

# **Aeronautics & Astronautics Science & Technology**

## **航空宇航科学与技术**

**(082500)**

### **1. Overview of the Program**

Aerospace engineering is the primary branch of engineering concerned with the design, construction, operation and those of related to flight vehicles. It consists of two major branches: aeronautical engineering and astronautical engineering, respectively deal with the flight vehicles that operate in and outside Earth's atmosphere. The full-time graduate student program of Aerospace Engineering will provides our students with the opportunities for further development in aerospace technical area; it aims at cultivating the high-level professionals with solid theoretical and practical background of aerospace engineering. This program involves both fundamental courses and research project. Coursework will focus on aerospace fundamentals, including guidance and control, material mechanics, fluid mechanics, structure dynamic, propulsion. The project will investigate challenging, fundamental problems in aerospace science and technology under the guidance of his or her supervisor.

### **2. Training Target**

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

### **3. Length of Schooling**

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

### **4. Curriculum and Credit Requirements**

**Beijing Institute of Technology Graduate Program 2018**

Course Classification	Course Code	Course Name	Course Hours	Credits	Semester	Requirements	Master /Ph.D.	Credits Requirement
Public Course	3700001	Chinese Language 汉语	96	3+3	1+2	Compulsory	Master /Ph.D.	Master=6 Ph.D.=6
	3700002	Outline of China 中国概况	32	2	1/2	Compulsory	Master /Ph.D.	Master=2 Ph.D.=2
Major Courses	0101001	Advanced Computational Fluid Dynamic 高等计算流体力学	32	2	2	Optional	Master /Ph.D.	Master ≥ 10 Ph.D. ≥ 6
	0101002	Principles of Composite Material Mechanics 复合材料力学	32	2	1	Optional		
	0101003	Fundamentals of Aerospace Propulsion 航空宇航推进原理	48	3	1	Optional		
	0101004	Guidance and control theory for flight vehicle 飞行器制导与控制理论	48	3	1	Optional		
	0101005	Control theory 控制理论	32	2	2	Optional		

	0101006	Orbital mechanics 轨道力学	48	3	2	Optional		
	0101007	Reactive Flow in Jet Propulsion 喷气推进反 应流动	32	2	1	Optional		
	0101008	Spacecraft Attitude Dynamics and Control 航天器姿态 动力学与控 制	48	3	2	Optional		
	0101009	Tests and Measurements in Aerospace Engineering 航空宇航测 试与试验技 术	48	3	2	Optional		
	0101011	Introduction of Combustion Instability 燃烧不稳定 研究概述	32	2	2	Optional		
	0101012	Interface fluid mechanics 界面流体力 学理论与应 用	48	3	2	Optional		
	0101013	Optimal Control	32	2	2	Optional		

		应用最优控制						
	0101014	Cooperative Control over Networked Systems and its Applications 网络系统协同控制及应用	32	2	2	Optional		
Total Credits	Master $\geq 18$ credits      Ph.D. $\geq 14$ credits							

**Notes:**

**1. Public Course**

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

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

**2. Major Basic Courses**

Different Programs can set their own Major Basic Course.

**3. Optional Course**

1) Major Core Courses

Different Programs set their own Major Core Course.

2) Major Optional course

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

**5. Practice Part**

1. Academic Activity (1 credit)

International Graduate Students need to participate in academic activities, academic lectures and academic conferences of their own fields. Giving oral speeches on academic conferences, whether on or off campus, are highly recommended.

## 2. Innovative Practice (1 credit)

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

## **6. The Dissertation Related Work**

### 1. Literature Review& Opening Report

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

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

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

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

### 2. Mid-Term Evaluation

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

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

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

### 4. Thesis Defense

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

## 5. Degree Conferment

International students should acquire certain academic results as regulated when applying for a Master or Ph.D. Degree. Each program should clarify the categories of Master Degree and Ph.D. Degree.

**Time nodes of relevant procedure**

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

## 7. Course Syllabus

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