction mainly study the physicochemical properties and structure of food components at the molecular level, and study the basic laws that the

influence of microorganisms and enzymes on the food quality during processing. This direction also focuses on exploring microorganism resources, investigating on the catalytic mechanism of some special enzymes, and adaptability issues during the process from food research to practical applications.

(4) Food Nutrition.

This direction mainly refers to find solutions to the key technical issues such as processing, nutrient retention and control of functional food ingredients, based on the studies of the characteristics, nutritional effects, and dose-effect relationships. Meanwhile, this direction also focus on the metabolic mechanism, metabolic process and metabolic characteristics of human beings under different ages, and pay more attentions to the studies that can solve the challenges that related to the physiological function exploration and processing technology of nutrients such as protein, fat, oligosaccharide, etc. in food.

3. LENGTH OF SCHOOLING

4 years with the maximal extension of 2 years.

4. CURRICULUM AND CREDITS REQUIREMENTS

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	086000IDG2001	Introduction to China	2	32	1	Compulsory
	086000IDG4002	HSK（Level I）	4	64	1	Compulsory
	086000IDG4003	HSK（Level II）	4	64	2	Compulsory
	086000IDG4004	HSK（Level III）	4	64	3	Compulsory
	Credits Requirement		14 Credits			
Basic Courses	086000IDJ2001	Advanced Food Chemistry	2	32	1	Compulsory
	Credits Requirement		2 Credits			
Discipline Core Course	086000IDZ2001	Food Flavor Chemistry: Theory and Practice	2	32	1	Compulsory
	086000IDZ1002	Nutrition and Nutritional Chemistry	1	16	2	Compulsory
	Credits Requirement		3 Credits			
Optional Course	086000IDX2001	Food Quality Evaluation	2	32	1	Optional
	086000IDX2002	Food Microbiology and Technology: Theory and Practice	2	32	1	Optional
	Credits Requirement		≥4 Credits			
Total Credits		≥24 Credits				

5. TEACHING LANGUAGE

English

6. PRACTICE PART

6.1 Academic Activities (1 credit)

Doctoral students should participate in more than 5 academic activities in total. Academic activities include making academic reports, attending academic seminars, attending international and domestic academic conferences among which abstract, oral reports or wall newspapers are required.

6.2 Professional Practice (1 credit)

During staying in school, doctoral students should participate in social practice or investigation, conduct research on relevant issues of food specialty and submit practice reports.

7. RESEARCH AND DISSERTATION

7.1 Personal Study Plan

Supervisors are required to work with doctoral student on making personal study plan according to the current discipline situation, research area and personal interest. The dissertation area, courses attended, literature review arrangement, research and practice should be specified in the study plan. The study plan should be permitted by supervisor or guiding group. This work should be completed within two months after admission.

The students are required to submit 4 hard copies of personal study plan for graduate school, college, supervisor and student himself. In the study period, if the personal study plan need revision, doctoral student should ask for the permission from the authority in charge of this Before defense , the personal study plan will be checked.

7.2 Qualification Review

The doctoral qualification review is scheduled on the beginning of the 3rd semester. Doctoral students are required to fill the Doctoral Student Qualification Review Form. Supervisors are required to review the course study performance and research proposal. The review results will be filed to graduate student secretary.

7.3 Dissertation

7.3.1 Research Proposal Defense

The thesis proposal defense will be held in the third semester. In principle, the thesis proposal defense should be organized by discipline leaders of all research directions and held in public. The thesis proposal defense should be notified to the graduate student's secretary of education for record before one week.

(1) The thesis proposal consists of two parts: literature review and research plan. The doctoral candidate will write a written literature review report on the basis of reading at least 100 references. The literature review report should give a detailed introduction to the current frontier research regarding to the fields of this discipline, including the main progress and main research methods. The literature review should be completed by the doctoral candidate himself, which should be sent to each member of the assessment team one week in advance.

(2) Posters will be putted up before the thesis proposal defense, including the name of the thesis proposer, supervisor, project name, evaluation members and the date and place of the report meeting. All teachers and graduate students of this discipline and related disciplines will be invited to participate.

(3) The committee member should not less than 5 members, including at least 2 doctoral supervisors. It

is advocated to invite experts from similar majors, interdisciplinary related majors, scientific research institutions and business circles to participate.

(4) The doctoral candidate should make a 30-minute comprehensive report on the proposed proposal, explain the scope, significance and value of the project, the problems to be solved, the research scheme and the research progress, conduct feasibility demonstration, and answer questions from the judges on the spot. The instructor introduces the student's research foundation, research ability and evaluation of the proposed project. After discussion, the defense committee will make a clear assessment on whether the student could complete the project task and enter the dissertation stage. The questions and the main contents of the discussion should be recorded, and each evaluation committee member is required to sign on the proposal report form.

7.3.2 Mid-term Inspection

The mid-term examination is conducted by experts in the field which is organized by the research group at the end of the sixth semester, and mainly evaluates the ideological and moral quality, course learning and scientific research of the graduate students. After the mid-term examination, students should fill in the《Mid-term Examination Form for Doctoral candidates of Beijing Technology and Business University》, which will be examined and approved by the academic committee of the college. The main inspection items are as follows:

(1) Check whether the course credits have been completed.

(2) Assess the scientific research status of graduate students. Whether the proposal is made, whether the proposal report meets the requirements, whether scientific papers or other achievements are published, etc. Assess whether the scientific research status of graduate students is suitable for further study.

(3) Assess whether the scientific research is carried out according to the technical route of the thesis proposal and defense. If there is a big deviation, the reasons should be explained in detail.

(4) Examine the ideological and moral qualities of graduate students. From the graduate student's political thought, moral quality, academic accomplishment and so on to conduct the comprehensive investigation.

7.3.3 Doctoral dissertation

A doctoral dissertation is a key indicator for evaluating the academic level of a doctoral candidate. It indicates that the author has ability to independently engage in scientific research, make innovative achievements in science or technical skill, and demonstrates that the author has a solid and rich foundation of theory and comprehensive and in-depth professional knowledge in this field. For the detailed requirements of dissertation, please see the "Regulations and Requirements Governing the Doctoral Dissertation of Beijing Technology and Business University", " Regulations and Requirements Governing Plagiarism of Doctoral Dissertation of Beijing Technology and Business University", and " Doctoral and Master Degree Policies of Beijing Technology and Business University".

On the basis of the above documents, the discipline of Food Science and Engineering has the following additional requirements for international doctoral students.

7.3.4 Requirements for paper publication

Full-time academic degree-type doctoral students applying for doctoral degrees. During the period of study (In principle, the publication of a thesis is based on the official acceptance of the thesis, subject to the time of admission), the doctoral candidate is required to publish the academic papers or authorized invention patents related to the subject matter as the first author or the second author (with the supervisor or the

associate supervisor as the first author), with a cumulative score of 4.0 points or above (of which the sum of the points for papers of Grade C and Grade D should be ≤1.0 point), or to meet the requirements of the high level green channels. Co-first author paper results must be released in accordance with an agreement between the corresponding author and all co-first authors, as well as written explanatory information. Academic papers and scientific research results must be published under the signature of Beijing Technology and Business University as the first unit. The original manuscripts of academic papers published together with the supervisor must be reviewed by the supervisor, and must be signed by the supervisor before submission. If the applicant has completed doctoral dissertation, but the academic paper has not been published formally, a Notification of Acceptance for this academic paper should be submitted. The applicants will receive their Doctoral Degree Certificate after the paper is formally published or other scientific research achievements that meet the above requirements.

Achievement score standard:

(1) 4.0 points for publishing one A1 paper;

(2) 3.0 points for publishing one A2 paper;

(3) 2.0 points for publishing one A3 paper or authorizing one international invention patent;

(4) 1.5 points for publishing one B paper or authorizing one domestic invention patent;

(5) 1.0 points for publishing one C paper;

(6) 0.8 points for publishing one D paper;

Note: The grade of the thesis is based on the Measures for the Recognition of Scientific Research Performance in Natural Sciences of Beijing Technology and Business University (BTBU Development [2024] 9).

High-level green channels:

(1) One research paper published in 《Nature》, 《Science》or《Cell》related to the subject, regardless of rank.

(2) One research paper related to the subject published in the sub-journal of 《Nature》, 《Science》or 《Cell》,《Journal of the American Chemical Society》,《Angewandte Chemie International Edition》,《Plant Cell》, 《Proceedings of the National Academy of Sciences of the United States of America》, or other high-level journals as determined by the College's first-level doctoral degree evaluation sub-committee, as the first author or the second author (supervisor or vice supervisor as the first author).

(3) Research papers related to the subject published as the first author or second author (supervisor or associate supervisor as the first author) that gets recognized as a hot paper or ESI Highly Cited.

If one of the above conditions is met, the requirement is satisfied directly.

7.3.5 PhD Thesis Pre-defense

After the PhD thesis is completed and before sent to reviewers, the doctoral student are required to attend the pre-defense. If students passed the pre-defense, their thesis are allowed to send to reviewers and they can apply for formal thesis defense. Detailed information please refer to <The BTBU Regulation for Doctoral Dissertation >.

7.3.6 Requirements for Thesis

a. No less than 3 years from the opening of the thesis to the defense of the doctoral thesis;

b. The degree thesis must meet the requirements of "Beijing Technology and Business University Doctoral Dissertation Specification";

c. The plagiarism check: Before the anonymous review of the doctoral thesis, the plagiarism of the doctoral thesis will be checked by the graduate office of BTBU. The plagiarism check will be based on the plagiarism check requirement of the doctoral thesis of BTBU. If there was no the plagiarism check or there was a failed plagiarism check for the thesis, there graduation process will not enter the next stage.

d. There are 5 reviewers for the doctoral thesis. Two reviewers are the experts outside the school and they must be able to participate in the defense committee. The other three reviewers will be hired by the graduate office of BTBU to engage in an anonymous review of professors.

8. COURSE SYLLABUS

Course Syllabi are attached elsewhere.

生物与医药（食品工程）硕士留学研究生培养方案

授予学位类别：生物与医药

专业学位类别代码及名称：0860 生物与医药

专业学位领域代码及名称：086003 食品工程

制订单位：食品与健康学院

一、培养目标

熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。培养具有扎实的食品科学与工程的基础理论和系统专门知识, 具有较高的综合素质、创新和创业精神，能够较熟练的进行学术搜索，了解本学科国内外发展动态，具有独立从事科学研究或独立担负专门工程技术工作的能力的应用型、复合型高层次食品工程技术与管理人才。

二、学科简介与研究方向

生物与医药（食品工程）专业硕士培养从事食品添加剂制造与应用、农产品加工与贮藏、食品生物技术及食品质量与安全等理论研究与技术开发的高级工程技术与管理人才。具体研究方向包括：

1. 食品添加剂制造与应用工程

涵盖食品香料香精、食品乳化剂、食品防腐剂、品质改良剂等食品添加剂领域。主要研究内容包括：（1）食品添加剂绿色生产技术；（2）食品添加剂量效关系、构效关系；（3）适合我国国情的食品添加剂及安全性研究；（4）食品添加剂复配后的功效、标准及安全；（5）非法添加物检测等关键问题;（6）食品风味化学研究;（7）食品用热加工香味料制备及应用。

2. 农产品加工与贮藏工程

以农产品为研究对象，以生物学和工程学为基础，研究农产品贮藏、加工及加工中副产品的综合利用等。主要研究内容包括：（1）农产品加工工程；（2）农产品贮藏与保鲜；（3）农副产品深加工及功能食品开发；（4）植物蛋白提取、改性、功能特性研究；（5）农副产品加工储藏过程的品质控制与改性研究。

3. 食品生物工程

以天然食品资源为研究对象，利用基因工程、酶工程、发酵工程、生物分离工程等手段进行品质改良和深度利用研究，同时研究传统天然食品资源废弃物的生物转化和二次利用技术， 为食品行业提供新型的功能原料和绿色清洁生产技术。主要研究内容包括：（1）天然活性成分的分离纯化及功能评价；（2）利用生物技术实现农副产品原料的开发和利用；（3）利用生物技术改造食品加工传统工艺提高产品质量;（4）呈味物质生物制备。

4. 食品质量与安全工程

以食品的营养、质量安全与健康的关系为研究内容，以生物工程技术与食品科学为基础，研究食品营养的保障与食品安全卫生及质量管理。主要研究内容包括：（1）食品的营养品质；（2）食品营

养与安全；（3）食品生产全面系统的质量控制；（4）食品质量管理。

三、学制和学习年限

学制 3 年，学习年限最长不得超过 5 年。

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	2
专业课	3	选修课	≥4
必修环节	2	总学分	≥25
学分说明	攻读本专业学位的研究生所修总学分不得少于 25 学分，学分组成为课程学分与实践环节学分两部分。在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其它学院开设的研究生课程。		

四、课程设置与学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	086000IMG2001	中国概况	2	32	1	必修
	086000IMG4002	汉语（一级）	4	64	1	必修
	086000IMG4003	汉语（二级）	4	64	2	必修
	086000IMG4004	汉语（三级）	4	64	3	必修
		应修	14 学分			
基础课	086000IDJ2001	高级食品化学	2	32	1	必修
	应修		2 学分			
专业课	086000IDZ2001	风味化学原理与技术	2	32	1	必修
	086000IMZ1001	营养素与营养化学	1	16	1	必修
	应修		3 学分			
选修课	086000IDX2002	食品微生物学与生物技术原理与实践	2	32	1	选修
	086000IDX2001	食品质量评价	2	32	1	选修
	086000IMX2001	现代微生物与发酵工程	2	32	1	选修
	086000IMX2002	食品加工与开发	2	32	1	选修
	应修		≥4 学分			
课程总学分要求			≥23 学分			

说明：具体要求参照同学历层次国内生相应要求。

五、授课语言

英文

六、必修环节（2 学分）

1.学术活动（1 学分）

研究生在校期间必须参加至少 5 场由研究生院、学院或学科认可的国际国内学术会议、学术论坛、专题讲座、学术报告等，或参加学科竞赛 1 次以上，经导师审核认定完成。

2.专业实践（1 学分）

研究生在导师指导下到本单位学科其它团队相关研究室完成专业实践，原则上不少于 1 个月，可采用集中实践与分段实践相结合的方式。要求研究生提交实践学习计划，撰写实践学习总结报告，经导师审核认定完成。或在国际国内学术会议、学术论坛上做口头报告、墙报张贴等。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。研究生必须参加科学研究工作，发表专业论文，完成并提交学位论文，答辩通过后授予学位。

1.学位论文开题

研究生论文开题工作在第三学期后半学期完成。具体要求详见《北京工商大学关于硕士学位论文选题和开题报告的有关规定》。

2.学位论文中期检查

于第五学期末之前完成此项工作。相关规定详见《北京工商大学研究生学位论文中期检查工作实施细则》。

3.学位论文评阅与答辩

留学研究生学位论文必须经过答辩，具体要求和操作办法见《北京工商大学硕士学位论文评阅答辩管理办法》。

4.专业学位授予的成果要求

全日制专业硕士研究生申请硕士学位，在学期间（以入学时间为界，论文发表原则上以正式录用通知为准）须以第一作者身份或以第二作者（导师为第一作者）发表课题相关的学术论文或授权专利，成果累计达到 1.5 分及以上或满足高水平绿色通道。研究生所发表的学术论文必须署名”北京工商大学”为第一单位，与导师共同发表的学术论文原始稿件必须经过指导教师审核，投稿前必须由导师签字同意。 若发表论文存在共同第一作者，将论文总分值平均分配给所有共同第一作者或由所有共同第一作者与通讯作者协商决定分配比例（需向学院提供书面说明材料）。

成果得分标准：

(1) 发表 B 级（含）以上论文一篇或授权国内外发明专利一项计 1.5 分；

(2) 发表 C 级论文一篇计 1.0 分；

(3) 完成与毕业研究相关的工程研究(开发)设计（经学术委员会认定）一项计 1.0 分；

(4) 参与制定与毕业研究相关的国家或行业标准一项计 1.0 分。

(5) 发表 D 级论文一篇计 0.8 分。

注：论文级别依据《北京工商大学自然科学类科研业绩认定办法》（北工商校发〔2024〕9 号）。

高水平绿色通道：

（1）在《Nature》《Science》《Cell》上发表课题相关的研究性学术论文 1 篇，排名不限；

（2）在《Nature》《Science》《Cell》的子刊、《Journal of the American Chemical Society》《Angewandte Chemie International Edition》《Plant Cell》《Proceedings of the National Academy of Sciences of the United States of America》或其他经学院一级学科博士点学位评定分委员会认定的高水平期刊上，以第一作者身份或以第二作者（导师或副导师为第一作者）发表课题相关的研究性论文 1 篇；

（3）以第一作者身份或以第二作者（导师或副导师为第一作者）发表课题相关的研究性论文成为 ESI 高被引或热点论文。

符合以上条件之一的，直接满足要求。

5.授予学位

授予工学硕士学位。学位授予程序详见《北京工商大学博士、硕士学位授予工作实施细则》。

6.毕业与结业

研究生在学校规定的年限内按培养方案的规定，完成课程学习和其他教学环节，成绩合格，修满所需学分；所撰写的学位论文经外审专家审核后，评阅成绩合格的，准予毕业并颁发毕业证书。

未撰写学位论文，或学位论文未达到标准的，准予结业，发给结业证书。 对退学的学生，学校发给其肄业证明或写实性学习证明。未经批准擅自离校的，不发肄业证明和学习证明。详见《北京工商大学研究生学籍管理规定》。

八、教学大纲

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。

Professional Master Degree Program of Food Engineering for International Students

1.TRAINING TARGET

Be familiar with China's history, geography, society, economy and other basic knowledge of China's national conditions and culture, understand China's political system and foreign policy, understand China's mainstream social values and public morality, and form a good concept of rule of law and moral awareness. Our objectives are to cultivate high qualified professionals who will have profound understanding of food science and engineering; have solid professional knowledge in basic theories and systems; have high comprehensive quality, innovation and entrepreneurship; be able to conduct science research independently and undertake special engineering and technical work independently; be skilled at using a computer; understand the development circumstances and trends of this major both in China and abroad.

2.OVERVIEW OF THE PROGRAM

The Master of Biology and Medicine (Food Engineering) specializes in the training of senior engineering and management personnel engaged in the theoretical research and technological development of food additives manufacturing and application, agricultural products processing and storage, food biotechnology and food quality and safety. Specific research directions include:

2.1 Food additive manufacturing and application engineering

This research area focus on the food additives, including emulsifiers, preservatives, flavorings, and enhancers for quality; study on the green production, application technology and safety evaluation of novel food additives; study the quantitative and constructive relationships of food additives; study on food additives and safety suitable for China's national conditions; study the efficacy, standards and safety of food additives after compounding; study important matters including identifying illicit chemicals; study on food flavor chemistry; study manufacture technology and application of termal processing food flavourants.

2.2 Agricultural products processing and storage engineering

This research area focus on storage, processing and comprehensive utilization of by-products of agricultural products based on biology and engineering, with agricultural products as the object of research; study on agricultural products processing engineering; study on storage and preservation of agricultural products; study on deep processing of agricultural and sideline products and functional food development; study on plant protein extraction, modification, and functional properties; study on quality control and modification of agricultural and sideline products during processing and storage.

2.3 Food Bio-engineering

This research area focus on taking natural food resources as the research object, using genetic engineering, enzyme engineering, fermentation engineering, bio-separation engineering and other means to carry out quality improvement and in-depth utilization research, and at the same time researching the bioconversion and secondary utilization technology of traditional natural food resource wastes, so as to provide new types of functional raw materials and green and clean production technology for the food

industry; study the isolation, purification and functional evaluation of natural active ingredients; study the use of biotechnology for the development and utilization of raw materials from agricultural by-products; study the use of biotechnology to modify traditional food processing techniques to improve product quality; study the biological preparation of flavour-presenting substances.

2.4 Food quality and safety engineering

This research area mainly focus on the protection of food nutrition and food safety and hygiene and quality management, with the relationship between food nutrition, quality and safety and health as the research content, based on bioengineering technology and food science; study the nutritional quality of food; study on food nutrition and safety; study on the total systematic quality control in food production; study on the quality management of food products.

3. LENGTH OF SCHOOLING

This is a full-time program, which can be completed within 3 years. The maximum time permitted is 5 years from the date of registration.

