Master Program (for International Students) in Control Science and Engineering

Control Science and Engineering a discipline related to research of control theory, method, technology and engineering application. Based on control theory, system theory and information theory, control science deals with mutual problems in various application areas, which are building system model, analyzing its inner and outer information, adopting control methods. The program has an obvious characteristics in combination of theory research and engineering application, disciplinary crossing and integration, civil-military integration technology, and plays an indispensable role in national economy development and national security.

This program is a key discipline in Sichuan Province with abundant teaching resources. After many years' development, the program has been expanded into several research areas including complex system control and optimization, new energy system control technology, computer vision and pattern recognition, robot technology and system, etc.. The development of this program brings great benefits to the society and country, and makes outstanding contribution to national defense, social service, talent training and so on.

1.Objectives

Abide by the laws and have good moral character. Master solid basic theories and knowledge. Able to communicate in Chinese. Able to engage in research or academic research, teaching, and independent technical job.

2.Orientations

1)Complex System and Intelligent Information Processing

2)New Energy System Control Technology

3)Pattern Recognition and Intelligent System

4)Measurement and Control Communication and Navigation Control

5)Detection Technology and Automation Device

3.Duration

The duration set for master candidates is 2 years full-time. An extension can be applied for by those who cannot finish their courses in time owing to objective causes, yet altogether 4 years is the last due.

4.Progression and Requirements

The minimum sum total credits for international students of master candidates are 26. Master candidates should complete the course work of no less than a total of 24 credits (out of which at least 15 credits should be acquired from degree courses), compulsory sections of no less than 2 credits, complete the thesis (or a research report) independently, and pass the degree thesis defense.

The supervisor responsibility mechanism is adopted in the education for international master candidates. The supervisor is responsible for the student's making of personal study plan, the choice of courses, and the completion of the research report or the degree thesis. The personal study plan cannot be changed without permission of the supervisor.

During the course work, according to specifications by the discipline, the student is to pass examinations held for the degree courses and examinations or assessments held for the other optional courses. Of all the degree courses, common core courses are compulsory. Master candidates are allowed to choose 1~2 inter-disciplinary core courses as their degree courses under supervisors' guidance. International students of Chinese language abilities can apply to take courses given in Chinese to local full-time graduate students and acquire corresponding credits if pass.

A Survey of China and Comprehensive Chinese are compulsory for international postgraduates, who are required to pass the HSK 3 or equivalent Chinese language test by graduation.

Those who fail to meet the requirements as described above can fill up the gap by repetition or make-up in the limit of one year. Those who fail to meet the credit requirements even till the end of the due time are to be terminated.

5.Curriculum

Course Categories		Course Number	Course Name	Class Hours	Credits	Semester	Notes
Degree Courses	Common Core Course	6900005001	Comprehensive Chinese	60	2	1,2	Compulsory
		6900005004	A Survey of China	36	2	1,2	
	Major Core Course	1100016009	Matrix Theory	48	3	1	At least 1 from 3
		1100016010	Numerical Analysis	48	3	1/2	
		1100016011	Stochastic Processes and Applications	48	3	1	
		0108106052	Digital Signal Processing	32	2	1	
		0608116020	Computer Vision★	32	2	1	
		0608116021	Linear System Theory★	40	2.5	1	
		0608116022	Numerical optimization and applications	40	2.5	2	
Non-degree Optional Courses	Elective Major Course	0108106033	Signal Detection and Estimation	32	2	1	
		0208096131	Advanced Electromagnetic Field Theory	48	3	1	
		0208097121	RF Integrated Circuit Design	32	2	2	
		0808126041	Embedded Operating System and Application	32	2	2	
		1008256023	Theories and Methods of Systems Engineering	32	2	1	

Non-degree Optional Courses	Other Elective Course	6900005005	Chinese Reading and Writing	32	2	1/2	
		XX0004XXXX	High-Level International Courses	/	/	1/2	
Compulsory Section		6400006003	Academic Activities	0	1	1,2	Compulsory at least 5
		6400006004	Research Proposal and Literature Review of the Dissertation	0	0	1,2	Compulsory
		6400007006	Mid term evaluation	0	0	1,2	
		6900006001	Chinese Proficiency Assessment	60	0	1,2	
		XX00025XXX	Elective Competence Development Courses	0	1	1,2	

Directions: All courses, except for the Chinese ones specified by the requirements, are totally given in English.

6.Compulsory Sections

The compulsory sections for international students of master candidates include five parts, a candidate is required to complete the following aspects:

1)Elective Competence Development Courses: through introducing the academic cutting edge knowledge, culture, arts and sports, etc, such courses are given to improve the master candidates' comprehensive competence. A candidate should take at least one course and get one credit after assessment.

2)Academic Activities: to enliven academic atmosphere and to further and broaden master candidates' scope of knowledge, one should attend at least five academic lectures within and out of UESTC, and fill in the Academic Activities Registration Form and get the official stamp upon attendance. One credit can be granted to the candidate when he/she succeeds in completing the above procedures.

3)Chinese Proficiency Assessment: The Ministry of Education requires the Chinese language ability of international graduates' to reach the level 3 based on the International Chinese Proficiency Standards at the time of graduation. Master's/doctoral students are required to undergo a Chinese assessment level 3 during their stay at the university, and those who meet the requirements are eligible to apply for their graduation defense. Chinese Proficiency Assessment is accredited by School of International Education.

4)The Research Proposal Report and Literature Review of Dissertation (hereinafter as RPRLRD): before making the Research Proposal Report for the dissertation, all candidates should read more than 30 papers in the leading edge of their discipline from the latest literature. Then everyone should finish a literature review report of about 4,000 words as well as the corresponding Research Proposal Report.

