



Regional Centre for Space Science and Technology Education  
in Asia and the Pacific (China) (Affiliated to the United Nations)  
联合国附属空间科技教育亚太区域中心(中国)

# MASTA 2020

Master Program on Space Technology Applications  
Satellite Communications and Global Navigation  
Satellite Systems (SC&GNSS)

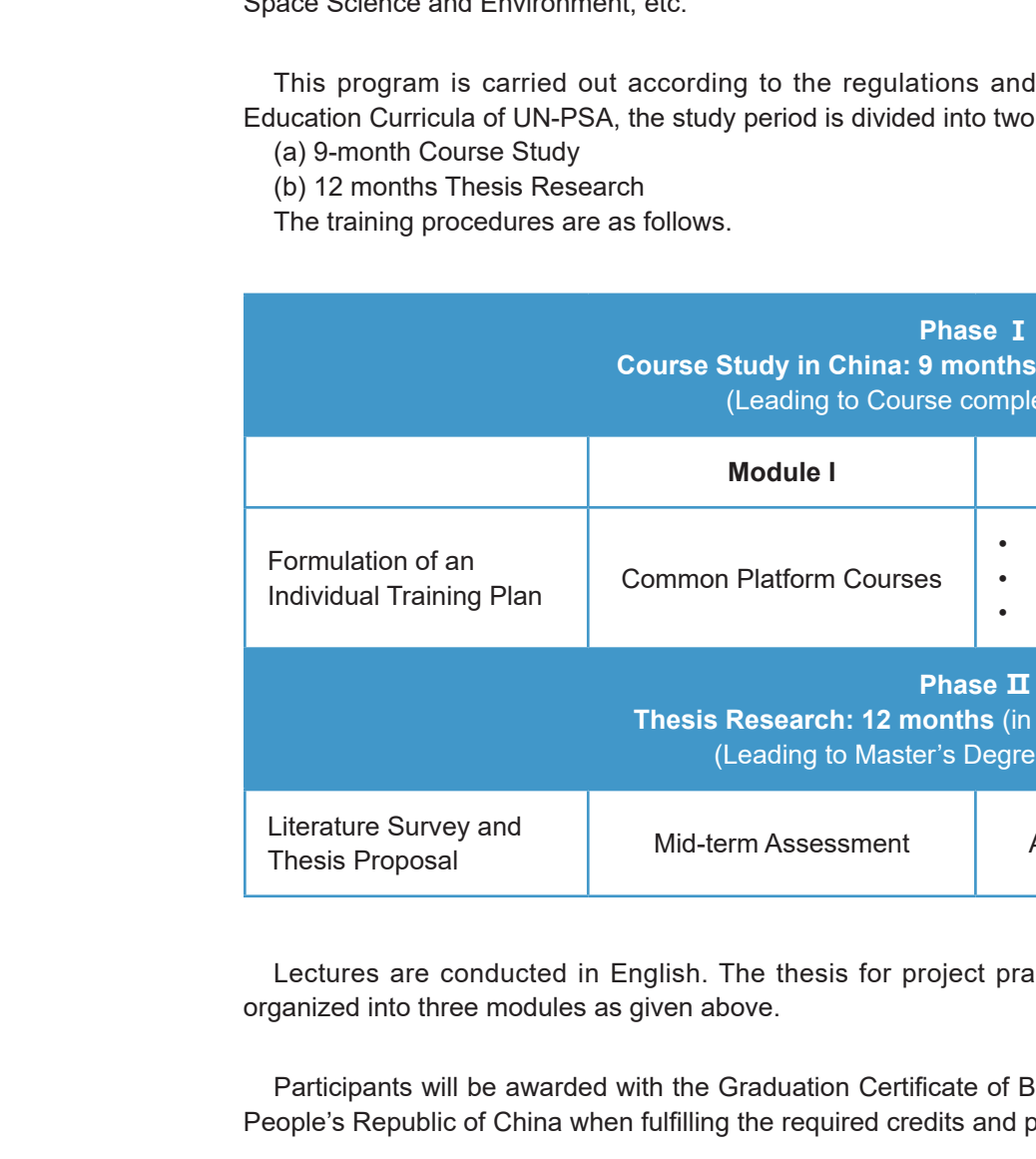


新主楼  
New Main Building

## Overview

Space technology and its applications, the most fascinating technical achievement of the human race in the last six decades, has undoubtedly advanced with great stride. The various practical benefits of space technology play a central role in international development efforts.