4. CURRICULUM AND CREDITS REQUIREMENTS

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	086000IMG2001	Introduction to China	2	32	1	Compulsory
	086000IMG4002	HSK（Level I）	4	64	1	Compulsory
	086000IMG4003	HSK（Level II）	4	64	2	Compulsory
	086000IMG4004	HSK（Level III）	4	64	3	Compulsory
	Credits Requirement		14Credits			
Basic Courses	086000IDJ2001	Advanced food chemistry	2	32	1	Compulsory
	Credits Requirement		2 Credits			
Discipline Core Course	086000IDZ2001	Food flavor chemistry theory and technology	2	32	1	Compulsory
	086000IMZ1001	Nutraceutical and Nutritional Chemistry	1	16	1	Compulsory
	Credits Requirement		3 Credits			
Optional Course	086000IDX2002	Principle and Practice of Food Microbiology and Biotechnology	2	32	1	Optional
	086000IDX2001	Agricultural products and food quality evaluation	2	32	2	Optional
	086000IMX2001	Modern microorganism and fermentation engineering	2	32	1	Optional
	086000IMX2002	food processing and development	2	32	1	Optional

	Credits Requirement	≥4 Credits
Total Credits		≥23 Credits

5. TEACHING LANGUAGE

English

6. PRACTICE PART

1. Academic activities (1 credit)

Master graduate students must participate in at least 5 international and domestic academic conferences, academic forums, special lectures, academic reports, etc.; or participate in discipline competitions for more than one time, approved by their supervisors.

2. Specialized subject practice (1 credit)

Master graduate students should participate in specialized subject practice in related other team research rooms of other own discipline for no less than one month under the guidance of supervisors. Master graduate students are required to submit a practical learning plan, write a practical report, reviewed and confirmed by supervisor. Or make oral reports, posters in international and domestic academic conferences, academic forums, etc.

7. THE DISSERTATION RELATED WORK

Graduate students must participate in scientific research, publish professional papers, complete and submit thesis, and pass their defense to obtain degree.

7.1 Thesis research initiation

Graduate students thesis research initiation should be finished at the second half of third semester.

7.2 Thesis mid-term examination

The mid-term examination should be done before the end of fifth semester

7.3 Thesis evaluation and defense

All international students have to defend their thesis.

7.4 Achievement requirements for Degree Award

Full-time professional master's degree students applying for master's degree, during the period of study (In principle, the publication of a thesis is based on the official acceptance of the thesis, subject to the time of admission), the candidate is required to publish the academic papers or authorized invention patents related to the subject matter as the first author or the second author (with the supervisor as the first author), with a cumulative score of 1.5 points or above, or to meet the requirements of the high level green channels. Academic papers published by postgraduate students must be signed “Beijing Technology and Business University” as the first unit. The original manuscripts of academic papers published together with the supervisor must be reviewed by the supervisor, and must be signed by the supervisor before submission. If there are co-first authors in the published paper, the total marks of the paper will be distributed to all co-first authors equally or the proportion of distribution will be decided by all co-first authors in consultation with the corresponding authors (written explanatory materials must be provided to the Faculty).

Achievement score standard:

(1) 1.5 points for publishing one B paper (or above) or authorizing one international invention patent;

(2) 1.0 points for publishing one C paper;

(3) 1.0 point for completing an engineering research (development) design that is connected to graduate research and is decided upon by the Academic Committee;

(4) 1.0 point for participation in the development of one national or industry standard related to graduate research;

(5) 0.8 point for publishing one D paper;

Note: The grade of the thesis is based on the Measures for the Recognition of Scientific Research Performance in Natural Sciences of Beijing Technology and Business University (BTBU Development [2024] 9).

High-level green channels:

(1) One research paper published in 《Nature》, 《Science》or《Cell》related to the subject, regardless of rank.

(2) One research paper related to the subject published in the sub-journal of《Nature》,《Science》or《Cell》,《Journal of the American Chemical Society》,《Angewandte Chemie International Edition》,《Plant Cell》,《Proceedings of the National Academy of Sciences of the United States of America》, or other high-level journals as determined by the College's first-level doctoral degree evaluation sub-committee, as the first author or the second author (supervisor or vice supervisor as the first author).

(3) Research papers related to the subject published as the first author or second author (supervisor or associate supervisor as the first author) that gets recognized as a hot paper or ESI Highly Cited.

If one of the above conditions is met, the requirement is satisfied directly.

7.5 Degree awarding Engineering master degree

7.6 Graduation and certification

Graduate students who have completed the links within the period of time according to the provisions of the training program : 1) course and other teaching links, 2) examination and completed the required credits, 3) The degree thesis has been approved by external experts, are allowed to graduate and be issued with the graduation certificate.

If no thesis has been written, or the thesis fails to meet the standards, it is allowed to complete the course of study and a certification will be issued. For students who have dropped out of school, the school will issue them with an academic certification or a realistic learning certification. Those who leave the university without approval shall not be issued with a learning certification. For details, please refer to “Regulations on the management of graduate student status of Beijing Technology and Business University”.

轻工科学与工程学院

化学工程与技术博士留学研究生培养方案

授予学位类别：工学博士

一级学科代码名称：0817 化学工程与技术

制订单位：轻工科学与工程学院

一、培养目标

坚持立德树人的根本任务，注重批判性、创新意识和独立从事科学研究工作能力的培养。培养具备扎实的基础理论知识、严谨的科学思维方法、熟练的实验实践技能，同时熟悉化学工程与技术领域国内外发展和研究动态，能够胜任专业及相关领域教学、科研、生产及管理工作的高层次科学研究型或应用研发型专业人才。培养德智体美劳全面发展的社会主义建设者和接班人。

二、学科简介与研究方向

化学工程（环境化工）：主要研究环境污染物在大气、水和土壤等多介质的迁移、转化和归趋特征，轻工食品制造业生产过程中的污染防治，以及食品生产全链条污染物检测、赋存、健康效应及控制。在移动源大气成分排放表征、厨余垃圾高值安全利用、发酵工业全生命周期环境影响评估、食品安全相关污染物风险检测和控制等方面形成特色和优势，编制“2+26”3 个城市大气污染源排放清单，研发“厨余废液生产液态菌肥技术”、“生物质废物反应解耦分级气化燃烧技术与装备”等一系列应用成果。

化学工艺：聚焦生物质源精细化工产品合成、分离和提取工艺，重点研究香精香料绿色制造，建立了手性含硫香料不对称合成平台，凝练出中国特色肉味食品香精制造新理念，奠定了我国天然级肉味食品香精制造的技术基础，获国家科学技术进步奖二等奖 2 项、国家技术发明奖二等奖 1 项。低温快速提取及装备智能化，降低了能耗，减少了溶剂使用和硫醇等废气排放，对低碳生产有指导意义，获何梁何利基金科学与技术创新奖、全国高校黄大年式教师团队。

生物化工：聚焦以天然原料制备生物香精、化妆品及皮肤精准护理，重点研究酶工程、合成生物学、生物分离技术等生物转化、提取和精准护肤技术，开发出芦荟胶等植物为原料的化妆品制备技术，建立了融合皮肤脂质组、微生物组等跨组学技术精准护肤体系，首次提出植物发酵原浆化妆品的理念，与上海家化、浙江珀莱雅、云南白药等企业合作实现了规模化生产，获中国专利优秀奖、教育部科技进步一等奖、中国轻工业联合会科技进步一等奖各 1 项。

应用化学：聚焦日用化工产品制造和应用技术，重点研究表面活性剂、生物基增塑剂、洗涤剂、油墨的绿色制备，结合多相乳化体系沉降控制、新型高速逆流色谱分析等技术，运用界面化学、生物化学手段，从分子结构、分子组装、配位和协同增效角度，研究日化产品工艺优化、配方设计、产品品质提升，率先在国内实现了绿色安全型表面活性剂制备，获中国轻工业联合会科技进步一等奖、北京市高等教育教学成果奖一等奖、农业农村部农牧渔业丰收奖各 1 项。

材料化工：聚焦高分子材料绿色加工，重点研究生物降解、阻燃、轻量化功能材料制备优化，研究生物质与聚合物复合材料加工新技术，获国家科学技术进步二等奖；国内率先构建降解塑料标准测

试体系并开展机理研究，评价服务直接效益 126 亿元，构建基团协同效应机理制备磷杂菲化合物等无卤阻燃剂、累计产值 130 亿元，国内率先利用超临界二氧化碳发泡聚酯连续化制备工艺，获中国轻工业联合会科技进步奖一等奖 3 项、中国石化联合会科技进步奖二等奖 1 项。

三、学制和学习年限

博士研究生学制 4 年，最长修业年限 6 年。硕博连读研究生学制 6 年，原则上最长修业年限 8 年。直博生学制 5 年，最长修业年限 7 年。

四、课程设置与学分要求

博士研究生的必修课考核成绩达 70 分为合格，选修课考核成绩达 60 分为合格。

（1）英文授课方式：研究生一年级学生每学期授课学时为 64 学时，4 学分；研究生二年级学生秋季学期授课学时为 64 学时，4 学分。若学生已通过汉语水平考试，可申请免修相应等级的汉语课程。

所修总学分不得少于 26 学分，其中公共课不少于 14 学分，基础课不少于 4 学分，专业课不少于 2 学分；选修课不少于 4 学分。在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其他学院开设的研究生课程。

表 1 博士研究生课程设置表

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	4
专业课	2	选修课	≥4
必修环节	2	总学分	≥26

表 2 博士留学研究生课程设置及学分要求（英文授课方式）

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	081700IDG2001	中国概况	2	32	1	必修
	081700IDG4002	汉语（一级）	4	64	1	必修
	081700IDG4003	汉语（二级）	4	64	2	必修
	081700IDG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	081700IDJ2001	环境科学与工程前沿	2	32	1	六选二
	081700IDJ2002	环境污染控制原理引论	2	32	1	
	081700IDJ2003	合成生物学前沿	2	32	1	
	081700IDJ2004	分子科学与工程	2	32	1	
	081700IDJ2005	现代分析化学前沿技术	2	32	2	
	081700IDJ2006	材料化工工程设计基础	2	32	1	
	应修		≥4			
专业课	081700IDZ2001	生物质能源化工	2	32	1	三选一
	081700IDZ2002	生化反应工程	2	32	1	

	081700IDZ2003	材料分析方法	2	32	1	
	应修		≥2			
选修课	081700IDX2001	污水处理与资源化理论与技术	2	32	1	选修
	081700IDX2002	高等大气污染控制工程	2	32	1	选修
	081700IDX2003	大气污染化学和物理	2	32	1	选修
	081700IDX2004	高等固体废物管理	2	32	1	选修
	081700IDX2005	土壤与地下水污染防治工程	2	32	1	选修
	081700IDX2006	现代环境生物技术	2	32	1	选修
	081700IDX2007	清洁生产工艺原理	2	32	1	选修
	081700IDX2008	食品安全检测	2	32	1	选修
	081700IDX2009	高等环境分析化学	2	32	1	选修
	081700IDX2010	环境毒理与健康风险	2	32	1	选修
	081700IDX2011	分子生物学与基因操作技术	2	32	1	选修
	081700IDX2012	酶与蛋白质工程	2	32	1	选修
	081700IDX2013	生化分离工程	2	32	1	选修
	081700IDX2014	材料化学	2	32	1	选修
	081700IDX2015	高分子材料前沿进展	2	32	1	选修
	应修		≥4			
课程总学分要求			≥24 学分			

说明：具体要求参照同学历层次国内生相应要求。

（2）中文授课方式：研究生一年级学生每学期授课学时为 32 学时，2 学分；研究生二年级学生每学期授课学时为 32 学时，2 学分。若学生已通过汉语水平考试，可申请免修相应等级的汉语课程。

所修总学分不得少于 22 学分，其中公共课不少于 10 学分，基础课不少于 4 学分，专业课不少于 2 学分；选修课不少于 4 学分。在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其他学院开设的研究生课程。

表 3 博士研究生课程设置表

课程类别	学分要求	课程类别	学分要求
公共课	10	基础课	4
专业课	2	选修课	≥4
必修环节	2	总学分	≥22

表 4 博士留学研究生课程设置及学分要求（中文授课方式）

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	081700IDG2001	中国概况	2	32	1	必修

	081700IDG2005	汉语（四级）上	2	32	1	必修
	081700IDG2006	汉语（四级）下	2	32	2	必修
	081700IDG2007	汉语（五级）上	2	32	3	必修
	081700IDG2008	汉语（五级）下	2	32	4	必修
	应修		10 学分			
基础课	081700IDJ2001	环境科学与工程前沿	2	32	1	六选二
	081700IDJ2002	环境污染控制原理引论	2	32	1	
	081700IDJ2003	合成生物学前沿	2	32	1	
	081700IDJ2004	分子科学与工程	2	32	1	
	081700IDJ2005	现代分析化学前沿技术	2	32	2	
	081700IDJ2006	材料化工工程设计基础	2	32	1	
	应修		≥4 学分			
专业课	081700IDZ2001	生物质能源化工	2	32	1	三选一
	081700IDZ2002	生化反应工程	2	32	1	
	081700IDZ2003	材料分析方法	2	32	1	
	应修		≥2 学分			
选修课	081700IDX2001	污水处理与资源化理论与技术	2	32	1	选修
	081700IDX2002	高等大气污染控制工程	2	32	1	选修
	081700IDX2003	大气污染化学和物理	2	32	1	选修
	081700IDX2004	高等固体废物管理	2	32	1	选修
	081700IDX2005	土壤与地下水污染防治工程	2	32	1	选修
	081700IDX2006	现代环境生物技术	2	32	1	选修
	081700IDX2007	清洁生产工艺原理	2	32	1	选修
	081700IDX2008	食品安全检测	2	32	1	选修
	081700IDX2009	高等环境分析化学	2	32	1	选修
	081700IDX2010	环境毒理与健康风险	2	32	1	选修
	081700IDX2011	分子生物学与基因操作技术	2	32	1	选修
	081700IDX2012	酶与蛋白质工程	2	32	1	选修
	081700IDX2013	生化分离工程	2	32	1	选修
	081700IDX2014	材料化学	2	32	1	选修
	081700IDX2015	高分子材料前沿进展	2	32	1	选修
	应修		≥4 学分			
课程总学分要求			≥20 学分			

五、授课语言

中文或英文

六、必修环节（2 学分）

1.学术活动（1 学分）

博士研究生在校期间，应累计参加 10 次以上的学术活动，获得 1 学分。学术活动包括做学术报告、参加学术报告会、参加国际国内学术会议等，其中，参加国际国内学术会议应有口头报告或墙报。

2.专业实践（1 学分）

博士生在校期间，应完成以下 2 项任务中的 1 项，获得 1 学分。1）实践教学，担任助教工作 1 个学期；2）社会实践或调查，就专业相关问题进行调研并提交实践报告。

七、培养环节及学位论文

1. 个人培养计划

博士生导师是博士培养的第一责任人。博士生导师应根据本学科的实际情况、培养方案要求，结合研究方向和博士生的特点，制定博士生的个人培养计划。培养计划中应有明确的学位论文选题范围，明确对课程学习、文献阅读、科学研究、学位论文、实践环节等要求和进度安排。培养计划要充分注意因材施教、切实可行，发挥博士生的主动性和创造性。培养计划经导师或指导小组讨论审核并报学院批准后实施。培养计划应在博士生入学二个月内完成。

培养计划表一式四份，学院、导师和博士生各保存一份，一份提交研究生院培养办公室备案。在执行过程中如因客观条件变化，可以修订培养计划，但须经学院主管负责人同意，并报研究生院培养办公室备案。在博士研究生学位论文答辩前，应审查培养计划执行情况。

2. 学科综合考核

为加强博士生培养过程管理，保证培养质量，学校建立博士生学科综合考核制度。博士生最迟须在入学后的第三学期末之前完成课程学习，修满学分，在博士学位论文开始前或初始阶段，参加学院组织的学科综合考核，逾期未能考核的，按不合格处理。

2.1 考核内容和方式

学科综合考核的内容应包括导师所指定学习的基础理论、专业知识、学科前沿知识；也应包括导师虽未指定，但作为博士生应该具备的知识以及分析问题、解决问题的能力。学科综合考核的方式可以是口试、笔试，也可以是口、笔兼试。

2.2 考核组织

博士生学科综合考核由学院组织安排，可根据各学科特点成立不少于 3 名本学科专家组成的学科综合考核委员会或考核小组，并根据学科专业对博士生培养的目标要求以及培养方案确定的考核形式和考核内容进行考核。学院综合考核委员会或考核小组针对考核内容进行评议，并按“合格”或“不合格”给出考核成绩。

2.3 考核结果处理

a．考核成绩评定后，应及时填写《北京工商大学博士研究生学科综合考核表》。学科综合考核成绩为“合格”的，可进入博士学位论文开题工作；

b．具有下列情形之一的，学科综合考核成绩为“不合格”：

（1）存在有违科学道德和学术不端行为；

（2）未按课程学习计划要求完成全部课程学习和考试；

（3） 已按课程学习计划要求完成全部课程考试，但有一门及以上学位必修课程考试不及格；

（4） 未完成必修环节的学习；

（5） 明显缺乏科学研究和实践能力；

（6） 因身心健康原因不能完成正常的学习和科研工作；

（7） 未经批准不参加学科综合考核。

学科综合考核不合格的博士生不能进入学位论文开题工作，学院考核委员会或考核小组应给予考核警告的书面通知，并在规定期限内对其重新考核，考核仍不合格的，应终止其培养过程。

3. 学位论文

博士学位论文是博士研究生学术水平的重要标志，表明作者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新性成果，并反映作者在本领域掌握了坚实宽广的基础理论和系统深入的专门知识。

3.1 开题答辩

博士生原则上应在入学后第三学期内，学科综合考核通过后进行论文开题答辩。原则上由各研究方向学科带头人统一组织，公开举行，并提前一周通知研究生教秘备案。

（1）开题报告由文献综述和研究计划两部分组成。博士生在至少阅读 100 篇参考文献（其中外文文献不得少于 70%）的基础上，结合研究方向和论文选题写出文献综述书面报告。文献综述报告应对本学科相关领域的近期国内外研究动态，包括这些领域的主要进展、前沿课题及主要研究方法和手段等给出详尽的介绍。文献综述由博士生本人完成，综述报告应提前 1 周，分送给考核小组每位成员。

（2）开题答辩前张贴海报，公布开题者、导师、课题名、评审委员名单以及举行报告会日期和地点，并组织本学科和相关学科科研人员、教师以及研究生参加。

（3）评审委员会成员不少于 5 人，其中博导至少 2 人。提倡聘请相近专业、跨学科有关专业或科研单位、企业界的专家参加。

（4）博士生对拟开题作 30 分钟左右的全面汇报，就课题的研究范围、意义和价值、拟解决的问题、研究方案及研究进度做出说明，进行可行性论证，并当场回答评审委员提问。指导教师介绍该生的业务基础、研究能力以及对拟开课题的评价。评审小组经过讨论，对该生能否完成课题任务、能否进入学位论文阶段做出明确评定，并将提问和讨论的主要内容记录在案，要求每位评审委员在开题报告表上签名。

3.2 中期检查

中期检查在第五学期末进行，对博士生的论文工作进展情况进行全面考查，以保证论文能够如期顺利完成。中期检查具体组织形式参照“3.1 开题答辩”。中期检查结束后，应填写《北京工商大学博士研究生中期检查表》，由学院学术委员会审核。中期检查达不到要求的，应延期通过，需经再次考核通过或终止培养。对中期检查的具体要求见《北京工商大学博士研究生学位论文管理办法》。

3.3 学位论文撰写

博士生学位论文的详细要求，参见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学研究生学位论文文字重复率检测管理办法》、《北京工商大学博士、硕士学位授予办法》。

3.4 科研成果要求

博士生在学期间（以入学时间为界）必须发表学术论文或获得科研成果。具体要求参见《北京工商大学博士、硕士学位授予办法》。

学术论文、科研成果等必须以北京工商大学为第一单位署名发表。如博士学位论文已完成，学术论文尚未正式刊出，须提交论文正式录用通知申请答辩，但领取博士学位证书时需有已刊出论文或符合以上要求的其他科研成果材料。

3.5 学位论文预答辩

博士生完成学位论文后，在论文送审之前，要完成学位论文的预答辩，以便根据预答辩的情况对学位论文进行进一步修改和完善。 学位论文预答辩通过的，方可进行论文送审和申请正式答辩。对学位论文预答辩的基本要求和执行办法见《北京工商大学博士研究生学位论文管理办法》。

3.6 博士学位论文评审与答辩

博士生在通过论文送审的资格审查后，其学位论文即可送交专家评审。具体评审办法按照《北京工商大学博士研究生学位论文管理办法》执行。

评审通过后可组织论文答辩。答辩程序和实施办法等规定按照《北京工商大学博士研究生学位论文管理办法》执行。

八、教学大纲

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、适用学科或专业学位（领域）、先修课程、主要教学内容和学时分配、参考文献等。

Chemical Engineering and Technology PhD Training Program for International Graduate Students

1.TRAINING TARGET

The Graduate Program in Chemical Engineering and Technology is committed to the fundamental mission of fostering virtue through education. The program emphasizes the cultivation of critical thinking, innovative consciousness, and the ability to independently conduct scientific research. It is designed to train high-level research-oriented or application-driven professionals with a solid foundation in fundamental theories, rigorous scientific thinking, and proficient experimental and practical skills. Graduates will be equipped with a comprehensive understanding of the latest developments and research trends in the field of Chemical Engineering and Technology.

