

西安交通大学

XI'AN JIAOTONG UNIVERSITY

Graduate Program
for International Students



Graduate School

2019.07

电气工程学院

School of Electrical Engineering



电气工程学院

School of Electrical Engineering

电气工程类国际研究生培养方案

International Graduate Programs in Electrical Engineering

一、培养目标 (Program objectives)

本学科培养的硕士研究生应满足以下要求:

在电气工程学科领域内掌握坚实宽广的基础理论和系统深入的专门知识;熟悉所从事的研究方向及相近研究方向的科学技术发展动向。

The Masters Programs help the students to gain knowledge and skills in a discipline of electrical engineering that matches their interests and to build solid foundation for a successful career as a professional engineer in a wide variety of industrial or academic fields.

Through the programs, Master's degree candidates are expected to fulfill the following:

1. 使硕士研究生在电气工程学科领域内掌握坚实而宽广的理论基础和系统深入的专门知识

Build a solid and broad theoretical basis in electric engineering and obtain systematic specialized knowledge in the discipline;

2. 在本学科范围内具有独立从事科学研究工作的能力

Be able to conduct science and technology research independently in the discipline of electric and engineering;

3. 学位论文应在导师的指导下,由研究生本人独立完成。论文应有较强的系统性和完整性,应在电工学科的基础理论和专门技术上做出创造性成果

Submit a thesis that Master's degree candidates research and write independently with guidance from the tutor. Note that the thesis must be complete in structure, systematic in contents, prominent in presenting the innovative research outcomes in basic theory and specialized technology of the discipline of electrotechnics.

本学科培养的博士研究生应满足以下要求:

PhD candidates are expected to accomplish the following objectives after the they learn at their respective programs:

1. 在电气工程学科领域内掌握坚实宽广的基础理论和系统深入的专门知识;熟悉所从事研究方向及相近研究方向的科学技术发展动向。

Build a solid and broad theoretical basis in electric engineering and obtain systematic specialized knowledge in the discipline; understand the development trends in science and technology in the area of the research undertaken and the related research areas.

2. 在电气工程学科领域内具有独立从事科学研究工作的能力;具有实事求是、科学严谨的治



学态度和工作作风。

Be able to conduct science and technology research independently in the discipline of electric and engineering; develop a scientific, rigorous, and down-to-earth academic attitude and work style.

3. 具有独立从事科学研究工作的能力;

Have the capability to do the research independently.

4. 学位论文应在导师的指导下, 由研究生本人独立完成。论文应有较强的系统性和完整性, 应在电工学科的基础理论和专门技术上做出创造性成果

Submit a dissertation that PhD candidates must research and write independently with guidance from the tutor. Note that the thesis must be complete in structure, systematic in contents, prominent in presenting the innovative research outcomes in basic theory and specialized technology of the discipline of electrotechnics.

二、研究方向 (Research fields)

电气工程一级学科下设有五个二级学科:

For the first level discipline electric engineering, there are 5 second level disciplines listed below:

1. 电机与电器 Electric Machinery and Electric Apparatus
2. 电力系统及其自动化 Power System and its Automation
3. 高电压绝缘技术 High Voltage and Insulation Technology
4. 电力电子与电力传动 Power Electronics and Power Transmission
5. 电工理论与新技术 Electrical Theory and New Technology

三、学习年限 (Length of programs)

国际硕士研究生学习年限一般为 2 年, 国际博士研究生学习年限一般为 3-5 年, 经批准可适当延长, 延长时间不超过 1 年。

The length of Masters' programs is 2 years, and that of doctoral programs is 3 to 5 years. Prolongation (no more than one year) has to be approved by the university authority.

四、培养方式 (Program overview)

所有的留学生课程都采用英文授课。外国留学生的培养方式采取导师负责制, 导师根据留学生的具体情况以及个人兴趣在入学后的第一学期内制定培养计划, 培养计划应包含课程学习、必修环节、科研工作、论文撰写及答辩等。

All the courses for international students are taught in English. The training mode adopts supervisor responsibility system. According to the students' Specific situations and personal interests, their supervisor will make a training plan for them in the first semester. The training plan includes courses to study, compulsory activities, research work, dissertation writing and oral defense or their dissertation.