In order to transform the recommendations of the United Nations Programme on Space Applications (UN-PSA) into a practical and operable program, Beihang University has initiated the Master program on Space Technology Applications (MASTA) since 2006, and the program has been held 12 times with success till now. The MASTA program has enrolled totally 298 postgraduate students from 21 countries, among which 194 students have graduated and obtained the Master's Degree on Space Technology Applications.



MASTA is an elaborately designed and intensive Master program for students who are interested in exploring the mysterious universe. This application-oriented program focuses on both knowledge acquisition and operational training. It aims to deliver "international, interdisciplinary, intercultural, innovative, identical (5I)" education and provide a powerful platform for scholars and professionals to obtain more opportunities for communicating and experiencing the space technology practice in China.

MASTA is designed to give participants a competitive edge by:

- Broadening their knowledge on space-related issues and activities and encouraging participants to use acquired knowledge and skills through practical, hands-on experience;
- Providing a variety of practice opportunities (include watching satellite launching on site, attending international conferences/workshops, etc.);
- Internationally qualified professors and experts from a diversity of academic backgrounds;
- Modularized curricula design and flexible study modes;
- Developing the cross-cultural communication skills with an internationalized atmosphere.

The main educational fields of MASTA Program include Remote Sensing and Geographic Information Systems (RS&GIS), Satellite Communications, Global Navigation Satellite System (GNSS), Micro-satellite Technology, Space Law and Policy, Space Science and Environment, etc.

This program is carried out according to the regulations and requirements of Beihang University. Referring to the Education Curricula of UN-PSA, the study period is divided into two phases:

- (a) 9-month Course Study
- (b) 12 months Thesis Research

The training procedures are as follows.

Phase I Course Study in China: 9 months (at Beihang University) (Leading to Course completion Certificate)			
	Module I	Module II	Module III
Formulation of an Individual Training Plan	Common Platform Courses	<ul style="list-style-type: none"> <li>• Major courses</li> <li>• Academic Lectures</li> <li>• Professional Visits</li> </ul>	• Pilot Project or Practical Courses
Phase II Thesis Research: 12 months (in China or home country) (Leading to Master's Degree in Engineering)			
Literature Survey and Thesis Proposal	Mid-term Assessment	Academic Activities	Thesis Research

Lectures are conducted in English. The thesis for project practice is required to be written in English. Courses are organized into three modules as given above.

Participants will be awarded with the Graduation Certificate of Beihang University and Master's Degree Certificate of the People's Republic of China when fulfilling the required credits and passing the thesis defense.

The faculty for this program consist of professors, experts and senior engineers from Beihang University and some other institutes or academies of China and abroad. The core faculty members have long and varied experience in the field of space science and technology. In addition, they have accumulated considerable teaching experience over the years and are skilled in teaching and advising international students.

## International Education at Beihang University

International education at Beihang University (also known as BUAA) was inaugurated in the early 1990s and has continued to develop at a very fast pace. By the end of 2019, over 2,300 international students from more than 120 countries are studying at Beihang, among which over 1,300 are pursuing their doctoral, master, or bachelor degrees. By 2019, more than 2,300 international students have successfully graduated with degrees from Beihang. Batches of outstanding international alumni are playing a great role at work and contributing to the prosperity and development of the world.

International student programs at Beihang mainly include bachelor degree programs, master degree programs, doctoral degree programs, as well as various non-degree programs such as Chinese language training programs and visiting scholar programs. Beihang University is one of the few universities in China where English is used as its primary language of instruction for all international master and doctoral programs, as well as some of its bachelor programs.