2.OVERVIEW OF THE PROGRAM

Environmental Chemical Engineering

This research direction focuses on the migration, transformation, and fate of environmental pollutants across multiple media such as air, water, and soil. It emphasizes pollution prevention and control within the production processes of the light industry and food manufacturing sectors, as well as pollutant detection, occurrence, health effects, and control across the entire food production chain. Distinctive strengths have been developed in areas such as atmospheric emission characterization from mobile sources, high-value and safe utilization of kitchen waste, life cycle environmental impact assessment of the fermentation industry, and risk monitoring and control of food safety-related pollutants. Representative achievements include the development of air pollutant emission inventories for three cities within the national “2+26” air pollution control framework, and a series of applied technologies such as the “liquid biofertilizer production from kitchen waste effluent” and the “reactive decoupling and staged gasification-combustion technology and equipment for biomass waste.

Chemical Technology

This research direction centers on the synthesis, separation, and extraction processes of fine chemicals derived from biomass, with a particular emphasis on the green production of flavors and fragrances. Key areas include the development of environmentally friendly manufacturing processes for aroma compounds, such as the establishment of an asymmetric synthesis platform for chiral sulfur-containing flavors. A novel approach to meat-flavored essence production with Chinese characteristics has been proposed, forming a technical foundation for the development of natural-grade meat-flavored food additives in China. The program has received national recognition, including two Second Prizes of the National Science and Technology Progress Award and one Second Prize of the National Technological Invention Award. Research on low-temperature rapid extraction and intelligent equipment design has effectively reduced energy consumption, solvent use, and the emission of volatile sulfur compounds, providing technical guidance for

low-carbon production. These efforts have been recognized with the Ho Leung Ho Lee Foundation Award for Scientific and Technological Innovation and the National “Huang Danian-style” Teaching Team Award.

Biochemical Engineering

This discipline focuses on the bio-based synthesis of fragrances, cosmetics, and precision skincare products using natural raw materials. Core research areas include enzyme engineering, synthetic biology, biotransformation, separation technologies, and skincare formulation based on omics. Notable achievements include the development of plant-based cosmetic preparation techniques, such as those using aloe vera gel, and the establishment of a precision skincare system that integrates lipidomics and microbiomics. The program pioneered the concept of fermented plant-based raw cosmetics and achieved industrial-scale production in collaboration with major domestic enterprises such as Shanghai Jahwa, Proya (Zhejiang), and Yunnan Baiyao. Representative achievements have been awarded the China Patent Excellence Award, the First Prize of the Ministry of Education Science and Technology Progress Award, and the First Prize of the China National Light Industry Council Science and Technology Progress Award.

Applied Chemistry

This direction emphasizes the development and application of daily-use chemical products, focusing on green manufacturing technologies for surfactants, bio-based plasticizers, detergents, and inks. Research integrates interfacial chemistry and molecular assembly techniques to optimize formulations, improve product performance, and enhance process sustainability. Advanced techniques such as multiphase emulsion sedimentation control and high-speed countercurrent chromatography are employed to study the relationship between molecular structure and functional performance. The program led the country in the development of green, safe surfactants and has received multiple honors, including the First Prize of the China National Light Industry Council Science and Technology Progress Award, the First Prize of the Beijing Municipal Teaching Achievement Award, and the Harvest Award from the Ministry of Agriculture and Rural Affairs.

Materials Chemical Engineering

This area is devoted to the green processing and functionalization of polymer materials, focusing on biodegradable, flame-retardant, and lightweight materials. The program explores innovative composite technologies combining biomass and polymeric materials, and was among the first in China to establish standardized testing systems for biodegradable plastics and to investigate their degradation mechanisms. These efforts have generated significant economic benefits and industrial applications, including the development of halogen-free flame retardants based on phosphorus–nitrogen synergistic mechanisms and the successful commercialization of related products. A continuous supercritical CO_2 foaming process for polyester materials was also pioneered. Research outcomes have been recognized with multiple awards, including the Second Prize of the National Science and Technology Progress Award, three First Prizes of the China National Light Industry Council Science and Technology Progress Award, and one Second Prize from the China Petroleum and Chemical Industry Federation.

3.LENGTH OF SCHOOLING

The duration of study for graduate students is 4 years, with a maximum allowable period of 6 years. For

master's-to-doctorate (continuous) program students, the standard duration is 6 years, and the maximum period is, in principle, 8 years. For direct-entry doctoral students (admitted directly after undergraduate studies), the standard duration is 5 years, with a maximum allowable period of 7 years.

4.CURRICULUM AND CREDITS REQUIREMENTS

A passing grade for compulsory courses is 70 out of 100, while for elective courses, a minimum score of 60 is required to pass.

(1) English-Taught Curriculum: First-year graduate students are required to take courses each semester with a total of 64 class hours per semester, equivalent to 4 credits. In the autumn semester of the second year, students must also complete 64 class hours, corresponding to another 4 credits. Students who have passed the HSK (Chinese Proficiency Test) may apply for exemption from Chinese language courses at the corresponding level.

Graduate students must complete no fewer than 26 credits in total. Among these. At least 14 credits must be from general (public) courses; at least 4 credits from fundamental courses; at least 2 credits from specialized (major-related) courses, and no fewer than 4 credits from elective courses. In addition to the required credits, students may, under the guidance of their supervisors, take graduate-level courses offered by other faculties within the university.

Table 1 Credit Requirements and Credit Structure for Master Students

Course Classification	Credits Requirement	Course Classification	Credits Requirement
Public Course	14	Foundational Courses	4
Professional Course	2	Elective Course	≥4
Compulsory Practice	2	Total Credits	≥26

Table 2 Course Arrangements and Credit Requirements for Master Students (Courses delivered in English)

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	081700IDG2001	Introduction to China	2	32	1	Compulsory
	081700IDG4002	Chinese (Level 1)	4	64	1	Compulsory
	081700IDG4003	Chinese (Level 2)	4	64	2	Compulsory
	081700IDG4004	Chinese (Level 3)	4	64	3	Compulsory
	Credits Requirement		14 Credits			
Foundational Courses	081700IDJ2001	Frontiers in Environmental Science and Engineering	2	32	1	Select 2 of 6

	081700IDJ2002	Introduction to Principles of Environmental Pollution Control	2	32	1	
	081700IDJ2003	Frontiers in Synthetic Biology	2	32	1	
	081700IDJ2004	Molecular Science and Engineering	2	32	1	
	081700IDJ2005	Advanced Techniques in Modern Analytical Chemistry	2	32	2	
	081700IDJ2006	Fundamentals of Materials Chemical Engineering Design	2	32	1	
	Credits Requirement		≥4 Credits			
Professional Course	081700IDZ2001	Biomass Energy Chemical Engineering	2	32	1	Select 1 of 3
	081700IDZ2002	Biochemical Reaction Engineering	2	32	1	
	081700IDZ2003	Materials Analysis Methods	2	32	1	
	Credits Requirement		≥2 Credits			
Elective Course	081700IDX2001	Theory and Technology of Wastewater Treatment and Resource Recovery	2	32	1	Optional
	081700IDX2002	Advanced Atmospheric Pollution Control Engineering	2	32	1	Optional
	081700IDX2003	Atmospheric Pollution Chemistry and Physics	2	32	1	Optional
	081700IDX2004	Advanced Solid Waste Management	2	32	1	Optional
	081700IDX2005	Soil and Groundwater Pollution Prevention and Control Engineering	2	32	1	Optional
	081700IDX2006	Modern Environmental Biotechnology	2	32	1	Optional
	081700IDX2007	Principles of Clean Production Processes	2	32	1	Optional
	081700IDX2008	Food Safety Testing	2	32	1	Optional

	081700IDX2009	Advanced Environmental Analytical Chemistry	2	32	1	Optional
	081700IDX2010	Environmental Toxicology and Health Risk	2	32	1	Optional
	081700IDX2011	Molecular Biology and Genetic Engineering Techniques	2	32	1	Optional
	081700IDX2012	Enzyme and Protein Engineering	2	32	1	Optional
	081700IDX2013	Biochemical Separation Engineering	2	32	1	Optional
	081700IDX2014	Materials Chemistry	2	32	1	Optional
	081700IDX2015	Frontiers in Polymer Materials	2	32	1	Optional
	Credits Requirement		≥4 Credits			
Total Credits			≥24 Credits			

Note: The specific requirements shall follow the corresponding standards for domestic students at the same academic level.

(2) Chinese-Taught Curriculum: For Chinese-taught programs, first-year graduate students are required to complete 32 class hour per semester, equivalent to 2 credits. In the second year, students are also required to complete 32 class hours and 2 credits per semester. Students who have passed the HSK (Chinese Proficiency Test) may apply for exemption from the corresponding level of Chinese language courses.

A minimum of 22 credits is required for graduation, including: at least 10 credits from general (public) courses; at least 4 credits from fundamental courses; at least 2 credits from specialized (major-related) courses, and no fewer than 4 credits from elective courses. In addition to the required credits, students may also take other graduate-level courses offered by different schools or departments within the university under the guidance of their academic supervisors.

Table 3 Credit Requirements and Credit Structure for Graduate Students

Course Classification	Credits Requirement	Course Classification	Credits Requirement
Public Course	10	Foundational Courses	4
Professional Course	2	Elective Course	≥4
Compulsory Practice	2	Total Credits	≥22

Table 4 Course Arrangements and Credit Requirements for Graduate Students

(Courses delivered in Chinese)

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	081700IDG2001	Introduction to China	2	32	1	Compulsory
	081700IDG2005	Chinese (Level 4) Part 1	2	32	1	Compulsory
	081700IDG2006	Chinese (Level 4) Part 2	2	32	2	Compulsory
	081700IDG2007	Chinese (Level 5) Part 1	2	32	3	Compulsory
	Credits Requirement		14 Credits			
Foundational Courses	081700IDJ2001	Frontiers in Environmental Science and Engineering	2	32	1	Select 2 of 6
	081700IDJ2002	Introduction to Principles of Environmental Pollution Control	2	32	1	
	081700IDJ2003	Frontiers in Synthetic Biology	2	32	1	
	081700IDJ2004	Molecular Science and Engineering	2	32	1	
	081700IDJ2005	Advanced Techniques in Modern Analytical Chemistry	2	32	2	
	081700IDJ2006	Fundamentals of Materials Chemical Engineering Design	2	32	1	
	Credits Requirement		≥4 Credits			
Professional Course	081700IDZ2001	Biomass Energy Chemical Engineering	2	32	1	Select 1 of 3
	081700IDZ2002	Biochemical Reaction Engineering	2	32	1	
	081700IDZ2003	Materials Analysis Methods	2	32	1	
	Credits Requirement		≥2 Credits			
Elective Course	081700IDX2001	Theory and Technology of Wastewater Treatment and Resource Recovery	2	32	1	Optional
	081700IDX2002	Advanced Atmospheric Pollution Control Engineering	2	32	1	Optional
	081700IDX2003	Atmospheric Pollution Chemistry	2	32	1	Optional

		and Physics				
	081700IDX2004	Advanced Solid Waste Management	2	32	1	Optional
	081700IDX2005	Soil and Groundwater Pollution Prevention and Control Engineering	2	32	1	Optional
	081700IDX2006	Modern Environmental Biotechnology	2	32	1	Optional
	081700IDX2007	Principles of Clean Production Processes	2	32	1	Optional
	081700IDX2008	Food Safety Testing	2	32	1	Optional
	081700IDX2009	Advanced Environmental Analytical Chemistry	2	32	1	Optional
	081700IDX2010	Environmental Toxicology and Health Risk	2	32	1	Optional
	081700IDX2011	Molecular Biology and Genetic Engineering Techniques	2	32	1	Optional
	081700IDX2012	Enzyme and Protein Engineering	2	32	1	Optional
	081700IDX2013	Biochemical Separation Engineering	2	32	1	Optional
	081700IDX2014	Materials Chemistry	2	32	1	Optional
	081700IDX2015	Frontiers in Polymer Materials	2	32	1	Optional
	Credits Requirement		≥4 Credits			
Total Credits			≥24 Credits			

5.LANGUAGE OF INSTRUCTION

Chinese or English

6.COMPULSORY PRACTICE (2 CREDITS)

1) Academic Activities (1 credit)

During their studies, graduate students are required to participate in no fewer than 10 academic activities to earn 1 credit. These activities may include giving academic presentations, attending academic seminars, and participating in national or international academic conferences. For participation in conferences, students must give an oral presentation or present a poster.

2) Professional Practice (1 credit)

During master or PhD studies, students are required to complete one of the following two tasks to earn 1 credit: a) Participate in practical teaching by serving as a teaching assistant for one semester; or b) Conduct

social practice or field research on a topic related to their discipline and submit a corresponding practice report.

7.TRAINING COMPONENTS AND DISSERTATION REQUIREMENTS

7.1 Individual Study Plan

The graduate supervisors is the primary person responsible for the academic training of the graduate student. Based on the discipline-specific requirements, the graduate training program, the research direction, and the individual characteristics of the student, the supervisor shall formulate an individual study plan. The plan must clearly define the scope of the dissertation topic, as well as requirements and timelines for coursework, literature review, scientific research, dissertation writing, and practical components. The study plan should follow the principles of individualized guidance, feasibility, and encouragement of the student's initiative and creativity.

The plan must be reviewed and approved by the supervisor or the supervisory committee and then submitted to the school (faculty/college) for approval. It must be completed within two months of enrollment.

The study plan shall be prepared in four copies: one for the school, one for the supervisor, one for the student, and one for the Graduate School's training office for recordkeeping. If adjustments are needed due to changes in objective circumstances, the revised plan must be approved by the school and filed with the Graduate School. Before the dissertation defense, the implementation status of the study plan will be reviewed.

7.2 Comprehensive Discipline Assessment

To strengthen process management and ensure training quality, a discipline-specific comprehensive assessment system is implemented for graduate students. Students must complete all coursework and earn the required credits no later than the end of the third semester, and participate in the assessment before or at the beginning stage of their dissertation work. Students who fail to complete the assessment on time will be considered as having failed the assessment.

1) Assessment Content and Format

The assessment shall cover fundamental theories, specialized knowledge, and frontier topics as assigned by the supervisor. It may also include other essential knowledge and skills that graduate students are expected to master, including the ability to analyze and solve problems. The assessment may take the form of an oral examination, written examination, or a combination of both.

2) Assessment Organization

The assessment is organized by the school (faculty/college). Based on the characteristics of the discipline, an assessment committee or panel shall be formed, consisting of no fewer than three experts in the field. The committee will determine the content and form of assessment in accordance with the training objectives and program requirements. The assessment results will be evaluated as either "Pass" or "Fail."

3) Assessment Outcome and Handling

a. After the evaluation, the "Comprehensive Discipline Assessment Form for Graduate Students of

Beijing Technology and Business University" must be completed. Students who pass may proceed to the dissertation proposal stage.

b. The assessment will be considered “Fail” under any of the following conditions: (1) Academic misconduct or violation of research ethics; (2) Failure to complete all required courses and examinations according to the curriculum plan; (3) Completion of all courses, but failure in one or more compulsory courses; (4) Failure to complete mandatory training components; (5) Obvious lack of research or practical capability; (6) Inability to carry out normal academic activities due to physical or mental health issues; (7) Failure to participate in the assessment without prior approval.

Students who fail the assessment may not proceed to the dissertation proposal stage. The assessment committee must issue a written warning, and a reassessment may be arranged within a specified timeframe. Students who fail the reassessment will be terminated from the graduate program.

7.3 Graduate Dissertation

The graduate dissertation is a key indicator of a graduate student’s academic competence. It must demonstrate the student’s ability to conduct independent research, include original academic or technical contributions, and reflect a solid grasp of fundamental theories and in-depth knowledge of the discipline.

1) Dissertation Proposal Defense

Graduate students are expected to complete their dissertation proposal defense by the third semester, after passing the comprehensive assessment. The defense is generally organized by the academic leader of the research direction, held publicly, and reported in advance to the graduate academic affairs secretary.

(a) The proposal includes two parts: a literature review and a research plan. Based on a review of at least 100 references (with no less than 70% in foreign languages), students must submit a written review that details recent domestic and international developments, key research topics, methods, and technologies in the field. The review must be independently completed by the student and distributed to the committee members one week in advance.

(b) A poster must be displayed in advance, indicating the presenter, supervisor, topic, committee members, date, and venue. Faculty, researchers, and graduate students are encouraged to attend.

(d) The review committee shall consist of no fewer than 5 members, including at least 2 graduate supervisors. Experts from related or interdisciplinary fields, research institutes, or industry are encouraged to participate.

(e) The student presents a 30-minute comprehensive report covering the research scope, significance, objectives, proposed methods, and timeline. A feasibility discussion follows, with the student responding to questions from the committee. The supervisor introduces the student’s academic background, research capacity, and assessment of the proposed topic. The committee discusses and evaluates whether the student is ready to proceed with the dissertation and documents the key points of the discussion. All members must sign the proposal evaluation form.

2）Mid-term Assessment

By the end of the fifth semester, a mid-term assessment is conducted to review the student’s dissertation

progress. The format follows the same procedure as the proposal defense (see 3.1). A Mid-term Evaluation Form must be completed and submitted to the school's academic committee. If the outcome is unsatisfactory, the student must delay progress until a re-evaluation is passed. Details are specified in the "Regulations on the Management of Graduate Dissertations at Beijing Technology and Business University."

3）Dissertation Writing

The requirements for dissertation writing are specified in the following documents:

- *Regulations on the Management of Graduate Dissertations at BTBU*
- *Regulations on Plagiarism Detection in Graduate Dissertations at BTBU*
- *Regulations on the Conferral of Doctoral and Master's Degrees at BTBU*

4）Research Output Requirements

Graduate students must publish academic papers or produce scientific research outcomes during their study period (from the date of enrollment). Specific requirements are detailed in the Regulations on the Conferral of Doctoral and Master's Degrees at BTBU.

All publications or outcomes must list Beijing Technology and Business University as the first affiliation. If the dissertation is complete but the paper is not yet published, a formal acceptance letter must be submitted to apply for the defense. However, to obtain the degree certificate, the paper must have been formally published or replaced with other qualifying research outputs.

5）Pre-defense of Dissertation

Before submitting the dissertation for review, the student must complete a pre-defense, allowing time for revisions based on feedback. Only students who pass the pre-defense may proceed to official review and apply for the final defense. Details are provided in the Regulations on the Management of Graduate Dissertations at BTBU.

6）Dissertation Review and Final Defense

After passing the qualification review for submission, the dissertation is sent for expert evaluation in accordance with the Regulations on the Management of Graduate Dissertations at BTBU.

Upon receiving a positive review, the final defense may be held. The procedures and requirements follow the same regulations.

8.COURSE SYLLABUS

The course syllabus includes the course code, course title, contact hours, credits, teaching objectives, teaching methods, assessment methods, applicable disciplines, prerequisite courses, main teaching content and distribution of contact hours, references, and other related information.

