

电气工程及其自动化专业2024级本科人才培养方案

一、专业基本信息

学科门类：	电气类	专业代码：	080601
授予学位：	工学学士	标准学制：	四年
毕业学分要求：	167学分		

二、培养目标与培养要求

1. 培养目标

本专业面向国家战略性新兴产业发展需求，培养德智体美劳全面发展，具有良好的人文素质、职业道德、社会责任感；扎实地掌握电气工程、自动化、电子与信息领域的基础理论、专业知识及基本技能，具备获取和综合运用知识与技能解决复杂工程问题的能力；具有团队合作、项目管理、沟通交流、自主学习和创新创业能力；能够在电气工程、新能源、智能电气、先进制造等领域和行业从事教育、科研、工程设计、技术开发、系统运行、经济管理等工作的高素质创新型社会主义建设人才。

本专业毕业生具有如下目标预测：

- （1）具有良好的人文科学素养、职业道德、法律意识和社会责任感；
- （2）具有扎实的自然科学知识和电气工程及其相关专业基础知识，为电气工程及自动化领域复杂工程项目提供解决方案；
- （3）具备独立承担电气工程及自动化领域工程项目的能力，能够进行科学研究、工程设计与管理；
- （4）具备健康的身心、良好的人文科学素养和宽广的专业视野，和团队成员、专业人士能有效沟通，具备一定的组织、协调、管理和决策能力；
- （5）具备全球化意识和国际视野，在不断变化的国际形势和环境中，能够通过终身学习发展新的知识和技能，适应职业发展。

2. 毕业要求

通过本专业的学习，学生具备扎实的数学、物理、工程基础知识，以及电气工程、自动化、物联网、通信等学科交叉、深宽兼备的专业知识；有较强的实践能力和创新意识，能够根据实际要求解决电气工程及其自动化领域的复杂工程问题；具有良好的人文科学素养、积极向上的价值观和较强的社会责任感；具有法律法规、工程伦理、安全和环保意识；能够进行积极有效的团队协作和沟通，具备终身学习能力。

毕业能力要求及其指标点分解：

毕业要求1： 工程知识：能够将数学、自然科学、工程基础和专业知用于分析和识别电气系统、电子电路、通信系统、信息处理等领域复杂工程问题的关键环节、关键参数与相互制约因素，得到该问题的解决思路。	1-1.运用数学与自然科学知识，能描述本专业复杂工程问题的关键环节。
	1-2.应用电子电路、信号、通信和控制的基础知识，获得本专业领域内复杂工程问题的解决思路。
毕业要求2： 问题分析：在信息收集、文献检索的基础上，能够应用数学、自然科学和工程基础与专业知识，对电气工程领域复杂工程问题进行识别、表达、分析，以获得有效结论。	2-1.能运用相关科学原理，识别、表达、分析复杂工程问题的关键环节。
	2-2.能运用基本原理，借助文献研究，解析复杂工程问题，获得有效结论。
毕业要求3： 设计/开发解决方案：能够针对电气工程领域复杂工程问题确定设计开发方案，设计满足特定指标	3-1.针对特定复杂工程问题的关键环节设计系统软硬件方案，测试和验证其正确性，并在设计中体现创新意识。