Beihang endeavors to build a world-renowned international education platform. In 2014, the Regional Centre for Space Science and Technology Education in Asia and the Pacific (China) (affiliated to the United Nations) (RCSSTEAP for short) was established at Beihang University with the support of the Chinese Government. Beihang has established the Confucius Institute in cooperation with Kogakaku University (Japan) and set up HSK and HSKK authorized testing centers, providing various international education programs for students of different levels in Chinese language training, Chinese cultural studies and so on. Beihang is devoted to the innovation of international talent training mode, which can be exemplified by the integrated education of Chinese students and international students, and credit transfer programs for one year or half a year in cooperation with famous universities in France, Sweden, Ireland and many other countries all over the world.

Beihang is qualified to admit all categories of international students, including those sponsored by the Chinese Government Scholarship. The Beihang Scholarship for international students was established in 2007 to encourage and support the coming of excellent international students to Beihang, and since then hundreds of international students have been awarded the scholarship. Scholarships for international students mainly include Chinese Government Scholarship (CGS), Beijing Government Scholarship, Beihang International Student Scholarship, Confucius Institute Scholarship, scholarships from enterprises, etc.

In a new era of international education, Beihang continues to strive to provide higher quality education and excellent service for international students, and sincerely welcomes students from all over the world to study here. For more details, please visit our website: <http://iis.buaa.edu.cn>

## Introduction to RCSSTEAP (China)

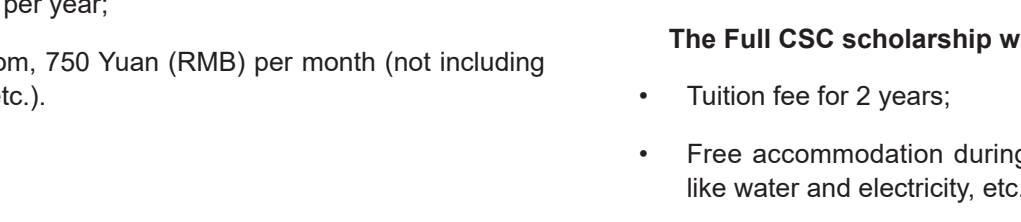


Regional Centre for Space Science and Technology Education in Asia and the Pacific (China) (affiliated to the United Nations) (RCSSTEAP for short) was established on November 17, 2014. The Centre is located on the main campus of Beihang University (<http://ev.buaa.edu.cn/>). Beijing, China.

The Centre, as an education and training entity supported by the Committee on the Peaceful Uses of Outer Space (COPUOS), was established with the mission to promote the peaceful use of space technologies for the benefit of humanity and to sensitize the countries within the region about space science and technology activities by educating and creating awareness through training, workshops, short courses and outreach. It seeks to contribute to the

implementation of "Programme on Space Applications" promoted by COPUOS and to the enhancement of the education and training level as well as application capacity of space science and technology in the Member States of the Centre through capacity building, information communication, training programmes and professional visits.

For the purpose of facilitating the UN "Space Applications Programme" and demands of the Asia-Pacific countries regarding space science and technology education, the Centre offers degree and non-degree programmes with academic exchanges and consultation carried out in the field of space technology applications.