轻工技术与工程博士留学研究生培养方案

授予学位类别：工学博士

一级学科代码名称：0822 轻工技术与工程

制订单位：轻工科学与工程学院

一、培养目标

熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。培养掌握轻工技术与工程领域的发展动态，具有国际化思维与视野，具有较强的创新意识和创新能力，掌握轻工技术与工程领域坚实的基础理论和技术基础，具备践行健康中国行动，创新从事轻工

相关领域科学研究、教学、生产开发与管理的高层次专门人才。

二、学科简介与研究方向

学科简介：轻工技术与工程学科源于原北京轻工业学院 1959 年设立的发酵工程专业和 1980 年设立的日化专业。1981 年开始招收香料香精方向硕士研究生，1986 年获得轻工有机合成硕士学位授予权，2012 年获得化妆品科学与技术硕士学位授予权，2016 年获得轻工技术与工程一级学科硕士学位授予权。在香料香精、发酵工程、生物质化学与工程、日用化学品科学与技术等方向形成了显著的特色与优势，以第一完成单位获得国家技术发明奖二等奖 1 项、国家科学技术进步奖二等奖 3 项、何梁何利科学与技术创新奖 1 项。

主要研究方向：

1. 香料香精

主要研究高附加值天然香料、合成香料、香精绿色制备新技术、新工艺、新产品。在含硫香料、手性香料、肉味香精等方面形成了鲜明特色与优势，提出了肉香味含硫化合物分子特征结构单元模型、“味料同源”中国特色肉味香精制造新理念，建立了我国含硫香料和肉味香精研发通用技术平台，为我国成为世界含硫香料生产强国和肉味香精生产大国做出了重要贡献，支持了日化、食品、烟草、医药、材料等行业的健康发展。

2. 发酵工程

主要研究利用微生物、动植物细胞、酶制剂进行物质转化的理论与工程技术。致力于传统发酵食品工业技术提升，在生物酿造工程、新型酶制剂分子特性及催化机制、生物源食品添加剂及功效因子的催化与转化，生物分离工程等领域形成特色与优势。提出基于风味健康双导向的传统发酵食品科研新理念，对白酒、啤酒、黄酒、果酒、酱油、腐乳等全过程底物-菌群-风味相关性进行系统解析；建立完善了以新型高速逆流色谱为核心的生物分离新技术。

3. 生物质化学与工程

主要研究纤维素、碳水化合物、废弃蛋白、油脂等生物质原料的特性及其新的催化转化理论与工程技术。提出植物资源高效转化及高值化利用理念，在催化剂挖掘筛选、分子特性与改造、生物质结

构重整、转化机理与过程控制等研究领域凸显特色，建立一系列生物质催化理论及定向转化技术方法，在纤维素催化转化功能多糖、马铃薯淀粉重组米、发酵行业固体废弃物及植物蛋白定向制备功能多肽或氨基酸等方面取得了一系列工程化应用成果。

4. 日用化学品科学与技术

主要研究化妆品和新型表面活性剂的设计、合成、性能及应用，在植物资源化妆品原料及环保安全性表面活性剂设计应用方面形成了特色与优势。设计高效的双亲分子，研究绿色合成工艺，开发安全、环保、多功能的新型表面活性剂。探索两亲分子聚集及自组装规律，研究结构与效能之间的构效关系。研究表面活性剂在洗涤剂、化妆品、个人卫生护理用品、油墨、食品等领域的应用基础及配方，支持了这些行业改进工艺、提高效率、改善产品质量、促进产品更新换代及技术升级。

三、学制和学习年限

博士研究生学制 4 年，最长修业年限 6 年。

四、课程设置与学分要求

本专业所修总学分不得少于 25 学分，其中公共课 14 学分，基础课 2 学分，专业课 3 学分；选修课不少于 4 学分；必修环节 2 学分。在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其它学院开设的研究生课程。

博士生的必修课考核成绩达 70 分为合格，选修课考核成绩达 60 分为合格。

表 1 留学博士研究生课程设置表

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	2
专业课	3	选修课	≥4
必修环节	2	总学分	≥25

表 2 留学博士研究生课程设置及学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	082200IDG2001	中国概况	2	32	1	必修
	082200IDG4002	汉语（一级）	4	64	1	必修
	082200IDG4003	汉语（二级）	4	64	2	必修
	082200IDG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	086000IDJ2001	高级食品化学	2	32	1	必修
	应修		2 学分			
专业课	086000IDZ2001	风味化学原理与技术	2	32	1	必修
	082200IDZ2001	表面活性剂化学	1	16	1	必修
	应修		3 学分			

选修课	082200IDX2001	日用化学品前沿	2	32	1	选修
	082200IDX2002	流体流动与输送机械	2	32	1	选修
	086000IDX2002	食品微生物学与生物技术原理与实践	2	32	1	选修
	应修		≥4 学分			
课程总学分要求		23 学分				

五、授课语言

英语（汉语课程除外）。

六、必修环节（2 学分）

1.学术活动（1 学分）

博士生在校期间，应累计参加 5 次以上的学术活动。学术活动包括作学术报告、参加学术报告会、参加国际国内学术会议等形式，其中参加国际国内学术会议应有口头报告或墙报。

2.专业实践（1 学分）

博士生在校期间，应参与社会实践或调查，就轻工专业相关问题进行调研并提交实践报告。

七、培养环节及学位论文

1. 个人培养计划

导师为研究生培养的第一责任人。博士生导师应根据本学科的实际情况、培养方案要求，结合研究方向和博士生的特点，制定博士生的个人培养计划。培养计划中应有明确的学位论文选题范围，明确对课程学习、文献阅读、科学研究、学位论文、实践环节等要求和进度安排。培养计划要充分注意因材施教、切实可行，发挥博士生的主动性和创造性。培养计划经导师或指导小组讨论审核并报学院批准后实施。培养计划应在博士生入学二个月内完成。

培养计划表一式四份，学院、导师和博士生各保存一份，一份提交研究生院培养办公室备案。在执行过程中如因客观条件变化，可以修订培养计划，但须经学院主管负责人同意，并报研究生院培养办公室备案。在博士研究生学位论文答辩前，应审查培养计划执行情况。

2. 学科综合考核

为加强博士生培养过程管理，保证培养质量，学校建立博士生学科综合考核制度。博士生最迟须在入学后的第三学期末之前完成课程学习，修满学分，在博士学位论文开始前或初始阶段，参加学院组织的学科综合考核，逾期未能考核的，按不合格处理。

2.1 考核内容和方式

学科综合考核的内容应包括导师所指定学习的基础理论、专业知识、学科前沿知识；也应包括导师虽未指定，但作为博士生应该具备的知识以及分析问题、解决问题的能力。学科综合考核的方式可以是口试、笔试，也可以是口、笔兼试。

2.2 考核组织

博士生学科综合考核由学院组织安排，可根据各学科特点成立不少于 3 名本学科专家组成的学科综合考核委员会或考核小组，并根据学科专业对博士生培养的目标要求以及培养方案确定的考核形式和考核内容进行考核。学院综合考核委员会或考核小组针对考核内容进行评议，并按“合格”或“不

合格”给出考核成绩。

2.3 考核结果处理

a．考核成绩评定后，应及时填写《北京工商大学博士研究生学科综合考核表》。学科综合考核成绩为“合格”的，可进入博士学位论文开题工作；

b．具有下列情形之一的，学科综合考核成绩为“不合格”：

（1）存在有违科学道德和学术不端行为；

（2）未按课程学习计划要求完成全部课程学习和考试；

（3） 已按课程学习计划要求完成全部课程考试，但有一门及以上学位必修课程考试不及格；

（4） 未完成必修环节的学习；

（5） 明显缺乏科学研究和实践能力；

（6） 因身心健康原因不能完成正常的学习和科研工作；

（7） 未经批准不参加学科综合考核。

学科综合考核不合格的博士生不能进入学位论文开题工作，学院考核委员会或考核小组应给予考核警告的书面通知，并在规定期限内对其重新考核，考核仍不合格的，应终止其培养过程。

3. 学位论文

博士学位论文是博士研究生学术水平的重要标志，表明作者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新性成果，并反映作者在本领域掌握了坚实宽广的基础理论和系统深入的专门知识。

3.1 开题答辩

博士生原则上应在入学后第三学期内，学科综合考核通过后进行论文开题答辩。原则上由各研究方向学科带头人统一组织，公开举行，并提前一周通知研究生教秘备案。

（1）开题报告由文献综述和研究计划两部分组成。博士生在至少阅读 100 篇参考文献（其中外文文献不得少于 70%）的基础上，结合研究方向和论文选题写出文献综述书面报告。文献综述报告应对本学科相关领域的近期国内外研究动态，包括这些领域的主要进展、前沿课题及主要研究方法和手段等给出详尽的介绍。文献综述由博士生本人完成，综述报告应提前 1 周，分送给考核小组每位成员。

（2）开题答辩前张贴海报，公布开题者、导师、课题名、评审委员名单以及举行报告会日期和地点，并组织本学科和相关学科科研人员、教师以及研究生参加。

（3）评审委员会成员不少于 5 人，其中博导至少 2 人。提倡聘请相近专业、跨学科有关专业或科研单位、企业界的专家参加。

（4）博士生对拟开题作 30 分钟左右的全面汇报，就课题的研究范围、意义和价值、拟解决的问题、研究方案及研究进度做出说明，进行可行性论证，并当场回答评审委员提问。指导教师介绍该生的业务基础、研究能力以及对拟开课题的评价。评审小组经过讨论，对该生能否完成课题任务、能否进入学位论文阶段做出明确评定，并将提问和讨论的主要内容记录在案，要求每位评审委员在开题报告表上签名。

3.2 中期检查

中期检查在第五学期末进行，对博士生的论文工作进展情况进行全面考查，以保证论文能够如期顺利完成。中期检查具体组织形式参照“3.1 开题答辩”。中期检查结束后，应填写《北京工商大学

博士研究生中期检查表》，由学院学术委员会审核。中期检查达不到要求的，应延期通过，需经再次考核通过或终止培养。对中期检查的具体要求见《北京工商大学博士研究生学位论文管理办法》。

3.3 学位论文撰写

博士生学位论文的详细要求，参见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学研究生学位论文文字重复率检测管理办法》、《北京工商大学博士、硕士学位授予办法》。

3.4 科研成果要求

博士生在学期间（以入学时间为界）必须发表学术论文或获得科研成果。具体要求参见《北京工商大学博士、硕士学位授予办法》。

博士研究生在学期间（以入学时间为界）必须以第一作者在国内外发表与学位论文相关的学术论文，论文积分之和应在 4.0 分或以上。根据《北京工商大学期刊分级要目》，以第一作者（或导师第 1，研究生第 2），发表 A1 论文为 2 分/篇，A2 论文为 1.5 分/篇，A3 论文或中国科学引文数据库（CSCD）收录期刊论文为 1 分/篇。共同第一作者论文成果，需由通讯作者和所有共同第一作者协商分配，并提供书面说明材料。博士研究生在学期间获得的排名第 1（或导师第 1，研究生第 2）的授权国际专利 2 分/项。如博士研究生在学期间（以入学时间为界）以第一作者（或导师第一作者，研究生为第二作者）发表 Nature，Science，Cell 研究论文 1 篇，直接满足发表论文要求。

上述学术论文、科研成果等必须以北京工商大学为第一单位署名发表。如博士学位论文已完成，学术论文尚未正式刊出，须提交论文正式录用通知申请答辩，但领取博士学位证书时需有已刊出论文或符合以上要求的其他科研成果材料。

3.5 学位论文预答辩

博士生完成学位论文后，在论文送审之前，要完成学位论文的预答辩，以便根据预答辩的情况对学位论文进行进一步修改和完善。 学位论文预答辩通过的，方可进行论文送审和申请正式答辩。对学位论文预答辩的基本要求和执行办法见《北京工商大学博士研究生学位论文管理办法》。

3.6 博士学位论文评审与答辩

博士生在通过论文送审的资格审查后，其学位论文即可送交专家评审。具体评审办法按照《北京工商大学博士研究生学位论文管理办法》执行。

评审通过后可组织论文答辩。答辩程序和实施办法等规定按照《北京工商大学博士研究生学位论文管理办法》执行。

八、教学大纲

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。

Doctoral Program for Light IndustryTechnology and Engineering

1.TRAINING TARGET

Be familiar with China's history, geography, society, economy and other basic knowledge of China's national conditions and culture, understand China's political system and foreign policy, understand China's mainstream social values and public morality, and form a good concept of rule of law and moral awareness. It is our mission to empower tomorrow’s senior professionals in the field of ChemicalEngineering and Biotechnology by giving our students rewarding and fruitful learning experiences. Our students are nurtured to understand the developments of food science and engineering, build a solid foundation on basic theoretical knowledge, keep consciousness of innovation with strong innovation ability, especially the ability of exploiting new research fields and development orientations. All students are expected to be knowledgeable and wise enough to independently perform scientific research and teaching tasks, make collaborative discoveries and inventions, and become the high-level talents of scientific research, teaching, production, development and management in the related-fields.

2.OVERVIEW OF THE PROGRAM

The predecessor of the School of Light Industry was the department of chemical engineering of Beijing College of Light Industry, which was established in 1958. The school owns four provincial level laboratories including Beijing laboratory of food quality and safety, Beijing key laboratory of flavor chemistry, Key Laboratory of Liquor Quality and Safety of China Light Industry and Key Laboratory of Brewing Molecular Engineering of China Light Industry. In addition, the school also has a national off-campus practice education base and a large-scale instruments center. The total laboratory area is more than 7000 m2, and the total assets are about 230 million CNY.

The School of Light Industry has one doctorate degree project in Light Industry Technology and Engineering, which is including four research areas:

(1) Daily Chemical Science and Engineering: Mainly research in the design, synthesis, performance and application of cosmetics and new surfactants.

(2) Fragrance and Flavors Technology and Engineering: Mainly research in high value-added natural fragrances, synthetic fragrances, new technologies, new processes, and new products for the green preparation of fragrances.

(3) Biomass Science and Engineering: Mainly research in the characteristics of cellulose, carbohydrates, waste protein, oil and other biomass raw materials and their new catalytic conversion theory and engineering technology.

(4) Fermentation Engineering: Mainly research in the theory and engineering technology of material transformation using microorganisms, animal and plant cells, and enzyme preparations. The research is committed to the modernization of traditional fermented food production.

3. LENGTH OF SCHOOLING

4 years with the maximal extension of 2 years.

4. CURRICULUM AND CREDITS REQUIREMENTS

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	082200IDG2001	Introduction to China	2	32	1	Compulsory
	082200IDG4002	HSK（Level Ⅰ）	4	64	1	Compulsory
	082200IDG4003	HSK（Level Ⅱ）	4	64	2	Compulsory
	082200IDG4004	HSK（Level Ⅲ）	4	64	3	Compulsory
	Credits Requirement		14 Credits			
Basic Courses	086000IDJ2001	Advanced Food Chemistry	2	32	1	Compulsory
	Credits Requirement		2 Credits			
Discipline Core Course	086000IDZ2001	Food Flavor Chemistry: Theory and Practice	2	32	1	Compulsory
	082200IDZ2001	Surfactant Chemistry	1	16	1	Compulsory
	Credits Requirement		3 Credits			
Major Optional Course	082200IDX2001	Frontiersin Daily Chemicals	2	32	1	Optional
	082200IDX2002	Fluid flow and transportation machinery	2	32	1	Optional
	086000IDX2002	Food Microbiology and Technology: Theory and Practice	2	32	1	Optional
	Credits Requirement		⩾4 Credits			
Total Credits		23 Credits				

5. TEACHING LANGUAGE

English

6. PRACTICE PART

6.1 Academic Activities (1 credit)

Doctoral students should participate in more than 5 academic activities in total. Academic activities include making academic reports, attending academic seminars, attending international and domestic academic conferences among which oral reports or wall newspapers are required.

6.2 Professional Practice (1 credit)

During staying in school, doctoral students should participate in social practice or investigation, conduct research on relevant issues of food specialty and submit practice reports.

7. RESEARCH AND DISSERTATION

7.1 Personal Study Plan

Supervisors are required to work with doctoral student on making personal study plan according to the current discipline situation, research area and personal interest. The dissertation area, courses attended, literature review arrangement, research and practice should be specified in the study plan. The study plan should be permitted by supervisor or guiding group. This work should be completed within two months after admission.

The students are required to submit 4 hard copies of personal study plan for graduate school, college, supervisor and student himself. In the study period, if the personal study plan need revision, doctoral student should ask for the permission from the authority in charge of this Before defense , the personal study plan will be checked.

7.2 Qualification Review

The doctoral qualification review is scheduled on the beginning of the 3rd semester. Doctoral students are required to fill the Doctoral Student Qualification Review Form. Supervisors are required to review the course study performance and research proposal. The review results will be filed to graduate student secretary.

7.3 Dissertation

7.3.1 Research Proposal Defense

The thesis proposal defense will be held in the third semester. In principle, the thesis proposal defense should be organized by discipline leaders of all research directions and held in public. The thesis proposal defense should be notified to the graduate student's secretary of education for record before one week.

(1) The thesis proposal consists of two parts: literature review and research plan. The doctoral candidate will write a written literature review report on the basis of reading at least 100 references. The literature review report should give a detailed introduction to the current frontier research regarding to the fields of this discipline, including the main progress and main research methods.The literature review should be completed by the doctoral candidate himself, which should be sent to each member of the assessment team one week in advance.

(2) Posters will be putted up before the thesis proposal defense, including the name of the thesis proposer, supervisor, project name, evaluation members and the date and place of the report meeting. All teachers and graduate students of this discipline and related disciplines will be invited to participate.

(3) The committee member should not less than 5 members, including at least 2 doctoral supervisors.It is advocated to invite experts from similar majors, interdisciplinary related majors, scientific research institutions and business circles to participate.

(4) The doctoral candidate should make a 30-minute comprehensive report on the proposed proposal, explain the scope, significance and value of the project, the problems to be solved, the research scheme and the research progress, conduct feasibility demonstration, and answer questions from the judges on the spot.The instructor introduces the student's research foundation, research ability and evaluation of the

proposed project.After discussion, the defense committee will make a clear assessment on whether the student could complete the project task and enter the dissertation stage. The questions and the main contents of the discussion should be recorded, and each evaluation committee member is required to sign on the proposal report form.

7.3.2 Mid-term Inspection

The mid-term examination is conducted by experts in the field which is organized by the research group at the end of the sixth semester, and mainly evaluates the ideological and moral quality, course learning and scientific research of the graduate students. After the mid-term examination, students should fill in the《Mid-term Examination Form for Doctoral candidates of Beijing Technology and Business University》, which will be examined and approved by the academic committee of the college. The main inspection items are as follows:

(1) Check whether the course credits have been completed.

(2) Assess the scientific research status of graduate students. Whether the proposal is made, whether the proposal report meets the requirements, whether scientific papers or other achievements are published, etc. Assess whether the scientific research status of graduate students is suitable for further study.

(3) Assess whether the scientific research is carried out according to the technical route of the thesis proposal and defense. If there is a big deviation, the reasons should be explained in detail.

(4) Examine the ideological and moral qualities of graduate students. From the graduate student's political thought, moral quality, academic accomplishment and so on to conduct the comprehensive investigation.

7.3.3 Doctoral dissertation

A doctoral dissertation is a key indicator for evaluating the academic level of a doctoral candidate. It indicates that the author has ability to independently engage in scientific research, make innovative achievements in science or technical skill, and demonstrates that the author has a solid and rich foundation of theory and comprehensive and in-depth professional knowledge in this field. For the detailed requirements of dissertation, please see the "Regulations and Requirements Governing the Doctoral Dissertation of Beijing Technology and Business University", " Regulations and Requirements Governing Plagiarism of Doctoral Dissertation of Beijing Technology and Business University", and " Doctoral and Master Degree Policies of Beijing Technology and Business University".

On the basis of the above documents, the discipline of Food Science and Engineering has the following additional requirements for international doctoral students.

7.3.4 Requirements for paper publication

During the period of study (based on the date of admission), the doctoral candidate is required to publish the academic papers as the first author (or, advisor as the first author and the candidate as the second). The academic paper needs to be related to the dissertation, and the total points should be higher than 4.0. According to "Classification of Journals of Beijing Technology and Business University", a class A1 paper = 2 points; a class A2 paper = 1.5 points；a class A3 paper = 1 point；During the period of study, an authorized

patent with the candidate as the first inventor (or, advisor as the first inventor and the candidate as the second) is regarded as international patent= 2points. Publishing one research paper on Nature, Science, Cell or their sub-issues, as the first author (or, advisor as the first author and the candidate as the second), will fulfill the present requirement directly.

The above-mentioned academic papers and scientific research achievements must be published with the Beijing Technology and Business University as the primary affiliation. Prior to applying for doctoral defense, If the applicant has completed doctoral dissertation, but the academic paper has not been published formally, a Notification of Acceptance for this academic paper should be submitted. The applicants will receive their Doctoral Degree Certificate after the paper is formally published or other scientific research achievements that meet the above requirements.