五、课程学习 (Course work)

(一) 国际硕士研究生 (Masters Programs)



•电气工程学术学位硕士生的课程学习应至少取得 24 学分，包括：公共课（汉语（I）2 学分、中国概况（I）2 学分）4 学分、专业学位课至少 16 学分，选修课至少 4 学分。必修环节包括：学术活动（讲座）1 学分、中期考核 3 学分。新港报告纳入国际留学生选修课，学生听够 20 场讲座后可记 2 学分。

The course studies in the academic Masters programs in Electrical Engineering consist of at least 24 credits. Required courses include *Comprehensive Chinese I* (2 credits), *Outline of China I* (2 credits), degree courses (no less than 16 credits), and elective courses (no less than 4 credits). Other compulsory activities include: academic lectures (Masters) (1 credit) and mid-term assessment (3 credits). Innovation Harbour Lectures are included in elective courses for international students, 2 credits will be granted after attending 20 Lectures.

国际硕士研究生课程设置和学分要求

(Curriculum Design and Credit Requirements of Masters Programs)

课程类型 Course Type	序号 No.	全校统一编码 Course Code	课程名称 Course Name	学分 Credit	备注 Notes
公共学位课 Public Course	1	LITE610112	中国概况 Outline of China	2	必修 4 学分 4 credits required
	2	LITE610227	综合汉语 (Comprehensive Chinese)	2	
专业学位课 Degree Course	3	EELC640104	Control System & Application of Microcomputer	2	至少 16 学分 A minimum of 16 credits required
	4	ELEC640204	Power Electronics	3	
	5	ELEC640304	Modern Control Engineering	3	
	6	ELEC810204	Power Semiconductor Devices and Application Criteria	2	
	7	ELEC712304	Modeling and Control of High-Frequency Power Electronic Circuits	3	
	8	ELEC713904	Analysis and Simulation for Power System Transients	3	
	9	ELEC640604	Design of Power Electronic Equipment	2	
	10	ELEC713804	Renewable Energy and Smart Grid	2	
	11	ELEC714004	Electromagnetic Compatibility	2	
	12	ELEC714604	Power System Communications	3	



课程类型 Course Type	序号 No.	全校统一编码 Course Code	课程名称 Course Name	学分 Credit	备注 Notes
	13	ELEC715004	Optimization Methods and Its Applications in Power Systems	2	
	14	ELEC714804	Electric Power System Reliability Evaluation	2	
	15	ELEC715404	Smart High Voltage Dielectrics Engineering-Fusion of Dielectric Materials Science with Physics and Chemistry	2	
	16	ELEC714504	Scientific Writing	1	
	17	ELEC740404	Advanced Progress In High Voltage And High Current	2	
选修课 Elective Course	开课目录中的任何研究生课程 Any graduate course(s) offered in the university				至少 4 学分 A minimum of 4 credits required
必修环节 Compulsory Activities	1	BXHJ600399	学术活动(讲座)(硕) (Lectures) (Master)	1	必修 4 学分 4 credits required
	2	BXHJ600799	中期考核 (Mid-term Assessment)	3	

(二) 国际博士研究生(Doctoral Programs)

• 学术学位博士生课程学习应至少取得 12 学分，包括：公共课（汉语（II）2 学分、中国概况（II）2 学分）4 学分、专业学位课至少 4 学分，选修课至少 4 学分。新港报告纳入国际留学生选修课，学生听够 20 场讲座后可记 2 学分。

The course work of the academic doctoral programs consists of at least 12 credits. Required courses include *Comprehensive Chinese II* (2 credits), *Outline of China II* (2 credits), degree courses (no less than 4 credits), and elective courses (no less than 4 credits). Innovation Harbour Lectures are included in elective courses for international students, 2 credits will be granted after attending 20 Lectures.

必修环节包括：学术活动（讲座）2 学分、开题报告 2 学分、中期考核 6 学分。

Compulsory activities include academic lectures (Doctoral) (2 credits), dissertation proposal (2 credits), and mid-term assessment (6 credits).