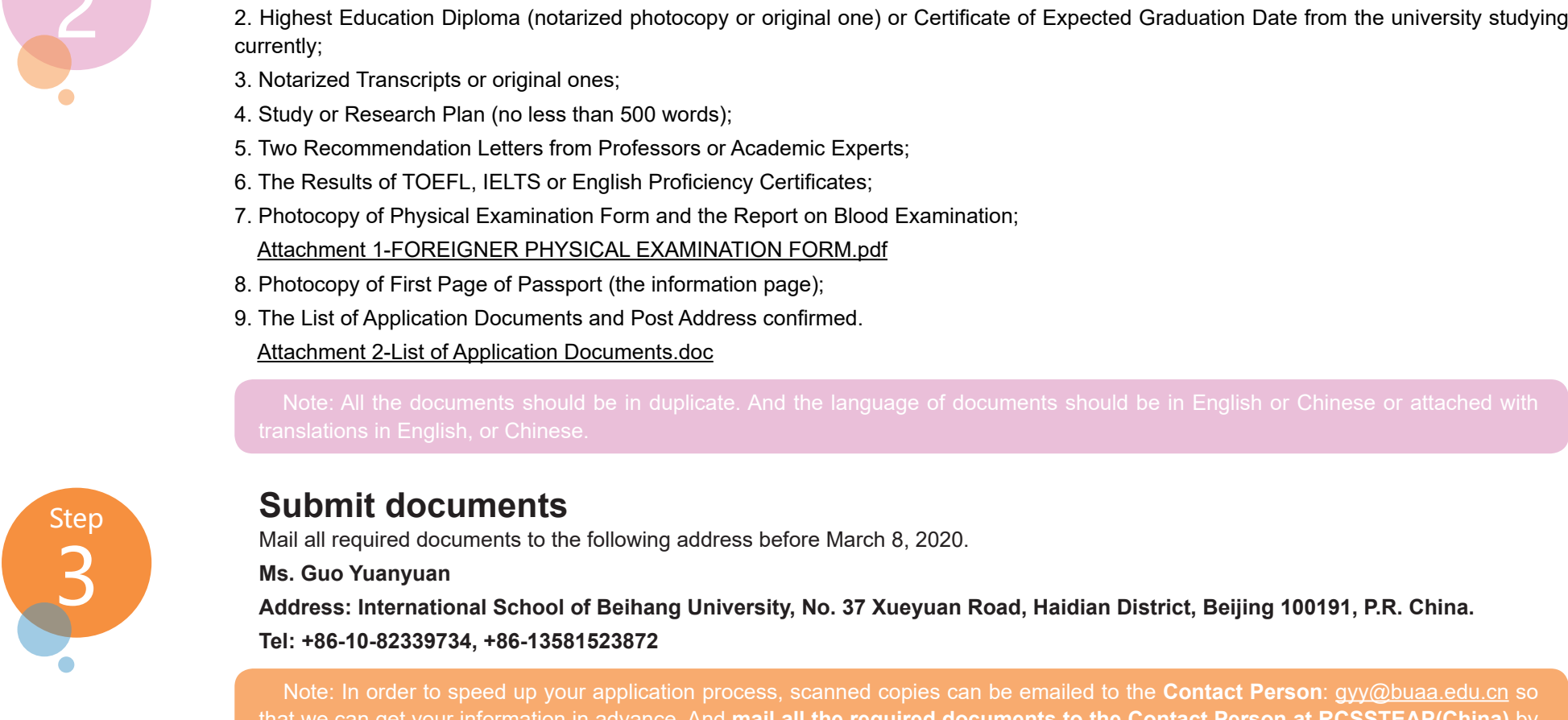
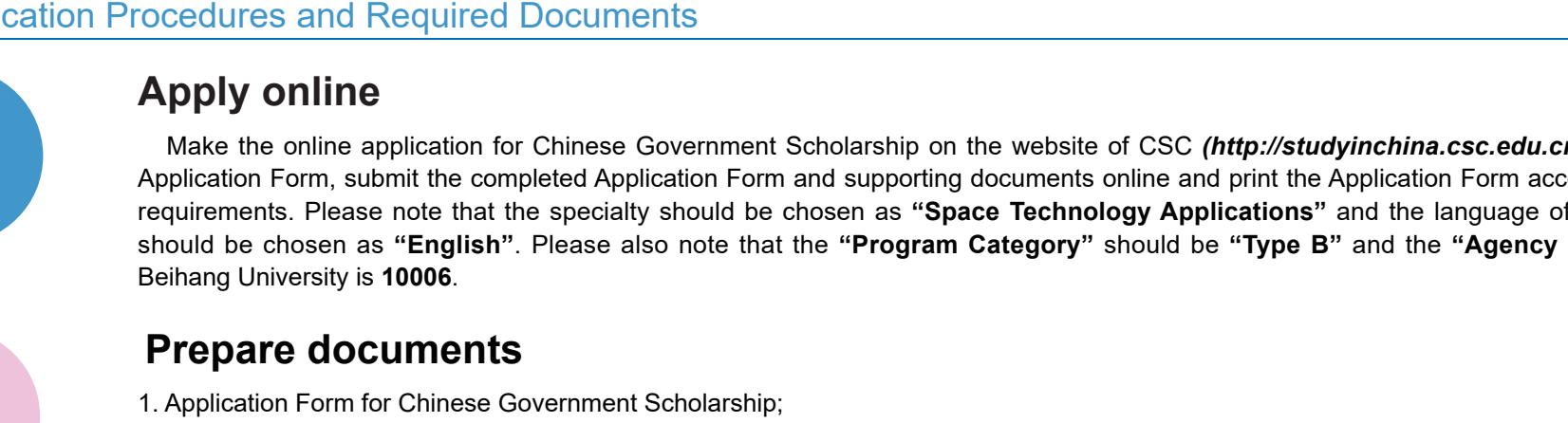