7.3.5 PhD Thesis Pre-defense

After the PhD thesis is completed and before sent to reviewers, the doctoral student are required to attend the pre-defense. If students passed the pre-defense, their thesis are allowed to send to reviewers and they can apply for formal thesis defense. Detailed information please refer to <The BTBU Regulation for Doctoral Dissertation >.

7.3.6 Requirements for Thesis

a. No less than 3 years from the opening of the thesis to the defense of the doctoral thesis;

b. The degree thesis must meet the requirements of "Beijing Technology and Business University Doctoral Dissertation Specification";

c. The plagiarism check: Before the anonymous review of the doctoral thesis, the plagiarism of the doctoral thesis will be checked by the graduate office of BTBU. The plagiarism check will be based on the plagiarism check requirement of the doctoral thesis of BTBU. If there was no the plagiarism check or there was a failed plagiarism check for the thesis, there graduation process will not enter the next stage.

d. There are 5 reviewers for the doctoral thesis.Two reviewers are the experts outside the school and they must be able to participate in the defense committee. The other three reviewers will be hired by the graduate office of BTBU to engage in an anonymous review of professors.

8. COURSE SYLLABUS

Course Syllabi are attached elsewhere.

环境科学与工程硕士留学研究生培养方案

授予学位类别：工学

一级学科代码及名称：0830 环境科学与工程

制订单位：轻工科学与工程学院

一、培养目标

坚持立德树人的根本任务，以培养环境科学与工程领域高素质、高层次的创新型人才为目标。要求学生掌握本学科坚实的基础理论知识、科学研究方法和实验实践技能，熟悉环境领域国内外发展和研究动态，具有良好的科学素质和团队精神，具有较强实践能力和一定创新能力，具有从事科学研究或独立承担环境领域专业技术工作的能力。

二、学科简介与研究方向

北京工商大学环境科学与工程学科源于北京轻工业学院环境工程专业，是我国最早开展环境学科教学和科研工作的机构之一。1979 年开始招收培养本科生，1981 年开始招收培养硕士研究生，1996 年获批“环境工程”二级学科硕士学位授予权，2006 年获批“环境科学与工程”一级学科硕士学位授予权和“环境科学”二级学科硕士学位授予权，环境工程现为北京市重点建设学科。学科传承轻工环保特色，紧密围绕轻工行业和北京市战略发展需求，充分利用我校在环境、食品、材料、信息技术等学科的传统优势，以多学科交叉融合促进环境学科发展，积极开拓新领域和新方向，以培养环境保护领域高素质综合创新型人才为目标，形成了特色鲜明的四个学科方向：

（1）城市环境污染治理。本方向主要研究区域大气和水等多介质污染协同治理理论与技术。主要内容包括：京津冀及周边地区城市大气污染来源解析、污水处理与回用新技术、污泥减量化等。

（2）轻工食品清洁生产。本方向主要研究农林加工及食品生产过程的污染物控制及清洁生产理论与技术。主要内容包括：农林加工及食品生产过程的挥发性有机废气、高浓度有机废水、工业生物质废弃物的治理与高效利用及发酵工业全生命周期环境影响评估等。

（3）食品有机废弃物资源化。本方向主要研究有机废弃物高值安全利用理论与技术。主要内容包括：厨余垃圾等城市高含水废弃物和轻工业有机废物的资源化利用等。

（4）环境污染与食品安全。本方向主要研究介质环境及微环境污染对食品安全风险的影响及其控制理论与技术。主要内容包括：食品安全相关污染物风险检测和控制、介质环境污染风险评估分析、食品包装材料和环境痕量污染物分析及健康效应等。

三、学制和学习年限

学术型硕士研究生学制 3 年，最长修业年限 5 年。

四、课程设置与学分要求

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	2

专业课	2	选修课	≥4
必修环节	2	总学分	≥24

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	083000IMG2001	中国概况	2	32	1	必修
	083000IMG4002	汉语（一级）	4	64	1	必修
	083000IMG4003	汉语（二级）	4	64	2	必修
	083000IMG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	083000IMJ2001	高等环境化学	2	32	1	二选一
	083000IMJ2002	环境科学与工程前沿	2	32	1	
	应修		2 学分			
专业课	083000IMZ2001	水处理原理	2	32	1	四选一
	083000IMZ2002	大气污染控制与装备	2	32	1	
	083000IMZ2003	固体废物资源化处理工程	2	32	1	
	083000IMZ2004	工业清洁生产原理与方法	2	32	1	
	应修		2 学分			
选修课	083000IMX2001	现代环境分析技术	2	32	1	选修
	083000IMX2002	环境生态学	2	32	1	选修
	083000IMX2003	环境规划与管理	2	32	1	选修
	083000IMX1004	环境分析波谱学	1	16	1	选修
	083000IMX1005	环境代谢组学	1	16	1	选修
	083000IMX2006	能源与环境	2	32	1	选修
	083000IMX2007	现代环境生物技术	2	32	1	选修
	083000IMX2008	膜分离技术原理及应用	2	32	1	选修
	083000IMX2009	农业面源污染与控制	2	32	1	选修
	083000IMX2010	高浓度有机工业废水生物处理技术	2	32	1	选修
	083000IMX2011	环境与资源经济学	2	32	2	选修
	083000IMX2012	专业英语	2	32	2	选修
	083000IMX1013	英文科技论文写作	1	16	2	选修
	083000IMX2014	大气污染化学与物理	2	32	2	选修
	083000IMX2015	生态保护与修复	2	32	2	选修
	083000IMX2016	环境毒理与健康风险	2	32	2	选修
	083000IMX2017	环境催化技术	2	32	2	选修

	083000IMX2018	工业分离技术	2	32	2	选修
	083000IMX2019	生物质转化技术	2	32	2	选修
	083000IMX2020	逻辑与批判性思维	2	32	2	选修
	083000IMX2021	土壤污染修复技术	2	32	2	选修
	083000IMX2022	大气污染监测技术	2	32	2	选修
	083000IMX2023	工业废水处理前沿	2	32	2	选修
	083000IMX2024	土壤与地下水污染防治工程	2	32	2	选修
	083000IMX2025	环境与食品分析技术	2	32	2	选修
	083000IMX2026	新污染物的样品分析技术与应用	2	32	2	选修
	083000IMX2027	环境卫星遥感技术与应用	2	32	2	选修
	应修		≥4 学分			
课程总学分要求			≥22 学分			

说明：具体要求参照同学历层次国内生相应要求。

五、授课语言

英文

六、必修环节（2 学分）

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，各专业根据实际情况制定可考核标准。

2.专业实践（1 学分）

“来华留学生的实践教学应当在满足专业要求的同时，与来华留学生的职业规划相结合，适应国际化人才培养的需要”，各专业根据实际情况制定可考核标准。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。

八、教学大纲

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 Environmental Science and Engineering

1.TRAINING TARGET

The Master of Environmental Science and Engineering program at Beijing Technology and Business University is committed to cultivating individuals with strong moral character. It is designed to develop high-quality and innovative talent in the field of environmental science and engineering, with a focus on the characteristics of light industry environmental protection. The program emphasizes the acquisition of fundamental theoretical knowledge, scientific research methods, and practical skills, as well as an understanding of the latest trends in China and abroad. Students are expected to possess strong scientific and team-oriented qualities, as well as practical and innovative abilities. Additionally, the program emphasizes the development of independent work capabilities in environmental engineering-related industries.

2.OVERVIEW OF THE PROGRAM

The Master of Environmental Science and Engineering program at Beijing Technology and Business University (BTBU) has a rich history, originating from the Environmental Engineering program at Beijing Institute of Light Industry, which was one of the earliest institutions in China to teach and conduct research in environmental science. The undergraduate program was established in 1979, followed by the graduate program in 1981. In 1996, the program was authorized to confer second-level master degrees in environmental engineering, and in 2006, it was authorized to confer first-level master degrees in environmental science and engineering, as well as second-level master degrees in environmental science. Today, it is a key discipline in Beijing City, with a focus on meeting the demands of Beijing's development. The program leverages the traditional strengths of environmental science, food science, material science, and information science at BTBU, and integrates different disciplines to develop environmental science and technology and explore new areas and directions. The program aims to cultivate high-quality, comprehensive, and innovative talents, with a focus on four research directions.

Direction 1: City environmental pollution control.

This direction mainly studies the theory and technology of coordinated control of regional air pollution, water pollution, and other multi-media pollution. The focus is on the analysis of urban air pollution sources in Beijing-Tianjin-Hebei and surrounding areas, new technologies for sewage treatment and reuse, and sludge reduction. Especially, the school has accumulated advantages in urban air pollution source emission inventory and vehicle emission characteristics, biological treatment of high-concentration sewage, sewage regeneration treatment and disinfection technology, etc.

Direction 2: Cleaner production in the light and food industry.

This direction mainly studies the theory and technology of pollutant control and cleaner production in agricultural and forestry processing and food production. The focus is on the treatment and efficient utilization of volatile organic waste gas, high-concentration organic wastewater, and industrial biomass waste in the agricultural and forestry processing and food production processes, and assessment of life cycle environmental impact of the fermentation industry. The school has accumulated advantages in the biological

adsorption of volatile organic compounds, advanced oxidation of wastewater and biological denitrification, thermochemical conversion and energy recovery of waste biomass, and biochar fabrication technology, etc.

Direction 3: Organic food waste utilization.

This direction mainly studies the theory and technology of high-value safe utilization of organic waste. The research focuses on the resource utilization of urban high-water-moisture waste such as kitchen waste and organic waste from light industry. The school has accumulated advantages in the safe and high-value utilization technology of kitchen waste and recycling of fermentation waste. The research teams have developed advanced technologies of "intelligent collection and transportation-fine pretreatment-high-efficiency separation-anaerobic fermentation-waste liquid fertilization", which is used for kitchen waste treatment in Beijing, Qingdao and other cities.

Direction 4: Environmentalpollution and food safety. This direction mainly studies the influence of medium environment and microenvironment pollution on food safety risks and its control theory and technology. The focus is on the risk detection and control of food safety-related pollutants, risk assessment and analysis of media environment pollution, food packaging materials and environmental trace pollutants analysis and health effects. The school has accumulated advantages in the generation, migration, transformation, and control of antibiotic resistance genes and disinfection by-products in water supply, food safety testing, and bio-based green food packaging materials, etc.

3. LENGTH OF SCHOOLING

This is a full-time three-year length program, which has a five-year maximum length of schooling.

4. CURRICULUM AND CREDITS REQUIREMENTS

Course Classification	Credits Requirement	Course Classification	Credits Requirement
Public Course	14	Basic Courses	2
Discipline Core Course	2	Major Optional Course	≥4
Practice Part	2	Total Credits	≥24

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	083000IMG2001	Chinese Culture	2	32	1	Compulsory
	083000IMG4002	HSK（Level I）	4	64	1	Compulsory
	083000IMG4003	HSK（Level II）	4	64	2	Compulsory
	083000IMG4004	HSK（Level III）	4	64	3	Compulsory
	CreMits Requirement		14 Credits			
Basic Courses	083000IMJ2001	Advanced Environmental Chemistry	2	32	1	Compulsory, select one from the two
	083000IMJ2002	Frontiers of	2	32	1	

		Environmental Science and Engineering				courses
	Credits Requirement		2Credits			
Discipline Core Course	083000IMZ2001	Principle of Water Treatment	2	32	1	Compulsory, select one from the four courses
	083000IMZ2002	Atmospheric Pollution Control and Equipment	2	32	1	
	083000IMZ2003	Solid Waste Resource Treatment Project	2	32	1	
	083000IMZ2004	Principles and Methods of Industrial Cleaner Production	2	32	1	
	Credits Requirement		2 Credits			
Major Optional Course	083000IMX2001	Modern Environmental Analysis Technology	2	32	1	Optional
	083000IMX2002	Environmental ecology	2	32	1	Optional
	083000IMX2003	Environmental Planning and Management	2	32	1	Optional
	083000IMX1004	Environmental Analysis Spectroscopy	2	32	1	Optional
	083000IMX1005	Environmental Metabolomics	1	16	1	Optional
	083000IMX2006	Energy and Environment	2	32	1	Optional
	083000IMX2007	Modern Environmental Biotechnology	2	32	1	Optional
	083000IMX2008	Principle and Application of Membrane Separation Technology	2	32	1	Optional
	083000IMX2009	Agricultural Non-point Source Pollution and Control	2	32	1	Optional
	083000IMX2010	Biological Treatment Technology of High Concentration Organic Industrial Wastewater	2	32	1	Optional
	083000IMX2011	Environment and Resource Economics	2	32	2	Optional
	083000IMX2012	Professional English	2	32	2	Optional
	083000IMX1013	English Scientific Paper Writing	1	16	2	Optional
	083000IMX2014	Air Pollution Chemistry and Physics	2	32	2	Optional
	083000IMX2015	Ecological Protection and Restoration	2	32	2	Optional
	083000IMX2016	Environmental Toxicology and Health Risks	2	32	2	Optional

	083000IMX2017	Environmental Catalysis Technology	2	32	2	Optional
	083000IMX2018	Industrial Separation Technology	2	32	2	Optional
	083000IMX2019	Biomass Conversion Technology	2	32	2	Optional
	083000IMX2020	Logic and Critical Thinking	2	32	2	Optional
	083000IMX2021	Soil Pollution Remediation Technology	2	32	2	Optional
	083000IMX2022	Air Pollution Monitoring Technology	2	32	2	Optional
	083000IMX2023	Frontiers in Industrial Wastewater Treatment	2	32	2	Optional
	083000IMX2024	Soil and Groundwater Pollution Prevention and Control Project	2	32	2	Optional
	083000IMX2025	Environment and Food Analysis Techniques	2	32	2	Optional
	083000IMX2026	Sample Analysis Techniques and Applications for Emerging Pollutants	2	32	2	Optional
	083000IMX2027	Environmental Satellite Remote Sensing Technology and Applications	2	32	2	Optional
	Credits Requirement		≥4Credits			
Total Credits			≥22 Credits			

5. TEACHING LANGUAGE

English

6. PRACTICE PART

1. Academic Activities(1 credit)

Students are required to attend academic activities, such as meetings/forums, oral presentations in China or other countries.

2. Professional Practice(1 credit)

It is important for practical teaching of international students in China to not only meet professional requirements, but also be aligned with their career planning to ensure successful international talent cultivation. Assessable standards can be developed based on actual situations.

7. THE DISSERTATION RELATED WORK

The dissertation related work for international students includes capstone presentation, medium-term inspection, review of scientific research achievements, text repetition rate detection, blind review and dissertation defence. It is helpful to refer to specific regulations for more detailed requirements, such as

Regulations of Graduate Dissertation for International Students at Beijing Technology and Business University, Regulations of Degree Awarding for International Students at Beijing Technology and Business University (Trial Implementation)。

8. COURSE SYLLABUS

Course Syllabus includes course code, course name, credit hour, credit, teaching aims, teaching styles, evaluation method, applicable discipline, prerequisite course, teaching materials, time allocation and references.

材料与化工硕士留学研究生培养方案

授予学位类别：材料与化工

专业学位类别代码及名称：0856 材料与化工

制订单位：轻工科学与工程学院

一、培养目标

培养的留学生应当熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，热爱中国，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。掌握材料与化工领域的基础理论和系统的专业知识，具备材料与化工技术研究和工程化能力，能够胜任材料与化工工程领域教育教学、科学研究、技术开发和工程管理工作的高级专门技术人才。

二、学科简介与研究方向

材料与化工专业硕士学位主要面向材料行业及相关工程部门培养基础扎实、素质全面、工程实践能力强，并具有一定创新能力的应用型、复合型高层次工程技术和工程管理人才。本领域涉及材料的获得，质量的改进，使材料成为人们可用的器件或构件的生产工艺、制造技术、工程规划、工程设计、技术经济管理等工程知识，并与冶金工程、机械工程、控制工程、电气工程、电子与信息工程、计算机技术、工业设计工程、化学工程、生物医学工程等领域密切相关。根据学科特色，本学位点主要培养高分子材料及其复合材料领域的专业技术人才。

北京工商大学材料科学与工程学科属于工学一级学科。1997 年获批材料加工工程硕士学位授予权，并于 2008 年获批北京市重点建设学科，2011 年取得材料科学与工程一级学科硕士学位授予权。2012 年开始招收材料工程专业学位研究生。材料科学与工程学科历经 20 余年的发展，形成了以高分子材料加工应用为特色的完善的教学科研体系，培养了大量高分子材料领域的优秀人才，为国家发展建设作出了贡献。

学科主要集中在聚合物成型加工、聚合物结构与性能关系、聚合物的环境行为等方面开展研究，主要包括以下 2 种研究方向：环境友好高分子材料和聚合物基功能复合材料。

三、学制和学习年限

工程类硕士专业学位研究生学制 3 年，最长修业年限 5 年。

四、课程设置与学分要求

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	4
专业课	4	选修课	≥6
必修环节	2	总学分	≥30

类别	课程编码	课程名称	学分	学时	开课学期	是否必修

公共课	085600IMG2001	中国概况	2	32	1	必修
	085600IMG4002	汉语（一级）	4	64	1	必修
	085600IMG4003	汉语（二级）	4	64	2	必修
	085600IMG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	085600IMJ2001	材料结构与性能	2	32	2	必修
	085600IMJ2002	材料表征与测试	2	32	1	必修
	应修		4 学分			
专业课	085600IMZ1001	高分子材料工程设计基础	1	16	2	必修
	085600IMZ1002	材料科学与工程前沿	1	16	1	必修
	085600IMZ2003	现代高分子合成与加工技术	2	32	2	必修
	应修		4 学分			
选修课	085600IMX1001	聚合物共混理论	1	16	2	选修
	085600IMX2002	环境友好高分子材料	2	32	1	选修
	085600IMX1003	功能材料制备与原理	1	16	1	选修
	085600IMX1004	食品包装材料与安全	1	16	1	选修
	085600IMX1005	纳米材料	1	16	1	选修
	085600IMX1006	分子与材料	1	16	2	选修
	应修		≥6 学分			
课程总学分要求			≥28 学分			

说明：具体要求参照同学历层次国内生相应要求。

五、授课语言

英文

六、必修环节（2 学分）

1.学术活动（1 学分）

硕士留学生在校期间须参加至少 5 场由研究生院、学院或学科组织或认可的专题讲座、学术报告或研究生论坛。

2.专业实践（1 学分）

工程类硕士专业学位研究生开展专业实践，可采用参观实习的方式，对相关专业的对口企业进行参观实习，研究生在导师指导下完成专业实践，实践结束提供相关证明和接受单位鉴定，撰写不少于 3000 字的实践学习总结报告。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文

文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。

八、教学大纲

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、适用学科或专业学位（领域）、先修课程、主要教学内容和学时分配、参考文献等。

Cultivation Scheme for Postgraduate Studying for Degrees in Materials and Chemical Engineering

1.TRAINING TARGET

Cultivated foreign students should be familiar with Chinese national conditions and basic cultural knowledge such as Chinese history, geography, society, economy, etc., love China, understand China’ s political system and foreign policy, understand the mainstream values and public moral concepts of Chinese society, and form a good legal concept and moral awareness . Master the basic theory and system expertise in the field of materials and chemical engineering, with material and chemical technology research and engineering capabilities, can be qualified for advanced professional technical personnel in the field of materials and chemical engineering education, scientific research, technology development and engineering management.

2.OVERVIEW OF THE PROGRAM

The master's degree in materials and chemical engineering is mainly for the application industry, composite high-level engineering technology and engineering management talents with solid foundation, comprehensive quality, strong engineering practice ability, and certain innovation ability. This field involves the acquisition of materials and the improvement of quality, making materials become usable devices or components of the production process, manufacturing technology, engineering planning, engineering design, technical and economic management and other engineering knowledge, and with metallurgical engineering, mechanical engineering, control engineering , Electrical engineering, electronics and information engineering, computer technology, industrial design engineering, chemical engineering, biomedical engineering and other fields are closely related. According to the characteristics of the discipline, this degree program mainly trains professional and technical personnel in the field of polymer materials and composite materials.

The discipline of materials science and engineering of Beijing Technology and Business University belongs to the first-level discipline of engineering. Master's degree in materials processing engineering was granted in 1997 and was approved as a key construction discipline in Beijing in 2008. In 2012, graduate students majoring in materials engineering began to be enrolled. After more than 20 years of development, the discipline of materials science and engineering has formed a perfect teaching and research system featuring the processing and application of polymer materials. It has cultivated a large number of outstanding talents in the field of polymer materials and contributed to the development and construction of the country.