5)Mid-term Report on Thesis Work: All candidates are obliged to provide written progress reports on their dissertations six months after they begin. These reports will be evaluated and approved by experts before the candidates can move further with their dissertations.

7.Degree Thesis

All degree thesis problems shall refer to UESTC Regulations for Postgraduate Degree Conferring.

控制科学与工程 来华留学硕士培养方案

控制科学与工程是研究控制的理论、方法、技术及其工程应用的学科。控制科学以控制论、系统论、信息论为基础，研究各应用领域内的共性问题，即为了实现控制目标，如何建立系统的模型，分析其内部与环境信息，采取何种控制与决策行为；且与各应用领域的密切结合，又形成了控制工程丰富多样的内容。本学科点在理论研究与工程实践相结合、学科交叉和军民结合等方面具有明显的特色与优势，在我国国民经济发展和国家安全方面发挥了重大作用。

我校控制科学与工程学科为四川省重点学科，师资力量雄厚，形成了复杂系统控制与优化、新能源系统控制技术、计算机视觉与模式识别、机器人技术与系统等研究方向，具有电子信息优势明显，学科交叉特色鲜明，工程研究能力突出等特点。本学科的发展受益于社会和国家的发展，同时也在国家的决策咨询、国防建设、行业推动、社会服务、人才培养等方面做出了突出的贡献。

1.培养目标

遵纪守法，具有良好的道德品质；掌握本学科领域坚实的基础理论和系统的专门知识；毕业时具有一定的汉语交流能力；具有从事科学研究、教学工作或独立担负学术研究工作的能力。

2.研究方向

1．复杂系统与智能信息处理
2．新能源系统及控制技术
3．模式识别与智能系统
4．测控通信与导航控制
5．检测技术与自动化装置

3.培养方式与学习年限

攻读硕士学位者，学习年限为两年。若因客观原因不能按时完成学业者，可申请适当延长学习年限，但最长学习年限不超过四年。

4.学分与课程学习基本要求

总学分要求不低于 26 学分，课程总学分不低于 24 学分，其中学位课不低于 15 学分；必修环节不低于 2 学分。开展学位论文工作，撰写一篇学位论文（含研究报告），通过答辩。

留学研究生培养实行导师负责制。导师负责指导研究生制定个人培养计划、选课、开展研究报告或学位论文工作。

课程学习期间，应通过本专业规定的学位课程考试，以及其他选修课程的考试或考查。学位课中，公共基础课为必修课。允许在导师指导下跨学科选修 1~2 门学位课作为本学科的学位课。有汉语基础者，可申请选修面向国内全日制研究生用中文讲授的专业课程，通过者获得相应学分。

留学研究生必修中国概况和综合汉语等课程，毕业时须通过《国际汉语能力标准》三级水平考试或通过同等难度的汉语水平考试。

未达到上述要求者，可以在一年内补修或重修有关课程，在规定期限内仍没有达到学分要求者，

将被终止学业。

5.课程设置

课程类别		课程编号	课程名称	学时	学分	开课学期	备注
学位课	公共基础课	6900005001	综合汉语	60	2	1,2	必修
		6900005004	中国概况	36	2	1,2	
	专业基础课	1100016009	矩阵理论	48	3	1	第 1 组，必须选 1- 3 门
		1100016010	数值分析	48	3	1/2	
		1100016011	随机过程及应用	48	3	1	
		0108106052	数字信号处理	32	2	1	
		0608116020	计算机视觉★	32	2	1	专业核心课
		0608116021	线性系统理论★	40	2.5	1	
		0608116022	最优化理论与应用	40	2.5	2	
非学位课	专业选修课	0108106033	信号检测与估计	32	2	1	
		0208096131	高等电磁场理论	48	3	1	
		0208097121	射频集成电路设计	32	2	2	
		0808126041	嵌入式操作系统及应用	32	2	2	
		1008256023	系统工程理论与方法	32	2	1	
	其他选修课	6900005005	汉语阅读与写作	32	2	1/2	
		XX0004XXXX	前沿与交叉课程	/	/	1/2	
必修环节		6400006003	学术活动	0	1	1,2	必修不少于 5 次
		6400006004	论文开题报告及文献阅读综述 I	0	0	1,2	必修
		6400007006	中期考评	0	0	1,2	
		6900006001	汉语水平测评	60	0	1,2	
		XX00025XXX	素质教育公选课	0	1	1,2	

说明：除规定的汉语课程以外，其他课程均采用英语授课。

6.必修环节

来华留学硕士研究生必修环节包含五大部分，要求留学研究生分别完成以下内容：

1）素质教育公选课：以介绍学术前沿知识、中外文化、艺术和体育等为主，加强来华留学研究生综合素质教育，可选修一门，考核通过后获 1 个学分。

2）学术活动：为进一步活跃学术气氛并拓宽来华留学研究生的知识面，硕士研究生在校期间须参加 5 次以上校内外学术报告会，填写学术活动登记表，加盖举办学术活动单位的公章，报所在学院研究生科备案，全部完成后获得 1 学分。

3）汉语水平测评：教育部要求留学研究生在毕业时中文能力应至少达到《国际汉语能力标准》

三级水平。留学硕士/博士研究生在校期间须接受汉语三级水平测评，达到要求者方可申请毕业论文答辩。由国际教育学院进行水平认定。

4）论文开题报告及文献阅读综述：指研究生在学位论文开题之前，必须阅读本学科前沿的文献30篇以上，并写出4000字左右的文献综述报告，完成相应的开题报告。

5）论文工作中期报告：开题半年后，需以书面形式报告论文工作进展及完成情况，经专家评审通过，方可继续论文工作。

7.学位论文

学位论文工作按照《电子科技大学研究生学位授予实施细则》的规定执行。