The main education and training fields of the Centre include Remote Sensing and Geographic Information Systems (RS&GIS), Satellite Communications, Global Navigation Satellite System (GNSS), Micro-satellite Technology, Space Law and Policy, Space Science and Environment, etc.

The Centre has internationally qualified academic and administrative staff with excellent facilities for education, accommodation and recreation.

Presently, the Centre has ten (10) Member States including Algeria, Argentina, Bangladesh, Bolivia, Brazil, China, Indonesia, Pakistan, Peru and Venezuela.

The Centre has established extensive cooperation with space industries. A variety of internships and hands-on opportunities are provided to the participants.



## Application Qualifications

- The applicant should be under the age of 35;
- The applicant should have some professional experiences of working in space technology industry or research institutes;
- The applicant should have Bachelor Degree of relevant discipline or the diploma equivalent to Bachelor Degree;
- The applicant is expected to have good command of English and the ability to take courses in English;
- The applicant is supposed to have research background in relevant areas.

Note: Please notice as a special requirement that selected applicants should come to study at Beihang University with their Private Passports only (not official/servicemen/other types of passport).

Applicants of this program are mostly recommended by organizations. Students who are interested to do self-sponsor, please visit website (<http://admission.buaa.edu.cn/>) for further information.

## Fees

- Tuition Fee: 35000 Yuan (RMB) per year;
- Insurance: 800 Yuan (RMB) per year;
- Accommodation: Double room, 750 Yuan (RMB) per month (not including costs like water, electricity, etc.).

## Scholarship and Financial Support

- The applicants are welcomed to apply for the Chinese Government Scholarship (CSC Scholarship) at Beihang University.

The Full CSC scholarship will cover the following items:

- Tuition fee for 2 years;
- Free accommodation during study at the University (not including costs like water and electricity, etc.);
- Living allowance during stay at the University (3000 RMB per month or according to the standard of CSC);
- Medical Insurance only for accidents and hospitalization treatments, according to the standard of CSC.

2. The applicants who fail to get the CSC Scholarship will have chance to get Beijing Municipal/Beihang Scholarship. Beijing Municipal/Beihang Scholarship will only cover tuition fee.

## Application Procedures and Required Documents



### Step 1: Make the online

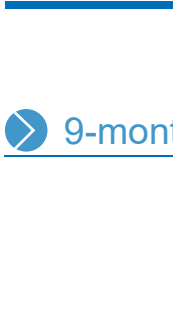
Apply online application for Chinese Government Scholarship on the website of CSC (<http://studyinchina.csc.edu.cn/>); fill up the Application Form, submit the completed Application Form and supporting documents online and print the Application Form according to the requirements. Please note that the specialty should be chosen as "Space Technology Applications" and the language of instructions should be chosen as "English". Please also note that the "Program Category" should be "Type B" and the "Agency Number" of Beihang University is 10006.



### Step 2: Prepare documents

- Application Form for Chinese Government Scholarship;
- Highest Education Diploma (notarized photocopy or original one) or Certificate of Expected Graduation Date from the university studying currently;
- Notarized Transcripts or original ones;
- Study or Research Plan (no less than 500 words);
- Two Recommendation Letters from Professors or Academic Experts;
- The Results of TOEFL, IELTS or English Proficiency Certificate;
- Photocopy of Physical Examination Form and the Report on Blood Examination;
- Attachment 1-FOREIGNER PHYSICAL EXAMINATION FORM.pdf
- Photocopy of First Page of Passport (the information page);
- The List of Application Documents and Post Address confirmed.
- Attachment 2-List of Application Documents.doc

Note: All the documents should be in duplicate. And the language of documents should be in English or Chinese or attached with translations in English, or Chinese.