The subject mainly focuses on polymer molding and processing, the relationship between polymer structure and performance, and the environmental behavior of polymers. It mainly includes the following 2 research directions:Environment-friendly Polymer Materials and Polymer-based Functional Composites.

3. LENGTH OF SCHOOLING

The engineering master's degree graduate degree system is three years, with a maximum duration of five years.

4. CURRICULUM AND CREDITS REQUIREMENTS

Course Classification	Credits required	Course Classification	Credits required
Public Course	14	Basic Courses	4
Professional courses	4	Optional course	≥6
compulsorycourses	2	Total Credits	≥30

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	085600IMG2001	Chinese Culture	2	32	1	Compulsory
	085600IMG4002	HSK（Level Ⅰ）	4	64	1	Compulsory
	085600IMG4003	HSK（Level Ⅱ）	4	64	2	Compulsory
	085600IMG4004	HSK（Level Ⅲ）	4	64	3	Compulsory
	Credits Requirement		14 Credits			
Basic Courses	085600IMJ2001	Material structure and performance	2	32	2	Compulsory
	085600IMJ2002	Material characterization and testing	2	32	1	Compulsory
	Credits Requirement		4 Credits			
Discipline Core Course	085600IMZ1001	Engineering design fundamentals of polymer materials	1	16	2	Compulsory
	085600IMZ1002	Frontiers of materials science and engineering	1	16	1	Compulsory
	085600IMZ2003	Modern polymer synthesis and processing technology	2	32	2	Compulsory
	Credits Requirement		4 Credits			
Major Optional Course	085600IMX1001	Polymer blending theory	1	16	2	Optional
	085600IMX2002	Environmentally friendly polymer materials	2	32	1	Optional
	085600IMX1003	Functional material preparation and principle	1	16	1	Optional
	085600IMX1004	Food packaging materials and safety	1	16	1	Optional
	085600IMX1005	Nano materials	1	16	1	Optional
	085600IMX1006	Molecules and materials	1	16	2	Optional
	Credits Requirement		≥6 Credits			
Total Credits			≥28 Credits			

5. TEACHING LANGUAGE

English

6. PRACTICE PART

1. Academic activities (1 credit)

Graduate students must attend at least 5 special lectures, academic reports or graduate forums organized or recognized by graduate schools, colleges or disciplines.

2. Professional Practice (1 credit)

For engineering master degree graduates to carry out professional practice, they can use the way of visiting and internship to visit the corresponding enterprises of related majors. The graduates complete the professional practice under the guidance of the tutor. After the practice ends, they provide relevant proofs and accept the identification of the unit. 3000-word practice study summary report.

7. THE DISSERTATION RELATED WORK

In the process of cultivating overseas graduate students, relevant links and dissertation work include thesis proposal defense, mid-term inspection, review of scientific research results, text repetition rate detection, anonymous review and defense. For specific requirements, please refer to the "administrative measures for doctoral dissertation of Beijing technology and business university" and "detailed rules for the awarding of doctoral and master degrees to graduate students in China by Beijing technology and business university (for trial implementation)".

8. COURSE SYLLABUS

The course syllabus includes course code, course title, class hours, credits, teaching objectives, teaching methods, assessment methods, applicable subjects, advanced courses, main teaching content and class hour assignment, references, etc.

数据科学与人工智能学部

计算机与人工智能学院

电子信息（计算机技术）硕士留学研究生培养方案

授予学位类别：电子信息

专业学位类别代码及名称：0854 电子信息

专业学位领域代码及名称：085404 计算机技术

制订单位：计算机与人工智能学院

一、培养目标

培养从事计算机应用、数据分析、数据科学、软件工程、大型软件开发和设计等方面工作的高级专业人才。

1. 学习和了解中国文化及其国家特色；遵守中国、国际法律法规，树立科学发展观；有高尚的科学道德和良好的合作精神；热爱科学，遵纪守法，品行端正，能积极为国际现代化建设事业服务。熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。

2. 具有计算机科学、信息处理、人工智能等领域坚实的基础理论和系统的专门知识，熟练掌握计算机科学的基本理论和方法、计算机应用技术和系统设计方法，具备大型软件与信息、控制系统的研究和设计能力，在计算机工程领域内具有独立从事计算机应用系统设计、实施、开发、工程管理等能力。

3. 具有团队合作精神和诚信意识，有较强的创新精神和创新能力。

二、学科简介与研究方向

学科包括以下研究方向：

1. 大数据可视分析

本研究方向以食品、金融和商业领域中的大数据为主要研究对象，综合运用统计学习、数据挖掘、可视化、人机交互、并行计算理论，重点研究多维数据、关系数据、时间序列数据、空间数据、文本数据等大规模数据的存储、表示和可视分析模型，并行处理算法，以及可视分析平台和工具的构建方法，解决食品安全、金融分析、商业运营中大数据的可视表示、交互分析和辅助决策问题。

2. 商业物联网

本研究方向以构建面向食品、金融、商业领域的物联网系统为目标，将领域信息传感设备及系统接入互联网，形成统一的平台，不但实现各种设备的无缝连接，以及人与环境之间的感知、沟通和对话，还要在人机与环境之间建立一种协调统一的关系，并在掌握领域数据基础上，开展相关应用。本方向涉及多个学术研究领域，包括传感器网络、无线移动计算、系统软件、嵌入式系统、环境感知计算、人机交互、数据信息处理、可信性和安全性等。

3. 数据挖掘与社会计算

本研究方向面向食品安全、金融、互联网及社会网络等领域，以海量数据为对象，以探索和发现数据中潜在的规律和知识为核心，以预测未来事件为目标，采用大数据、统计学习、多维分析、社会

网络、自然语言处理等理论，重点研究大数据处理、精准推荐模型与算法、热点事件传播与预测、群体行为分析以及金融预测等核心科学问题。研究成果可以帮助政府、企业将海量数据转化为知识，服务于政府网络舆情管理；服务于企业提升关键绩效，增强综合竞争力的智慧和能力；服务于人类理解自身行为规律。主要包括：面向商业与金融领域的大数据分析与挖掘、面向食品安全信息的网络信息分析与挖掘、面向公共安全和舆情的社会计算。

4. 移动计算与云服务

移动计算与云服务是随着移动互联网、分布式计算等技术发展而兴起的新方向，主要研究计算机或其它智能终端设备在无线环境下的计算模式及资源共享问题。研究目标是将有用、准确、及时的信息以服务的方式按需提供给任何时间、任何地点的任何客户。本方向重点开展基于云的资源整合和业务协作模型、方法、技术以及软件平台和实际系统的研究，通过建立无线环境下领域信息化基础设施，实现资源无缝共享和应用即时协同。本方向是软件工程与分布式计算、移动通信的融合与延伸。

三、学制和学习年限

学制为 3 年，学习年限最长不得超过 5 年。

四、课程设置与学分要求

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	6
专业课	6	选修课	≥4
必修环节	2	总学分	≥32
学分说明	1．必修环节为具体要求见六、必修环节。 2．攻读本专业学位的留学研究生总学分不得少于 32 学分。		

表 1 留学研究生课程设置及学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	085404IMG2001	中国概况	2	32	1	必修
	085404IMG4002	汉语（一级）	4	64	1	必修
	085404IMG4003	汉语（二级）	4	64	2	必修
	085404IMG4004	汉语（三级）	4	64	3	必修
		应修	14 学分			
基础课	085404IMJ2001	高级计算机图形学	2	32	3	必修
	085406IMJ2002	高级计算机网络	2	32	1	必修
	085404IMJ2002	机器学习	2	32	2	必修
		应修	6 学分			
专业课	085404IMZ2001	大数据处理技术	2	32	2	必修
	085406IMZ2001	物联网技术与信息融合	2	32	2	必修
	085404IMZ2002	数据科学与工程	2	32	3	必修
		应修	6 学分			

选修课	085404IMX2001	数据库与数据挖掘	2	32	1	选修
	085406IMX2001	Python 编程训练	2	32	1	选修
	085404IMX2002	深度学习	2	32	2	选修
	085404IMX2003	信息可视化技术	2	32	3	选修
	085404IMX1004	科技论文写作	1	16	4	选修
	085404IMX2005	计算机科学前沿	2	32	1	选修
		应修	≥4 学分			
课程总学分要求			≥30 学分			

五、授课语言

英文

六、必修环节

1. 学术活动（1 学分）

学生应在学习期间积极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。学生需提交至少一次学术活动报告。

2. 专业实践（1 学分）

安排在第 6 学期，由实践导师指导调研，根据本专业的前沿研究方向进行选题，完成学时不少于 6 个月 144 学时的研究专题实践。学生需要上交实践报告，考核合格后获得学分。

七、培养环节及学位论文

1. 学位论文选题

硕士学位论文选题应直接来源于电子信息（计算机技术）领域生产实际或者具有明确的工程背景和应用价值，密切结合所从事的企业面临的技术改造、革新、引进等技术难题或科研攻关项目。

2. 学位论文开题

学位论文工作应在导师指导下于第三学期开始，在查阅文献、调查研究的基础上做好开题报告。开题报告主要包括立题意义、文献综述初步、研究计划及目标、主要理论（技术）难题及拟解决方案等。开题报告应在学科范围内公开宣讲，并广泛征求意见。

3. 学位论文中期检查

学位论文中期检查应在第四学期完成。

4. 学位论文内容和形式

学位论文必须在导师指导下由硕士生本人独立完成。论文要有一定的工作量，在论文题目确定后，用于论文工作的时间为半年。论文要求资料可靠、理论正确、思路清晰，对所研究专业和方向的最新成就有所了解，对所研究的课题有新的见解，并在该研究方向上有新的研究成果。论文书写必须符合《北京工商大学研究生学位论文格式要求》。学位论文如用英文撰写，必须要有中文摘要。

5. 论文答辩与学位申请

论文评审实行匿名评阅制度。所有研究生学位论文必须经过答辩，答辩实行末位监控制度，具体要求详见《北京工商大学专业学位硕士研究生学位论文管理办法》。

八、教学大纲

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。

Electronic Information (Computer Technology) Master of Computer Technology for International Students

1. TRAINING TARGET

The objective of the program is to train professionals in computer application, data analysis, data science, software engineering, and large-scale software development and design. During this process, students will:

1. Understand China's national conditions such as Chinese culture, history, society, and economy, and understand China's political system and foreign policy; Establish a scientific outlook on development and serve the cause of international modernization; Understand the mainstream values and public morals of Chinese society, have the concept of the rule of law and moral awareness and abide by the law.

2. Master the knowledge of fundamental theories and systems in the fields of computer science, information processing, artificial intelligence, etc.; Understand the fundamental theories and methodologies of computer science, computer application technology and system design; Have the research and design capability for large-scale software and information and control systems; Have the independent capability in computer application system design, implementation, development, project management, etc., in the field of computer engineering.

3. Have teamwork spirit and credit awareness, and have a strong creative spirit and innovative ability.

2. OVERVIEW OF THE PROGRAM

The research directions of the program include:

(1) Big Data and Visual Analysis

The research on big data in the field of food, business and finance as the main research objects, using the methods of statistical learning, data mining, visualization, human-computer interaction, parallel computing theory, focuses on the research of large-scale data storage, representation and visual analysis model the parallel processing algorithm, construction method and visual analysis platform and tools about multidimensional data, relational data, time series data, spatial data, text data. The research solves the problem of the visual representation, interaction analysis and assistant decision making in the field of food safety, financial analysis, and business operation.

(2) Commercial Internet of Things

The research goal is to construct Internet of Things system for the fields of food, finance and business, embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data, not only to achieve the seamless connection of various equipment, and between people and the environment perception, communication and dialogue, but also set up a kind of harmonious relationship between human and environment. This is the inter-discipline of wireless sensor networks, mobile computing, system software, embedded system, environment aware computing, human-computer interaction,

data processing, information credibility and network safety etc.

(3) Data Mining and Social Computing

This research area focuses on data mining of food security, financial, Internet, and social networks. In order to explorer data patterns and predict future events, statistical learning, multi-dimensional analysis theory, natural language processing and other large data processing methods are widely used.

(4) Mobile Computing and Cloud Service

Mobile computing and cloud service is a new direction arising with the development of mobile internet and distributed computing technology. Research is focused on the computing models and resource sharing problems of computer or other intelligent terminal devices in a wireless environment. The ultimate goal is to be able to provide the useful, accurate and timely information as a service on demand of any customer at anytime and anywhere. The direction of research focuses on cloud resource integration and collaborative business models, methods, techniques and software platform and system. It is to achieve seamless sharing and instant collaboration application by establishing a wireless environment in the field of information technology infrastructure and resources. This direction is an integration and extension of software engineering, distributed computing and mobile communications.

3. LENGTH OF SCHOOLING

This is a three-year degree. If necessary, the duration of the study could be extended to no more than five years.

4. DESCRIPTION OF TOTAL CREDITS AND CURRICULUMS

Course Classification	Credits Requirement	Course Classification	Credits Requirement
Public Course	14	Basic Courses	6
Discipline Core Course	6	Electives	≥4
Compulsory Part	2	Total Credits	≥32
Credit description	1. For the compulsory part, please see “6. Compulsory Part” for more details. 2. The total number of credits shall not be less than 32 credits.		

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	085404IMG2001	Chinese Culture	2	32	1	Compulsory
	085404IMG4002	HSK (Level I)	4	64	1	Compulsory
	085404IMG4003	HSK (Level II)	4	64	2	Compulsory
	085404IMG4004	HSK (Level III)	4	64	3	Compulsory
	Credits Requirement		14 Credits			
Basic Courses	085404IMJ2001	Advanced Computer Graphics	2	32	3	Compulsory

	085406IMJ2002	Advanced Computer Networks	2	32	1	Compulsory
	085404IMJ2002	Machine Learning	2	32	2	Compulsory
	Credits Requirement		6 Credits			
Discipline Core Course	085404IMZ2001	Big Data Processing	2	32	2	Compulsory
	085406IMZ2001	Internet of Things and information fusion	2	32	2	Compulsory
	085404IMZ2002	Data Science and Engineering	2	32	3	Compulsory
	Credits Requirement		6 Credits			
Major Optional Course	085404IMX2001	Database and Data Mining	2	32	1	Optional
	085406IMX2001	Python Programming Training	2	32	1	Optional
	085404IMX2002	Deep Learning	2	32	2	Optional
	085404IMX2003	Information Visualization	2	32	3	Optional
	085404IMX1004	Academic Writing	1	16	4	Optional
	085404IMX2005	Computer Science Frontier	2	32	1	Optional
	Credits Requirement		⩾4 Credits			
Total Credits			⩾30 Credits			

5. TEACHING LANGUAGE

English

6. COMPULSORY PART

(1). Academic activities (1 credit)

Students should actively participate in academic activities including international or domestic academic conferences, seminars, academic reports, presentation in academic conferences, etc. Students are required to submit at least one academic activity report.

(2). Professional practice (1 credit)

This professional practice is arranged in the sixth semester guided by a supervisor. The topic selection is to be aligned with cutting-edge research directions. The duration of this practice should be no less than 6 months and 144 hours. The student is required to submit a report for this practice, and the credit points will be granted if the report passes the assessment.

7. THE DISSERTATION RELATED WORK

Degree thesis is the important part of graduate cultivation. Through the thesis, the graduate student should be trained to do scientific research and work independently. The analysis and comprehensive ability, and the ability of finding and solving problems, cultivation of seek truth from facts work style and rigorous practical attitude should be cultured.

(1). Thesis topic selection

The topic selection of the degree thesis should be directly related to practical applications of electronic information (computer technology), or technical problems or scientific research projects that have a clear engineering background and application values.

(2). Research proposal

The thesis work should be started in the third semester under the guidance of the supervisor. The student should finish a research proposal base on the literature review and preliminary investigation and study. The research proposal should include the significance of the research, literature review, research plan and target, the main theory (technical) problems and proposed solutions. The research proposal should be preached in the range of subjects, and solicit opinions extensively.

(3). Mid-term examination of thesis

The mid-term examination of the thesis should be completed in the fourth semester.

(4). Content and form of thesis

The thesis must be finished by the student independently under the guidance of the supervisor. The thesis should have a certain amount of workload. The thesis's working time, after the topic is determined, is generally half a year. The thesis is required to be with reliable information, correct theory, clear thinking, understanding of state-of-the-art research direction, new insights into the research direction, and new research achievement. Thesis writing must be consistent with the "Beijing Technology and Business University master's degree thesis writing rules".

(5). If the thesis is written in English, it must have a Chinese abstract.

(6). Thesis defense and degree application

The evaluation of the thesis will be conducted in a "double-blind" manner. The thesis must go through the defense process, and a monitoring system for low-ranked thesis will be maintained. More details can be found in "Working rules of University Master's degree awarded by Beijing Technology and Business University".

8. COURSE SYLLABUS

The content of the course syllabus includes the course code, course name, class hours, credits, teaching objectives, teaching methods, assessment methods, applicable disciplines, prerequisite courses, main teaching content and class hours allocation, references, etc.

电子信息（控制工程）硕士留学研究生培养方案

授予学位类别：电子信息

专业学位类别代码及名称：0854 电子信息

专业学位领域代码及名称：085406 控制工程

制订单位：计算机与人工智能学院

一、培养目标

专业硕士研究生的培养必须坚持德、智、体全面发展的方针，在整个培养过程中应该强调基础理论和专业知识的学习同时，强调工程能力的培养，重视综合素质、创新能力和创业精神的培养，提高分析问题和解决问题的能力。

1．了解中国文化、历史、社会、经济等中国国情，了解中国政治制度和外交政策。树立科学发展观，为国际现代化建设事业服务。理解中国社会主流价值观和公共道德观念，具有法治观念和道德意识、遵纪守法。

2．培养从事电子信息领域的基于计算机技术的自动控制系统设计与开发、智能信息处理等方面的高层次工程技术和工程管理人才。掌握控制工程、信息处理、人工智能等领域基础理论和专门知识；具有开发和应用物联网、信息处理系统、计算机网络的能力；能够胜任本学科相关领域的专题研究、工程项目开发设计和实施工作。

3．具有团队合作精神和诚信意识，具有创新精神和创新能力。

二、学科简介与研究方向

电子信息（控制工程）学科是以工程领域的控制系统为主要对象，采用现代数学方法和计算机技术，研究系统的建模、分析、控制、设计和实现的理论、方法和技术；是满足和实现现代工业、农业以及其他社会经济等领域日益增长的自动化、智能化需求的重要的工程领域。

1.系统智能控制技术

针对工业生产、环境安全、物流系统中的关键测控技术问题，综合运用智能控制技术、物联网技术、多传感器信息融合技术，研究智能化测量、智能分析的理论和方法。

2．计算机应用技术

针对实际复杂系统的数据处理与分析问题，综合运用计算机和网络的相关理论和技术，研究网络信息技术与人工智能技术相融合，数据库与数据挖掘技术、图像处理等技术。

三、学制和学习年限

采用全日制学习方式，学制 3 年，最长修业年限 5 年。

四、课程设置与学分要求

表 1 留学研究生课程总学分说明

课程类别	学分要求	课程类别	学分要求

公共课	8	基础课	≥4
专业课	6	选修课	≥6
必修环节	2	总学分	≥26

表 2 留学研究生课程设置及学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	085406IMG2001	中国概况	2	32	1	必修
	085406IMG4002	汉语（一级）	2	32	1	必修
	085406IMG4003	汉语（二级）	2	32	2	必修
	085406IMG4004	汉语（三级）	2	32	3	必修
	应修		8 学分			
基础课	085406IMJ2001	控制系统仿真及应用	2	32	1	3 选 2
	085406IMJ2002	高级计算机网络	2	32	1	
	085406IMJ2003	线性控制系统	2	32	2	
	应修		≥4 学分			
专业课	085404IMZ2002	机器学习	2	32	2	必修
	085406IMZ2001	物联网技术与信息融合	2	32	2	必修
	085406IMZ2002	智能控制技术	2	32	2	必修
	应修		6 学分			
选修课	085404IMX2001	数据库与数据挖掘	2	32	1	6 选 3
	085406IMX2001	python 编程训练	2	32	1	
	085404IMX1004	科技论文写作	1	16	3	
	085404IMX2001	大数据处理技术	2	32	2	
	085406IMX2002	深度学习	2	32	2	
	085406IMX2003	图像工程	2	32	2	
	应修		≥6 学分			
课程总学分要求			≥24 学分			

五、授课语言

英文

六、必修环节（2 学分）

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.专业实践（1 学分）

留学生的实践教学应当在满足专业要求的同时，与留学生的职业规划相结合，适应国际化人才培养的需要。针对具体控制工程应用领域与任务选择专业实践内容，通过专业实习、开发应用系统、完成软、硬件设计等形式，完成智能系统控制技术、计算机应用技术的创新实践训练，提升专业硕士学生的工程实践能力。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。

八、教学大纲

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。

Electronic Information (Control Engineering) Master of International Postgraduate Training Program

1.TRAINING TARGET

Cultivation of professional graduate students adhere to the overall development of morality, intelligence, and sports. Throughout the training process, focus on fundamental theories and professional knowledge. At the same time, we emphasize the cultivation of engineering ability, comprehensive quality, innovation ability, and entrepreneurial spirit, and improve the ability to analyze and solve problems. During this process, students will:

（1）Understand China's national conditions such as Chinese culture, history, society, and economy, and understand China's political system and foreign policy; Establish a scientific outlook on development and serve the cause of international modernization; Understand the mainstream values and public morals of Chinese society, have the concept of the rule of law and moral awareness and abide by the law.