国际博士研究生课程设置和学分要求

(Curriculum Design and Credit Requirements of Doctoral Programs)

课程类型 Course Type	序号 No.	全校统一编码 Course Code	课程名称 Course Title	学分 Credit	备注 Notes
公共学位课 Public Course	1	LITE610112	中国概况 (Overview of China)	2	必修 4 学分 4 credits required)
	2	LITE610227	综合汉语 (Comprehensive Chinese)	2	
专业学位课 Degree Course	1	EELC640104	Control System & Application of Microcomputer	3	至少修 4 学分 A minimum of 4credits required
	2	ELEC640204	Power Electronics	3	
	3	ELEC640304	Modern Control Engineering	3	
	4	ELEC810204	Power Semiconductor Devices and Application Criteria	2	
	5	ELEC712304	Modeling and Control of High- Frequency Power Electronic Circuits	3	
	6	ELEC713904	Analysis and Simulation for Power System Transients	3	
	7	ELEC640604	Design of Power Electronic Equipment	2	
	8	ELEC713804	Renewable Energy and Smart Grid	2	
	9	ELEC714604	Power System Communications	3	
	10	ELEC714504	Scientific Writing	1	
	11	ELEC714004	Electromagnetic Compatibility	2	
	12	ELEC740504	Power Quality Issues and Control Method	2	
	13	ELEC740704	Fundamentals of Instrumentation & Process Control	2	
	14	ELEC740404	Advanced Progress In High Voltage And High Current	2	
	15	ELEC640704	Advanced Sensor Technology	2	
	16	ELEC712604	Modelling, analysis and control of Three-phase High Frequency	2	



课程类型 Course Type	序号 No.	全校统一编码 Course Code	课程名称 Course Title	学分 Credit	备注 Notes
			Power Electronic System		
选修课 Elective Course	开课目录中的任何研究生课程 Any graduate course(s) offered in the university				至少 4 学分 A minimum of 4 credits required
必修环节 Compulsory Activities	1	BXHJ800399	学术活动(讲座) (博) (Lectures)(Doctoral)	2	必修 10 学分 10 credits required
	2	BXHJ800499	开题报告 (dissertation proposal)	2	
	3	BXHJ800199	中期考核 (Mid-term Assessment)	6	

六、培养环节 (Compulsory Activities)

1. 学术活动 (讲座) (Lectures)

•国际硕士研究生学术活动 (讲座) 分为必听讲座和选听讲座。必听讲座包括“科学道德与学风建设”1 次、“职业生涯发展与规划导论”1 次；选听讲座包括与学科紧密相关的“学科前沿系列专题讲座” (由各二级学科组织若干教授对本学科前沿知识进行讲座，每个讲座由 5 个以上讲座组成) 一个系列和在全校范围内选听“学术讲座”1 次，完成全部 8 个讲座后记 1 学分。

•Masters students are required to attend 8 lectures, including 2 compulsory lectures (one on Scientific Morality and Construction of Study Style, and one on Introduction to Career Development and Planning), 5-lectures in a series regarding discipline-specific frontiers information (organized by respective individual schools), and 1 elective within the university. Students will obtain 1 credit with full attendance to 8 lectures.

•国际博士研究生学术活动 (讲座) 分为必听讲座和选听讲座。必听讲座为“科学道德与学风建设”；选听讲座包括与学科紧密相关的“学科前沿系列专题讲座” (由各二级学科组织若干教授对本学科前沿知识进行讲座，每个讲座由 5 个以上讲座组成) 一个系列和在全校范围内选听“学术讲座”1 次，自己公开讲座 1 次，完成后记 2 学分。

•Doctoral students are required to attend 7 lectures, including one compulsory lecture (one on Scientific Morality and Construction of Study Style), 5-lectures in a series regarding discipline-specific frontiers information (organized by respective individual schools), and 1 elective within the university. In addition, they are also required to give one lecture. Students will obtain 2 credits by completing all the lecture activities.