### Step 3: Submit documents

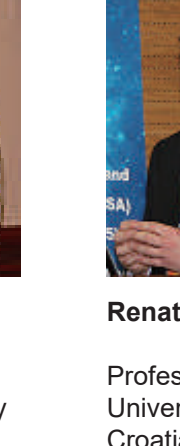
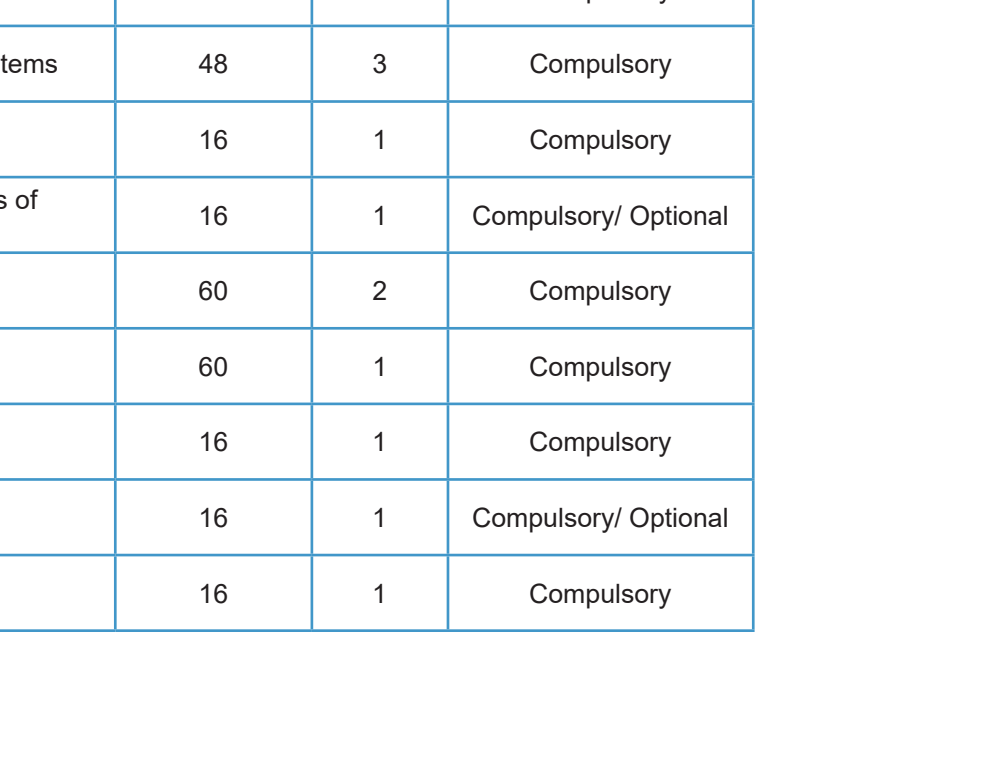
Mail all required documents to the following address before March 8, 2020.  
Ms. Guo Yuanxuan  
Address: International School of Beihang University, No. 37 Xueyuan Road, Haidian District, Beijing 100191, P.R. China.  
Tel: +86-10-82339734, +86-13681623872

Note: In order to speed up your application process, scanned copies can be emailed to the Contact Person, [gyx@buaa.edu.cn](mailto:gyx@buaa.edu.cn) so that we can get your information in advance. And mail all the required documents to the Contact Person at RCSSTEAP(China) by the already set deadline (March 8, 2020). RCSSTEAP (China) and Beihang University will acknowledge the receipt of your application after evaluation. No application documents will be returned after submission.

## Important Dates

- Applicants should mail the required applications documents to the Contact Person at RCSSTEAP (China) by March 8, 2020.
- The results of admission will be notified by stages from May 20 to early August 2020.
- The Admission Notice and related documents will be mailed to the successful applicants before August 8, 2020.
- The program will start in early September 2020.

In 2020, MASTA Program provides four educational fields: Satellite Communications and Global Navigation Satellite Systems (SC&GNSS), Remote Sensing and Geo-information System (RS&GIS), Space and Policy, Space Science and Environment. The followings are detailed information of each field.