（2）Cultivate high-level engineering technology and engineering management talents engaged in the design and development of automatic control systems based on computer technology and intelligent information processing in the field of electronic information. Master the knowledge of basic theories and systems in the fields of control science and technology, information processing, artificial intelligence, etc.; Have the knowledge ability to develop the Internet of Things technology, information processing system, and computer network; Be capable of special subject research and engineering implementation in related fields, and can be engaged in scientific research and actual engineering project development.

（3）Healthy and positive, teamwork spirit and credit awareness, and have a strong creative spirit and innovative ability.

2.OVERVIEW OF THE PROGRAM

Focusing on control systems in the field of engineering, the discipline of electronic information (control engineering) is the theory, methods, and techniques of modeling, analysis, control, design, and implementation of research systems based on modern mathematical methods and computer technology. It is an important engineering field that meets and realizes the increasing demands for automation and intelligence in modern industry, agriculture, and other social and economic fields. The main research interests include but not limited to the following aspects:

1) System intelligent control technology: Aiming at the critical measurement and control technology problems in industrial production, environmental safety, and logistics systems, comprehensively using intelligent control technology, Internet of Things technology, and multi-sensor information fusion technology to study the theory and methods of intelligent measurement and intelligent analysis to solve Current research hot-spots in the fields of industrial production, environmental safety, and logistics measurement and control.

2) Computer application technology: Aiming at the data processing and analysis problems of actual

complex systems, comprehensively using the relevant theories and techniques of computers and networks, combining network information technology and artificial intelligence technology, and solving practical problems based on database and data mining technology, image processing and other technologies System data processing and analysis problems.

3. LENGTH OF SCHOOLING

This is a three-year degree. If necessary, the duration of the study could be extended to no more than five years.

4. CURRICULUM AND CREDITS REQUIREMENTS

Table 1 Description of total credits

Course Classification	Credits Requirement	Course Classification	Credits Requirement
Public Course	8	Basic Courses	≥4
Discipline Core Course	6	Discipline Core Course	≥6
Compulsory	2	Total Credits	≥26

Table 2 Curriculum and credit requirements

Course Classification	**Course Code**	**Course Name**	**Credits**	**Course Hours**	**Semester**	**Compulsory/ Optional**
Public Course	085406IMG2001	Chinese Culture	2	32	1	Compulsory
	085406IMG4002	HSK（Level I）	2	32	1	Compulsory
	085406IMG4003	HSK（Level II）	2	32	2	Compulsory
	085406IMG4004	HSK（Level III）	2	32	3	Compulsory
	Credits Requirement		8 Credits			
Basic Course	085406IMJ2001	Simulation and Application of Control System	2	32	1	Select 2 courses from 3 courses
	085406IMJ2002	Advanced Computer Networks	2	32	1	
	085406IMJ2003	Linear Control System	2	32	2	
	Credits Requirement		≥4 Credits			
Discipline Core Course	085404IMZ2002	Machine Learning	2	32	2	Compulsory
	085406IMZ2001	Internet of Things and information fusion	2	32	2	Compulsory

	085406IMZ2002	Intelligent Control Technology	2	32	2	Compulsory
	Credits Requirement		6 Credits			
Major Optional Course	085404IMX2001	Database and Data Mining	2	32	1	Select 3 courses from 6 courses
	085406IMX2001	Python Programming Training	2	32	1	
	085404IMX1004	Science and Technology Essay Writing	1	16	3	
	085404IMX2001	Big data processing	2	32	2	
	085406IMX2002	Deep Learning	2	32	2	
	085406IMX2003	Image Engineering	2	32	2	
	Credits Requirement		⩾6 Credits			
Total Credits			⩾24 Credits			

5. TEACHING LANGUAGE

English

6. COMPULSORY COURSES (2 CREDITS)

1）Academic activities (1 credit)

Including participation in international and domestic academic conferences, academic forums, academic reports, and oral presentations at international academic conferences, etc.

2）Professional practice (1 credit)

The practical teaching of international students in China should meet the professional requirements and be combined with the career planning of the international students to meet the needs of international talent training. Students should select professional practice content for control engineering application fields and complete innovative, practical training using intelligent system control and computer application technology. Professional engineering practice is improved through professional practice, developing application systems, and completing the software and hardware design.

7. TRAINING LINK AND DISSERTATION

Related links and dissertation work in the training process of overseas graduate students include topic-opening defense, mid-term inspection, review of scientific research results, test of the repetition rate of thesis text, anonymous review and defense. For specific requirements, please refer to the "Administrative Measures for Doctoral Dissertations of Beijing Technology and Business University" and "Working Rules for Granting Doctorate and Master Degrees for Postgraduates of Beijing Technology and Business University (Trial).

8. COURSE SYLLABUS

The content of the course syllabus includes the course code, course name, class hours, credits, teaching objectives, teaching methods, assessment methods, applicable disciplines, prerequisite courses, main teaching content and class hours allocation, references, etc.

电子信息（人工智能）硕士留学研究生培养方案

授予学位类别：电子信息

专业学位类别代码及名称：0854 电子信息

专业学位领域代码及名称：085410 人工智能

制订单位：计算机与人工智能学院

一、培养目标

专业硕士研究生的培养必须坚持德、智、体全面发展的方针，在整个培养过程中强调基础理论和专业知识的学习同时，强调工程能力的培养，重视综合素质、创新能力和创业精神的培养，提高分析问题和解决问题的能力。

1．了解中国文化、历史、社会、法律、中国政治制度和外交政策等中国国情，具备较好的中文书写、听说能力。树立科学发展观，为国际现代化建设事业服务。理解中国社会主流价值观和公共道德观念，具有法治观念和道德意识，遵纪守法。

2．培养从事电子信息领域的人工智能技术、智能信息处理技术及其应用系统的设计、开发的高层次工程技术人才。掌握人工智能、控制工程、信息处理、计算机科学等领域基础理论和专门知识；具有开发和应用智能系统、物联网、信息处理系统的能力；能够胜任本学科相关领域的专题研究、工程项目开发设计和实施工作。

3．身心健康，具有团队合作精神和诚信意识，具有国际视野，能进行跨文化交流，拥有自主终身学习能力。

二、学科简介与研究方向

电子信息（人工智能）学科是以智能系统为主要对象，采用计算机技术和数学方法研究系统的建模与控制、智能处理与分析、工程设计和实现的理论、方法和技术，实现现代工业、农业以及其他社会经济等领域智能化和自动化。

1. 人工智能理论和方法

针对实际复杂无人智能系统的信息处理问题，综合运用神经网络、深度学习、图像处理等人工智能、大数据处理技术，研究模式识别、机器学习的工程实现方法。

2. 人工智能应用技术

针对工业生产、环境安全、物流系统中的关键测控技术问题，综合运用智能控制技术、物联网技术、多传感器信息融合技术，研究智能化测量、智能分析的理论和方法。

三、学制和学习年限

采用全日制学习方式，学制 3 年，最长修业年限 5 年。

四、课程设置与学分要求

表 1 留学研究生课程总学分说明

课程类别	学分要求	课程类别	学分要求
公共课	8	基础课	4
专业课	6	选修课	≥6
必修环节	2	总学分	≥26

表 2 留学研究生课程设置及学分要求

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	085410IMG2001	中国概况	2	32	1	必修
	085410IMG4002	汉语（一级）	2	32	1	必修
	085410IMG4003	汉语（二级）	2	32	2	必修
	085410IMG4004	汉语（三级）	2	32	3	必修
	应修		8 学分			
基础课	085410IMJ2001	模式识别与神经网络	2	32	1	必修
	085404IMJ2002	机器学习	2	32	2	必修
	应修		4 学分			
专业课	085404IMX2002	深度学习	2	32	2	必修
	085406IMZ2001	物联网技术与信息融合	2	32	2	必修
	085406IMJ2002	高级计算机网络	2	32	1	必修
	应修		6 学分			
选修课	085404IMX2001	数据库与数据挖掘	2	32	1	6 选 3
	085406IMX2001	python 编程训练	2	32	1	
	085406IMJ2001	控制系统仿真及应用	2	32	1	
	085404IMZ2001	大数据处理技术	2	32	2	
	085406IMZ2002	智能控制技术	2	32	2	
	085406IMX2003	图像工程	2	32	2	
	应修		≥6 学分			
课程总学分要求			≥24 学分			

五、授课语言

英文

六、必修环节（2 学分）

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.专业实践（1 学分）

留学生的实践教学由导师负责，应当在满足专业要求的同时，与留学生的职业规划相结合，适应国际化人才培养的需要。针对具体应用领域与任务选择专业实践内容，通过专业实习、开发应用系统、完成软、硬件设计等形式，完成人工智能技术的创新实践训练，提升专业硕士学生的工程实践能力。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。

八、教学大纲

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。

Electronic Information (Artificial Intelligence) Master of International Postgraduate Training Program

1.TRAINING TARGET

Cultivation of professional graduate students must adhere to the overall development of morality, intelligence, and sports. Throughout the training process, focus on fundamental theories and professional knowledge. At the same time, we emphasize the cultivation of engineering ability, comprehensive quality, innovation ability, and entrepreneurial spirit, and improve the ability to analyze and solve problems. During this process, students will:

（1） Understand China's national conditions such as Chinese culture, history, society, and economy, have good Chinese writing and communication skills, and understand China's political system and foreign policy; Establish a scientific outlook on development and serve the cause of international modernization; Understand the mainstream values and public morals of Chinese society, have the concept of the rule of law and moral awareness and abide by the law.

（2） Cultivate high-level engineering and technical personnel engaged in the design and development of artificial intelligence technology, intelligent information processing technology, and their application systems in the field of electronic information. Master the basic theory and expertise in artificial intelligence, control engineering, information processing, and computer science etc.; Have the ability to develop and apply intelligent systems, Internet of Things, and information processing systems; Be competent in special research, engineering project development, design, and implementation in related fields of this discipline.

（3） Physical and mental health, teamwork spirit and integrity awareness, international vision, cross-cultural communication, and independent lifelong learning ability.

2.OVERVIEW OF THE PROGRAM

Focusing on intelligent systems, the subject of electronic information (artificial intelligence) adopts computer technology and mathematical methods to study the theories, methods, and technologies of system modeling and control, intelligent processing and analysis, engineering design, and implementation; realize the intelligence and automation of modern industry, agriculture and other social and economic fields. The main research interests include but not limited to the following aspects:

1) Artificial intelligence theory and methods: For the information processing problems of actual complex unmanned intelligent systems, comprehensively use artificial intelligence and big data processing technologies such as neural networks, deep learning, and image processing to study the engineering implementation methods of pattern recognition and machine learning.

2) Artificial intelligence application technology: Aiming at the critical measurement and control technology problems in industrial production, environmental safety, and logistics systems, comprehensively use intelligent control technology, Internet of Things technology, and multi-sensor information fusion

technology to study the theory and method of intelligent measurement and intelligent analysis.

3. LENGTH OF SCHOOLING

This is a three-year degree. If necessary, the duration of the study could be extended to no more than five years.

4. CURRICULUM AND CREDITS REQUIREMENTS

Table 1 Description of total credits

Course Classification	Credits Requirement	Course Classification	Credits Requirement
Public Course	8	Basic Courses	4
Discipline Core Course	6	Discipline Core Course	⩾6
Compulsory	2	Total Credits	⩾26

Table 2 Curriculum and credit requirements

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	085410IMG2001	Chinese Culture	2	32	1	Compulsory
	085410IMG4002	HSK（Level I）	2	32	1	Compulsory
	085410IMG4003	HSK（Level II）	2	32	2	Compulsory
	085410IMG4004	HSK（Level III）	2	32	3	Compulsory
	Credits Requirement		8 Credits			
Basic Courses	085410IMJ2001	Pattern Recognition and Neural Networks	2	32	1	Compulsory
	085404IMJ2002	Machine Learning	2	32	2	Compulsory
	Credits Requirement		4 Credits			
Discipline Core Course	085404IMX2002	Deep Learning	2	32	2	Compulsory
	085406IMZ2001	Internet of Things and information fusion	2	32	2	Compulsory
	085406IMJ2002	Advanced Computer Networks	2	32	1	Compulsory
	Credits Requirement		6 Credits			
Major Optional Course	085404IMX2001	Database and Data Mining	2	32	1	Select 3 courses from 6 courses
	085406IMX2001	Python Programming Training	2	32	1	

	085406IMJ2001	Simulation and Application of Control System	2	32	1	
	085404IMZ2001	Big data processing	2	32	2	
	085406IMZ2002	Intelligent Control Technology	2	32	2	
	085406IMX2003	Image Engineering	2	32	2	
	Credits Requirement		⩾6 Credits			
Total Credits			⩾24 Credits			

5. TEACHING LANGUAGE

English

6. COMPULSORY COURSES (2 CREDITS)

1）Academic activities (1 credit)

Including participation in international and domestic academic conferences, academic forums, academic reports, and oral presentations at international academic conferences, etc.

2）Professional practice (1 credit)

The practical teaching of international students is under the tutor's responsibility, which should be combined with the career planning of international students while meeting the professional requirements to meet the needs of international talent training. Students can select professional practice content based on application fields and tasks. The engineering practice ability of professional master students is improved by completing the innovative practice training through professional practice, developing application systems, completing the software, hardware design, etc.

7. TRAINING LINK AND DISSERTATION

Related links and dissertation work in the training process of overseas graduate students include topic-opening defense, mid-term inspection, review of scientific research results, test of the repetition rate of thesis text, anonymous review and defense. For specific requirements, please refer to the "Administrative Measures for Doctoral Dissertations of Beijing Technology and Business University" and "Working Rules for Granting Doctorate and Master Degrees for Postgraduates of Beijing Technology and Business University (Trial).

8. COURSE SYLLABUS

The content of the course syllabus includes the course code, course name, class hours, credits, teaching objectives, teaching methods, assessment methods, applicable disciplines, prerequisite courses, main teaching content and class hours allocation, references, etc.

机械（机械工程）硕士留学研究生培养方案

授予学位类别：机械

专业学位类别代码及名称：0855 机械

专业学位领域代码及名称：085501 机械工程

制订单位：计算机与人工智能学院

一、培养目标

本专业培养的留学生应当熟悉中国历史、地理、社会、经济等中国国情和文化基本知识，热爱中国，了解中国政治制度和外交政策，理解中国社会主流价值观和公共道德观念，形成良好的法治观念和道德意识。能从事机械工程领域的研究、开发和设计等方面工作的高级专业人才。能扎实地掌握机械工程领域的基础知识和宽口径的专业知识，掌握现代机械设计理论和方法、现代制造技术及相关的试验、分析和维修理论及技术；具有较高的综合素质和创新能力，具有独立从事新产品开发设计、生产工艺设计、生产设备管理及使用维修能力，能为中外文化交流做出贡献。

二、学科简介与研究方向

北京工商大学机械工程学科源于 1958 年的北京轻工业学院机械系，1981 年开始招收硕士研究生，2010 年开始招收培养全日制工程硕士专业学位研究生。本学科是国内较早培养轻工机械领域硕士研究生的高校之一，多年来培养了大批优秀的轻工机械领域的优秀人才，在轻工及食品加工及食品机械领域发挥着重要的作用，部分毕业生已经在啤酒灌装机械、缝制机械等领域成为领军学者。

本学科现有专任教师 53 人，其中教授 9 人，副教授 33 人，硕士生导师 34 人，48 名教师具有博士学位，占比 90.6%。

本专业领域针对机械工程的基础理论、基本方法、机械工程设计、制造及应用等方面进行科学研究和人才培养工作。主要包括以下 6 个研究方向。

1. 计算机辅助工程

主要研究领域为计算机技术的工程技术研究，机械创新设计与有限元计算分析，机械振动与噪声测试与分析，计算机辅助设计与制造、图像处理技术。重点研究机械工程各个生产环节的性能与安全可靠性分析，为机械产品的未来工作状态和运行行为进行模拟仿真与预测。

2. 食品加工与食品机械

主要研究领域为食品加工的原理和方法，基于现代设计理论和方法的食品机械设计。重点研究食品加工机理与方法、食品机械的设计原则、组成原理、结构特征，并采用先进的分析手段，通过计算机建模对机械系统进行仿真分析和研究，为食品机械的加工制作提供依据。

3. 轻工机械自动化设计及理论

主要研究领域为轻工机械自动化现代设计理论及轻工机械自动化先进传动技术。重点研究新型传动机构、轻工机械动力传动的节能与环保、轻工业机器人开发与应用研究、机器人新机型、仿生机械研究等。

4. 智能制造技术

主要研究领域为先进制造的理论和方法以及轻工机械和产品设计和制造的先进技术。重点研究包括加工制造中的反求、3D 打印技术、轻工产品异型零件精确加工、动态检测、集成 CAD/CAM 系统、加工检测数据处理和网络控制、先进复合材料在轻工和食品机械及产品中的加工方法和应用等。

5. 轻工机械设备检测与控制

主要研究领域为轻工机电系统检测与控制的理论和方法以及声、光、电与轻工机械相互结合的机电一体化系统。重点研究传感器原理及测试技术、信号处理、计算机辅助检测与控制、视频检测及图像处理技术、轻工机械噪声测量与控制、计算机接口技术、智能控制理论与技术、数字控制技术和数控设备、PLC 控制及其总线技术等。

6. 汽车电子

主要研究领域为基于汽车结构的汽车电子控制技术及交通控制方法。重点研究汽车驱动理论和控制技术、汽车制动力分配控制理论和控制技术、汽车 ABS 控制系统性能检测原理和方法、汽车动力学特征建模、系统仿真和检测、汽车 ECU 模拟检测原理和方法、智能交通系统控制理论和技术等。

三、学制和学习年限

本专业学位研究生学制 3 年，最长修业年限 5 年。

四、课程设置与学分要求

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	≥4
专业课	≥4	选修课	≥6
必修环节	2	总学分	≥30

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	085501IMG2001	中国概况	2	32	1	必修
	085501IMG4002	汉语（一级）	4	64	1	必修
	085501IMG4003	汉语（二级）	4	64	2	选修
	085501IMG4004	汉语 （三级）	4	64	3	必修
	应修		14 学分			
基础课	085501IMJ2001	弹性力学	2	32	1	3 选 2
	085501IMJ2002	精密测量与测试技术	2	32	1	
	085501IMJ2003	机电控制技术	2	32	1	
	应修		≥4 学分			
专业课	085501IMZ2001	有限元分析	2	32	2	4 选 2
	085501IMZ2002	机器人机构学	2	32	2	
	085501IMZ2003	嵌入式计算机控制技术	2	32	2	
	085501IMZ2004	机械工程信号处理	2	32	2	
	应修		≥4 学分			
选修课	085501IMX2001	食品机械与工程	2	32	1	6 选 3

	085501IMX2002	食品装备与过程控制	2	32	1	
	085501IMX2003	计算机辅助设计与制造	2	32	2	
	085501IMX2004	现代制造工程	2	32	2	
	085501IMX2005	智能机器人技术	2	32	2	
	085501IMX2006	振动与模态分析	2	32	2	
	应修		≥6 学分			
课程总学分要求			≥28 学分			

说明：同学历留学生需从材料力学、理论力学、机械原理、机械设计 4 门课中补修 2 门课程，不计入学分。

五、授课语言

英文。

六、必修环节（2 学分）

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，或在学科内做学术演讲等。

2.专业实践（1 学分）

“来华留学生的实践教学应当在满足专业要求的同时，与来华留学生的职业规划相结合，适应国际化人才培养的需要”，留学生在读期间，应参加实验室建设等相关工作，并参加学科或实验室内的学术交流活动。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、科研成果审核，论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学博士研究生学位论文管理办法》、《北京工商大学来华留学研究生博士、硕士学位授予工作细则》。

八、教学大纲

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 International Mechanical Program

1.TRAINING TARGET

International students trained in this major should be familiar with China's history, geography, society, economy and other basic knowledge of China's national conditions and culture, love China, understand China's political system and foreign policy, understand China's mainstream values and public morality, and form a good sense of rule of law and morality. Our objective is to train senior professionals for design, research and development in mechanical engineering. The professionals should be able to grasp the fundamental knowledge and broad professional knowledge in mechanical engineering, and modern theory and method of mechanical design, and modern technology of production, and related theory and technology for testing, analyzing and repairing. They should have higher comprehensive quality and innovative spirit, and also have the ability to perform research and development of new product, and work out production process, and manage and operate and repair equipment independently.