2. 开题报告 (Thesis / Dissertation Proposal)

博士生开题报告由各系所在第三学期组织完成，中期考核前需形成书面开题报告。

Dissertation proposal must be organized by the respective department for each doctoral candidate during the third semester. A written dissertation proposal shall be completed before mid-term assessment.



3. 中期考核 (Mid-term Assessment)

硕士研究生需在第三学期完成中期考核，考核方式为提交纸质版中期考核报告并完成答辩。

Mid-term assessment will be organized during the third semester by respective department. A written mid-term assessment report shall be submitted and oral defence of the proposal shall be organized as well by the respective department.

博士研究生需在第四学期完成中期考核，考核合格者方可继续完成后续研究学习，考核不合格者可申请在下一学期完成补考，中期补考不合格的学生将终止学制。

Mid-term assessment of PhD candidates will be organized in the 4th semester, the candidates who pass this assessment will be allowed to continue with their doctoral programs; and those who fail can attend the makeup mid-term assessment in the following semester. The ones who fail the makeup mid-term assessment will no longer be made to terminate their PhD programs.

4. 预答辩 (Pre-oral defense Reporting)

硕士研究生预答辩由各系所组织完成。学术论文须通过盲审后方可组织预答辩。

Pre-oral defence for Masters graduate students will be organized by respective department. Students must pass the blind reviewing of the dissertation before proceeding to the pre-oral defence.

博士研究生预答辩由各系所组织完成，预答辩委员会须由三位委员（博士生导师）组成。

Pre-oral defence for PhD graduate students will be organized by respective department. Pre-oral defence committee consists of three members (qualified for supervising doctoral candidate).

5. 学位论文 (Dissertation)

留学研究生完成学位论文及培养计划规定的内容后，可进行学位论文送审评阅。学位论文应在指导教师指导下，由留学研究生本人独立完成；硕士学位论文工作的时间一般应有一个学年左右。博士学位论文的工作时间一般应有 2 个学年左右。学位论文可用中文或英文撰写。中文撰写格式应符合《西安交通大学研究生学位论文规范》的要求，英文撰写格式应符合国际惯例，应有中文摘要。用于学位申请的学术论文，是指申请人为第一作者或第二作者（本人为第二作者时，第一作者应为其导师）、且西安交通大学为第一署名单位的学术论文。

After completion of dissertation and the requirements of the program, the postgraduate students can submit his or her academic dissertation for reviewing. The academic dissertation should be finished by the student him/herself under the guidance of the academic supervisor. The duration of time for a Master's dissertation is around one academic year; and that for a PhD dissertation is around two academic years. Student dissertations can be written either in Chinese or in English. For the dissertations in Chinese, they must accord with the rules and regulations specified in *Xi'an Jiaotong University Graduate Student Dissertation Standard*; but for the dissertations in English, they must accord with the international conventions and have Chinese abstract. For a student, the research articles contributing to the rewarding of a degree must be first authored or second authored by the student (when the student is the second author, the first author must be his or her academic supervisor) and Xi'an Jiaotong University should be the first authored institution.

留学研究生提交学位论文送审评阅申请，经学院、学校两级审批通过后，采用常规评审。评审专家同意答辩后，留学研究生可提出学位论文答辩申请，并按照程序进行答辩。

International graduate students are required to submit the application for reviewing their academic



dissertation. After the approvals of the academic school and the Graduate School, routine approving can be conducted. After the reviewers confirm that the dissertation has satisfied the requirements, the student can file an application for oral defence for their dissertation. After the student defends his/her dissertation successfully, he/she can apply for granting a degree.

七、培养环节时间节点(Timelines and milestones)

	课程学习 Course Work	开题报告 Thesis/Dissertation proposal	中期考核 Mid-term Assessment	预答辩 Pre-oral defence	论文答辩 Thesis/Dissertation oral Defense
硕士 Masters program	第二学期结束前 First two semesters	/	第三学期结束 At the end of third semester	第四学期 Fourth semester	第四学期 Fourth semester
博士 (Doctoral program)	第二学年结束前 First two years	第三学期 Third semester	第四学期结束 End of fourth semester	最后一个学期 Last semester	最后一个学期 Last semester