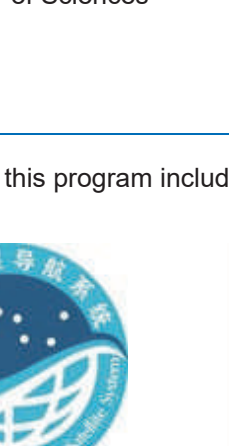
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# Satellite Communications and Global Navigation Satellite Systems (SC&GNSS)

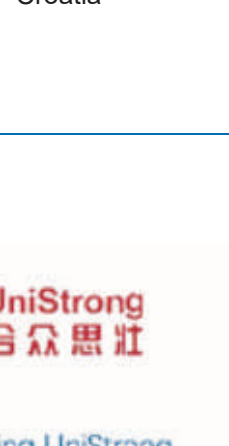
Satellite Communications are space microwave communications between radio stations on Earth (including land, water and the lower atmosphere), using Artificial Earth satellite as relay stations to transmit radio waves. Global Navigation Satellite System (GNSS) provides positioning, navigation and timing services for the whole world. Communications and navigation satellites are the most important national spatial information infrastructure in the social life and military affairs in modern times. They would serve people in many areas together with Remote Sensing, Geographical Information System such as the global personal communications, disaster management, emergency response, land, aviation and maritime transportation, etc.

The objective of the program is to enable the students to master the principles, technologies and systems of satellite communications, as well as the special problems and technologies of Internet services and broadband integrated services in satellite communication systems. In addition, the GNSS principles, receiver design, data processing and application cases are introduced. The program also provides opportunities for students to touch the frontier technologies on Satellite Communications and GNSS.

## Professionals/Experts (partial)



Yang Yuanxi  
Academician,  
Chinese Academy  
of Sciences



Renato Fijlar  
Professor,  
University of Jica,  
Croatia



Shen Jun  
Chief Scientist,  
Beihang University  
Science &  
Technology Co., Ltd.



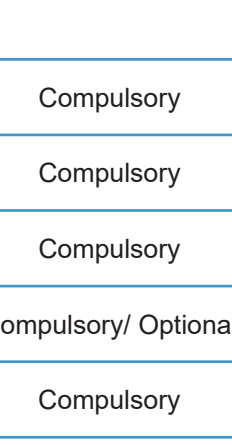
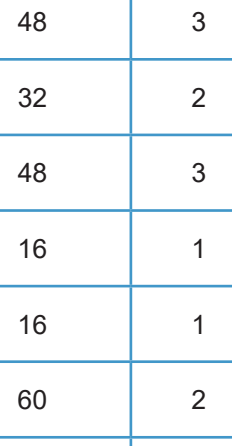
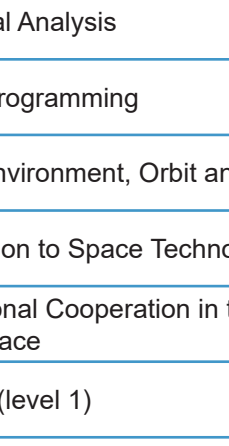
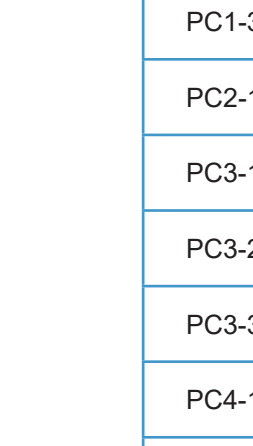
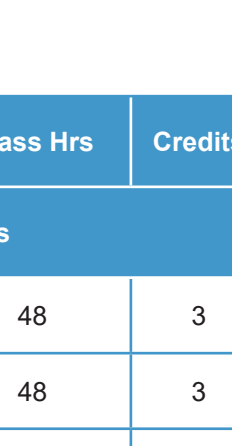
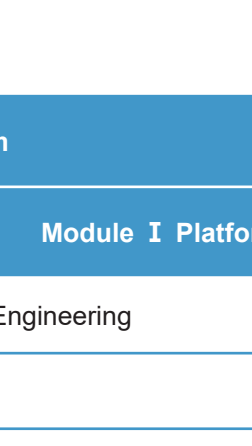
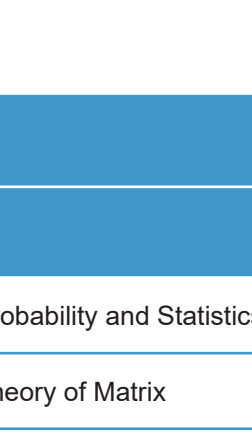
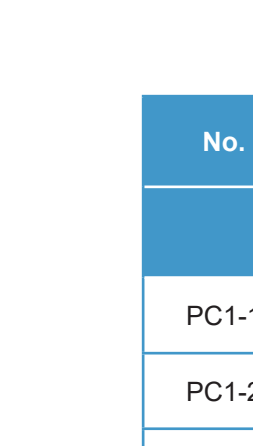
Yang Dongkai  
Professor, School  
of Electronics  
and Information  
Engineering,  
Beihang University