2.OVERVIEW OF THE PROGRAM

The Department of Mechanical Engineering of Beijing Technology and Business University originated from the Mechanical Department of Beijing Institute of Light Industry in 1958. It began to enroll graduate students in 1981, and began to enroll and train full-time engineering master degree graduates in 2010. This subject is one of the earliest domestic universities to train postgraduates in the field of light industry machinery. Over the years, it has trained a large number of outstanding talents in the field of light industry machinery. It has played an important role in the field of light industry and food processing and food machinery. Graduates have become leading scholars in beer filling machinery, sewing machinery and other fields.

There are 53 full-time teachers in this discipline, including 9 professors,33 associate professors, 34 master tutors, and 47 teachers with doctorate degrees, accounting for 90.6%.

The research is involved with basic theory and engineering application of mechanical design, and production, and process control of machine in mechanical engineering. It mainly includes six research areas described as follows.

2.1 Computer-aided engineering

The computer technology is applied to analyze and study the mechanical system in this area. It mainly includes engineering technology research of computer technology, mechanical innovative design and Finite Element Analysis, and mechanical vibration and noise testing & analyzing, and computer-aided design and manufacturing, and graphic processing technology. It focuses on the performance and safety reliability analysis of each production link of mechanical engineering to simulate and predict the future working state and operation behavior of mechanical products.

2.2 Food processing and food machinery

The main research areas are the principle and method of food processing, food machinery design based

on modern design theory and method. It mainly includes food processing technology and principle and application, and design principle and composition and structural character of food machine, and simulating analysis of food machinery system.

2.3 Design & theory of automatic machine for light industry

The main research areas are modern design theory of light industry automatic machinery and advanced transmission technology of light industry automatic machinery. Focus on the research of new transmission mechanism, energy saving and environmental protection of light industrial machinery power transmission, development and application research of light industrial robots, new robot models, bionic machinery research, etc.

2.4 Intelligent manufacturing technology

The main research areas are the theory and methods of advanced manufacturing, as well as advanced technologies in the design and manufacture of light industrial machinery and products. Key research includes reverse seeking in processing and manufacturing, 3D printing technology, precise processing of special-shaped parts of light industrial products, dynamic inspection, integrated CAD/CAM system, data processing and network control of processing inspection, advanced composite materials in light industry and food machinery and products processing methods and applications, etc.

2.5 Testing and control of light machinery and equipment

The main research areas are the theory and method of light industry electromechanical system detection and control, and the electromechanical integration system combining sound, light, electricity and light industry machinery. Focus on the research of sensor principle and test technology, signal processing, computer-aided detection and control, video detection and image processing technology, light industrial machinery noise measurement and control, computer interface technology, intelligent control theory and technology, digital control technology and numerical control equipment, PLC Control and its bus technology, etc.

2.6 Vehicle electronics

Composition and control and application of vehicle electronic system are studied in this area. It mainly includes driving theory and control technology of environmental protecting and energy saving vehicle, and control theory and technology of braking force distribution of vehicle, and principle and method of performance testing of vehicle ABS control system, and modeling of vehicle dynamics characteristics, and system simulating and testing, and testing principle and method of vehicle ECU simulation, and theory and technology of intelligent traffic system control.

3. LENGTH OF SCHOOLING

The length of study is three years, and cannot exceed five years.

4. CURRICULUM AND CREDITS REQUIREMENTS

Course Classification	Credit Requirement	Course Classification	Credit requirement
Public Course	14	Basic Courses	≥4

Discipline Core Course	⩾4	Major Optional Course	⩾6
Compulsory Link	2	Total Credits	⩾30

Course Classification	Course Code	Course Name	Credits	Course Hours	Semester	Compulsory/ Optional
Public Course	085501IMG2001	Chinese Culture	2	32	1	Compulsory
	085501IMG4002	HSK(Level I)	4	64	1	Compulsory
	085501IMG4003	HSK(Level II)	4	64	2	Compulsory
	085501IMG4004	HSK(Level III)	4	64	3	Compulsory
	Credits Requirement		14 Credits			
Basic Courses	085501IMJ2001	Elastic Mechanics	2	32	1	Select two courses from three courses
	085501IMJ2002	Technology of Precise Measurement & Testing	2	32	1	
	085501IMJ2003	Technology of Electromechanical Control	2	32	1	
	Credits Requirement		⩾4 Credits			
Discipline Core Course	085501IMZ2001	Finite Element Analysis	2	32	2	Select two courses from four courses
	085501IMZ2002	Mechanism of Robot	2	32	2	
	085501IMZ2003	Control Technology of Embedded Computer	2	32	2	
	085501IMZ2004	Signal Processing in Mechanical Engineering	2	32	2	
	Credits Requirement		⩾4 Credits			
Major Optional Course	085501IMX2001	Food Machinery & Engineering	2	32	1	Select three courses from six courses
	085501IMX2002	Food Equipment & Process Control	2	32	1	
	085501IMX2003	CAD&CAM	2	32	2	
	085501IMX2004	Modern Manufacturing Engineering	2	32	2	
	085501IMX2005	Technology of Intelligent Robot	2	32	2	

	085501IMX2006	Vibration and Modal Analysis	2	32	2	
	Credits Requirement		⩾6 Credits			
Total Credits			⩾28 Credits			

5. TEACHING LANGUAGE

English

6. REQUIRED PART

1.Academic activities（1 Credit）

It includes participating in international and domestic academic conferences, academic forums, academic reports, and making oral reports at international academic conferences, etc. Each discipline should formulate assessment standards according to the actual situation.

2.Professional practice（1 Credit）

"The practical teaching of foreign students in China should meet the professional requirements, and be combined with the career planning of foreign students in China to meet the needs of international talent training." During their studies, foreign students should participate in laboratory construction and other related work, and participate in disciplines or academic exchange activities in the laboratory.

7. THE DISSERTATION RELATED WORK

The relevant links and the thesis work in the process of cultivating overseas graduate students include thesis defense, mid-term inspection, scientific research results review, thesis text repetition rate detection, anonymous review, and defense. For specific requirements, please refer to "Administrative Measures for Doctoral Degree Thesis of Beijing Technology and Business University" and "Working Rules for the Awarding of Doctoral and Master Degrees of Beijing International Business University for Studying in China (Trial)".

8. COURSE SYLLABUS

The course syllabus includes course code, course name, class hours, credits, teaching objectives, teaching methods, assessment methods, applicable disciplines and specialties, prerequisite courses, main teaching contents and class hour distribution, references, etc.

人文社科学部

语言与传播学院

新闻与传播硕士留学研究生培养方案

授予学位类别：新闻与传播

专业学位类别代码及名称：0552 新闻与传播

制订单位：语言与传播学院

一、培养目标

本研究生项目为新闻学、传播学领域培养高层次的应用型国际化专门人才，学生应系统掌握新闻传播理论知识， 透彻理解各类媒体的性质及传播规律；熟练运用各种传播技能与方法，熟悉新媒体运营，擅长 创作，懂得经营，具有现代新闻传播理念与国际化视野，且具备良好的新闻传播职业素养和跨文化传播能力。

具体要求：

1. 具备全球化视野、扎实的新闻传播学理论知识、调查研究能力和沟通表达能力，能独立解决新闻传播应用领域中的各种问题。

2. 具备国际化新闻传播人才的能力素养，谙熟各类传播媒介的应用特性，能够适应新技术变革对新闻传播实践提出的新要求，尤其能够适应经济新闻、品牌传播、广告经营、视听传播等专门领域对复合实践能力的需求。

3. 具备一定的国际化媒体运营、项目管理和团队协调能力。

二、领域简介

新闻与传播专业学位的人才培养的服务领域主要是传媒行业。包括：以经济新闻为主的新闻采写编评实务，视听传播技能与方法，品牌传播、广告经营及新媒体的内容生产与运营。人才培养依据移动互联网背景下媒介融合的新要求，针对各种媒介产品的生产制作、媒介运营以及新媒体运营三种能力展开，主要服务于各类传媒机构和企业的新闻宣传、公关、品牌推广。

三、学制和学习年限

采用全日制学习方式，学制为 2 年，学习年限最长不得超过 4 年。不得申请提前毕业。

四、课程设置与学分要求

攻读本专业学位的国际研究生，总学分不得少于 43 学分：

（一）课程学分：必修课不低于 31 学分，包括公共课 22 学分、基础课 5 学分、专业课 4 学分；

（二）选修课程不低于 10 学分；

（三）学术活动 1 学分；

（四）专业实践 1 学分；

具体课程设置及学分要求见附表。

在完成以上规定学分的基础上，研究生还可在导师指导下选修校内其它学院开设的有关研究生课程。

课程类别	学分要求	课程类别	学分要求
公共课	14	基础课	5
专业课	4	选修课	≥10
必修环节	2	总学分	≥35

类别	课程编码	课程名称	学分	学时	开课学期	是否必修
公共课	055200IMG2001	中国概况	2	32	1	必修
	055200IMG4002	汉语（一级）	4	64	1	必修
	055200IMG4003	汉语（二级）	4	64	2	必修
	055200IMG4004	汉语（三级）	4	64	3	必修
	应修		14 学分			
基础课	055200IMJ3001	传播研究方法	3	48	1	必修
	055200IMJ2002	新闻传播政策、法规与伦理研究	2	32	1	必修
	应修		5 学分			
专业课	055200IMZ2001	新媒体研究	2	32	1	必修
	055200IMZ2002	跨文化传播	2	32	1	必修
	应修		4 学分			
选修课	055200IMX2001	国际传播前沿	2	32	2	选修
	055200IMX2002	广告前沿研究	2	32	2	选修
	055200IMX2003	经济新闻实务	2	32	2	选修
	055200IMX2004	品牌传播策划	2	32	2	选修
	055200IMX2005	视听传播理论与实务	2	32	2	选修
	055200IMX2006	城市文化传播	2	32	3	选修
	055200IMX2007	危机传播	2	32	3	选修
	应修		≥10 学分			
必修环节	学术活动		1			必修
	专业实践		1		3-4	必修
应修			2 学分			
学位论文	开题答辩				2-3	
	中期检查				3	
	毕业答辩				4	
总学分要求			≥35 学分			

五、授课语言

英文。

六、必修环节（2 学分）

1.学术活动（1 学分）

参加国际国内学术会议、学术论坛、学术报告或行业前沿讲座至少 2 次，经导师审核认定获得学分。

2.专业实践（1 学分）

研究生在导师指导下完成专业实践或实践调研，根据本专业的前沿研究方向进行选题，完成并提交实践报告，考核合格后获得学分。

七、培养环节及学位论文

留学研究生培养过程中相关环节及学位论文工作包括开题答辩、中期检查、论文文字重复率检测、匿名评审、答辩。具体要求详见《北京工商大学来华留学生研究生博士、硕士学位授予工作细则》。

1.学位论文选题和内容应坚持理论联系实际的原则，着眼于解决新闻传播领域的实际与实务问题。学位论文形式可以是学术性学位论文，也可以是调研报告、案例研究、专业作品等多种形式。学位论文选题应在第二学期结束前完成。

2.学位论文开题不晚于第三学期初。学位论文中期检查应在第三学期结束前完成。具体要求详见《北京工商大学专业学位硕士研究生学位论文管理办法》。

3.学位论文应在导师指导下由研究生本人独立完成。论文要有一定的工作量。论文要求资料可靠、理论正确、思路清晰，对所研究的课题有新的见解，同时表明论文作者具有综合运用基础理论和专门知识解决实际问题的能力。

4.学位论文须严格按照《北京工商大学研究生学术道德规范》《北京工商大学学位论文写作规范》的要求撰写。论文摘要用中文和英文撰写。

5.留学研究生须完成培养方案的各项要求，课程考试成绩合格，修满所需学分，毕业时中文能力应当至少达到《国际汉语能力标准》三级水平，方可申请学位论文答辩。

6.学位论文须经过文字重复率检测合格后进入评阅和答辩环节。学位论文评阅、学位论文答辩及学位授予工作程序参照《北京工商大学博士、硕士学位授予办法》《北京工商大学专业学位硕士研究生学位论文管理办法》办理。

八、教学大纲

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、先修课程、主要教学内容和学时分配、参考文献等。

Professional Master Training Program in Journalism and Communication

1. TRAINING TARGET

The goal of training program is to develop international high-level applied professionals for journalism and communication studies. Students should systematically master the knowledge of journalism and communication theory, thoroughly understand the nature and rules of various media platforms; skillfully use various communication skills and methods. They need to be familiar with new media operation and creation, understand business models, as well as modern communication concepts and international vision.

Specific requirements:

1.Students are required toconsolidate their knowledge of journalism and communication theory, be proficient in investigative research and communication skills, and can independently address various issuesin journalism and communication practice.

2.Students are required tobe acquainted with the application characteristicsof various media, be able to meetthe new requirements brought by advanced technological changes, and strengthen their comprehensive practical capability forprofessional fields, such as economic news, brand communication, advertising management, and audiovisual communication.

3.Students are required topolishtheir certain international media operations, project management and teamworkskills.

2. OVERVIEW OF THE PROGRAM

The service areas for professional training in journalism and communication majors mainly focus on the media industry. Including: news writing and reviewing practices based on economic news, audio-visual communication skills and methods, brand communication, advertising operations and new media content production and operations. According to the new requirements of media integration in the age of mobile internet, training program is aimed at three abilities which includes media production, media operation and new media operation. The studies mainly serve the journalism, public relations and brand promotion of various media organizations and enterprises.

3. LENGTH OF SCHOOLING

The full-time program can be completed with 2 years. The maximum time permitted is 4 years from the date of registration. Full-time master degree graduate candidates are not allowed to graduate in advance.

4. CURRICULUM AND CREDITS REQUIREMENTS

For graduate students applying for this professional degree, the total credits shall not be less than 43 credits.

1.The compulsory courses are not less than 31 credits, including 22 credits for public courses, 5 credits

for general courses, and 4 credits for professional courses;

2.The optional courses are not less than 10 credits;

3.1 credit for academic activities;

4.1credit of professional practice;

On the basis of the above required credits, graduate students can also choose to take relevant graduate courses offered by other colleges under the guidance of their supervisors.

Table 1 Curriculum and Credit Requirements for Professional Postgraduates in Journalism and Communication

Course Types	Credit	Course Types	Credit
Public	14	General course	5
Major course	4	Optional course	≥10
Compulsory	2	Total credits	≥35

Course Types	**Course Code**	**Course Name**	**Credit**	**Course Hours**	**Semester**	**Compulsory /Optional**
Public	055200IMG2001	Chinese Culture	2	32	1	Compulsory
	055200IMG4002	HSK（Level I）	4	64	1	Compulsory
	055200IMG4003	HSK（Level II）	4	64	2	Compulsory
	055200IMG4004	HSK（Level III）	4	64	3	Compulsory
	Credits Requirement		14 Credits			
General	055200IMJ3001	Research Method of Communication	3	48	1	Compulsory
	055200IMJ2002	Policy, Regulations and Ethics of Journalism and Communication	2	32	1	Compulsory
	Credits Requirement		5 Credits			
Major	055200IMZ2001	New Media Studies	2	32	1	Compulsory
	055200IMZ2002	Cross-culture Communication	2	32	1	Compulsory
	Credits Requirement		4 Credits			
Optional	055200IMX2001	Frontiers of International Communication	2	32	2	Optional
	055200IMX2002	Frontier Research	2	32	2	Optional

		on Advertising Issues				
	055200IMX2003	Economic News Practice	2	32	2	Optional
	055200IMX2004	Brand Communication Planning	2	32	2	Optional
	055200IMX2005	Theory and Practice of Audio-visual Communication	2	32	2	Optional
	055200IMX2006	Urban culture communication	2	32	3	Optional
	055200IMX2007	Crisis Communication	2	32	3	Optional
	Credits Requirement		⩾10 Credits			
Compulsory	Innovative Practice		1			Compulsory
	Professional Practice		1		3-4	Compulsory
	Credits Requirement		2 Credits			
Thesis	Master Thesis Proposal				2-3	
	Mid-term examination				3	
	Master Thesis				4	
Total Credits			⩾35 Credits			

Note: specific requirements refer to the corresponding requirements of domestic students at the same educational level

5. TEACHING LANGUAGE

English.

6. COMPULSORY COURSES (2CREDITS)

1. Academic Activities (1 credit)

students are required to attend at least 2 lectures on the frontier topic of the industry, or participate in international and domestic academic conferences, academic forums, and academic reports. The practice activities should be checked and approved by the supervisor.

2. Professional practice (1 credit)

The practical learning experience of postgraduates should not only meet the professional requirements, but also be combined with students' career planning to satisfy the needs of international talent training. Moreover, graduate students should work out under supervisors' guidance, and submit a report for this practice. The topic selection is based on cutting-edge research directions of the major. Students can obtain the

credit after passing the assessment. The credit points will be granted if the report passes the assessment.

7. THE THESIS RELATED WORK

In the process of cultivating foreign graduate students, relevant dissertation work includes thesis proposal defense, mid-term examination, paper repetition rate detection, anonymous review, and thesis defense. For specific requirements, please refer to "Rules of Granting Doctoral and Master's Degrees for International Graduate Students of Beijing Technology and Business University "（《北京工商大学来华留学生研究生博士、硕士学位授予工作细则》）.

1. The thesis of a professional master's degree should be completed independently under the guidance of a supervisor. The thesis should adhere to the principle of integrating theory with practice, focusing on solving practical problems. The thesis can be carried out in multiple forms, such as academic thesis, research report, case study, professional works and so on.The dissertation topic is required to determined by the end of the second semester.

2. Thesis proposal defenseshall be arranged in the end of the second semester or in the beginning of the third semester. The Mid-term examination of the dissertation shall be conducted before the end of the third semester. For specific requirements, students can refer to "Working rules for Master's Dissertations of Beijing Technology and Business University".（《北京工商大学专业学位硕士研究生学位论文管理办法》）

3. The dissertation should be completed by the student independently under the guidance of the supervisor. The thesis should have a certain amount of workload. Thedissertation is required to be with reliable information and data, correct theory, clear thinking, new insight on the subject of research, and shows that the author of the paper has the ability to comprehensively use basic theory and expertise to solve practical problems.

4. The dissertation is required to be written in strict accordance with the requirements of "BTBU Graduate Academic Code of Ethics "（《北京工商大学研究生学术道德规范》）and "BTBU Dissertation Writing Code".（《北京工商大学学位论文写作规范》）.The abstract is written in both Chinese and English.

5. Before the application for dissertation defense, overseas graduate students must complete the requirements of the training program, pass the course exams and obtain all the required credits. Meanwhile, Their Chinese proficiency should reach at least the level 3 of the International Standard for Chinese Proficiency.

6. The dissertation is allowed to go to the review and defense process only after passing the plagiarism check. The procedures of dissertation review, dissertation defense and degree conferment shall be handled in accordance with "Working Rules for Awarding Doctor's and Master's Degrees of Beijing Technology and Business University" and "Working Rules of Dissertation for Professional Master's Degrees of Beijing Technology and Business University".

8. COURSE SYLLABUS

Content of the course syllabus includes course code, course name, course hours, credits, teaching objectives, teaching methods, assessments methods, grading, applicable disciplines or professionaldegrees (fields), prerequisites courses, main teaching content and course hours allocation, references, etc.