Shi Chuang  
Chief Scientist,  
Beidou Research  
Institute

## Partners

The partners of this program include:



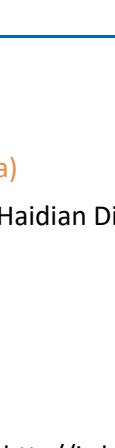
## 9-month Course List

No.	Item	Class Hrs	Credits	Remark
Module I Platform Courses				
PC1-1	Probability and Statistics in Engineering	48	3	
PC1-2	Theory of Matrix	48	3	Select one of them. Compulsory
PC1-3	Numerical Analysis	48	3	
PC2-1	Matlab Programming	32	2	Compulsory
PC3-1	Space Environment, Orbit and Spacecraft Systems	48	3	Compulsory
PC3-2	Introduction to Space Technology Applications	16	1	Compulsory
PC3-3	International Cooperation in the Peaceful Uses of Outer Space	16	1	Compulsory/ Optional
PC4-1	Chinese (level 1)	60	2	Compulsory
PC4-2	Chinese (level 2)	60	1	Compulsory
PC4-3	Introduction to China	16	1	Compulsory
PCS-1	Scientific Literature Retrieval	16	1	Compulsory/ Optional
PCS-2	Scientific Thesis Writing /Academic Writing & Presentation	16	1	Compulsory
Module II Major Basic Courses & Major Courses				
MC2-1	Principles of communications	32	2	Compulsory
MC2-2	Principle of Global Navigation Satellite Systems	32	2	
MC2-3	Wireless communications	32	2	
MC2-4	Satellite Laser Communications	16	1	
MC2-5	Satellite Telemetry and Telecommnd Technology	16	1	
MC2-6	GNSS Receiver Principles and Design	32	2	Select at least 7 compulsory credits
MC2-7	GNSS/INS Integration Navigation	16	1	
MC2-8	Satellite Navigation Data Processing	32	2	
MC2-9	Satellite Communications and Satellite Networks	32	2	
MC2-10	Fundamentals of microwave in satellite application	16	1	
MC2-10	SatCommu/GNSS Experiments	16	1	Compulsory
MC2-11	SatCommu/GNSS Applications	16	1	Compulsory
MC2-12	SatCommu/GNSS New Technologies	16	1	Compulsory
Module III Team Pilot Projects				
PPC	Team Pilot Project	2 months	6	Compulsory

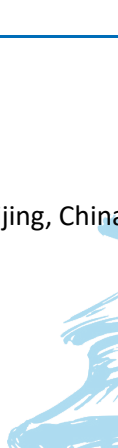


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## Contact Information



WEBSITE



WECHAT

Ms. Guo Yuanxuan, Program Director, RCSSTEAP(China)  
Address: East Wing of Library, No. 37, Xueyuan Road, Haidian District, Beijing, China, 100191.  
International School, Beihang University  
Telephone: +86-10-82339734  
E-mail: [gyx@buaa.edu.cn](mailto:gyx@buaa.edu.cn)  
Website of RCSSTEAP: <http://www.rcssteap.org>  
Website of International School, Beihang University: <http://iis.buaa.edu.cn>  
Website of Beihang University: <http://ev.buaa.edu.cn/>  
Website of China Scholarship Council: <http://studyinchina.csc.edu.cn/>



天坛  
Temple of Heaven