要求的系统、单元（部件）或工艺流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。	3-2. 在设计/开发方案的环节中考虑社会、健康、安全、法律、文化以及环境的影响。
毕业要求4： 研究：能够基于科学原理并采用科学方法对电气工程领域复杂工程问题进行研究，包括设计实验、分析与解释数据，并通过信息综合得到合理有效的结论。	4-1.能够针对复杂工程问题设计研究方案，进行功能验证、系统设计与调试，并得到有效结论。
	4-2.能够正确设计实验，采集、整理实验数据，进行功能分析、综合、推理，解释实验结果。
毕业要求5： 使用现代工具：能够针对电气工程领域复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息工具，对复杂工程问题进行模拟分析，并了解所采用工具的特点和局限性。	5-1.能够使用电气工程领域常用的现代仪器设备、信息技术工具、工程工具和模拟软件，能熟练使用各类电子仪器观察分析系统性能。
	5-2.能够开发、选择和使用恰当的编程工具，进行本专业领域的复杂工程问题分析、计算开发与系统设计。
毕业要求6： 工程与社会：能够基于电气工程相关背景知识进行合理分析，评价电气工程领域工程实践和复杂工程问题解决方案对社会、健康、安全、法律以及文化的影响，并理解应承担的责任。	6-1.能够针对电气工程领域的工程实践和复杂工程问题解决方案的需求，对社会、健康、安全、法律以及文化的影响进行合理分析。
	6-2.能够评价电气工程领域的工程实践和复杂工程问题解决方案对社会、健康、安全、法律以及文化的影响，理解应承担的责任。
毕业要求7： 环境和可持续发展：能够理解和评价针对电气工程领域复杂工程问题的工程实践对环境、社会可持续发展的影响。	7-1. 能够理解电气工程领域复杂工程问题的工程实践对环境、社会可持续发展的影响。
	7-2. 能够根据电气工程专业领域的技术和工程需要对本领域复杂工程问题的工程实践对环境、社会可持续发展做出正确评价。
毕业要求8： 职业规范：具有人文社会科学素养、社会责任感和家国情怀，遵守职业道德和规范，履行相应的责任。	8.具备人文社会科学素养、社会责任感和家国情怀，遵守工程师职业道德规范，自觉履行相应的责任。
毕业要求9： 个人和团队：能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。	9-1.能够在跨学科背景下的团队中，明确个人、团队成员以及负责人的角色职责。
	9-2.能够在多学科背景下的团队中，承担起个体、团队成员以及负责人等不同角色的任务并共同实现团队目标。
毕业要求10： 沟通：具有国际视野和跨文化的交流与合作能力，能够就电气工程领域复杂工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。	10-1.能就复杂工程问题，以语言、文稿、图表等方式，准确表达观点，回应质疑。
	10-2.关注专业前沿热点问题，具备跨文化交流的语言和书面表达能力，能就复杂工程问题在跨文化背景下进行沟通和交流。
毕业要求11： 项目管理：理解并分析电气工程	11-1.分析本专业工程活动中涉及的项目管理与经济决策因素。

领域工程管理原理与经济决策方法，并能在多学科环境中应用。	11-2.能够基于多学科环境在本专业工程项目的规划、设计、实施中应用经济、管理方面的知识、原理及方法。
毕业要求12： 终身学习：具有自主学习和终身学习的意识，有不断学习和适应发展的能力。	12.具有自主学习的能力和终身学习的意识，包括对技术问题的理解能力，归纳总结的能力和提出问题的能力等。

三、主干学科与相近专业

主干学科：电气工程、控制科学与工程

相近专业：自动化类、电子信息类、计算机类、能源动力类相关专业

四、专业核心课程

电力电子技术、工程电磁场、自动控制原理、单片机原理与接口技术、电机与拖动基础、运动控制系统、电力系统分析、电气控制及PLC

五、实践教学环节

1、分散性实践（实验、上机、实践）：总学分22；总学时：630。

2、集中性实践环节

序号	课程名称	周数	学分	培养模式
(1)	军事技能训练	3	2.0	学校
(2)	创新实践环节	6	4.0	学校+企业（社会）
(3)	工程实训（含金工实习）	2	1.0	学校
(4)	电子综合设计I	1	0.5	学校
(5)	电子综合设计II	1	0.5	学校
(6)	单片机原理与接口技术课程设计	3	1.5	学校
(7)	电力电子技术课程设计	2	1.0	学校
(8)	电力工程综合设计	2	1.0	学校
(9)	运动控制系统课程设计	2	1.0	学校
(10)	PLC课程设计	2	1.0	学校
(11)	电气技术综合设计	3	1.5	学校
(12)	电气卓越工程师实践/电气工程综合训练（含生产实习）	16	8.0	学校+企业（社会）
(13)	毕业设计（论文）	16	8.0	学校+企业（社会）
合计		59	31.0	-

3、实践学分比例：31.7 %（保留到小数点后一位）
计算方法：(分散性实践学分+集中性实践环节学分)/本专业总学分

六、短学期安排

序号	课程名称	学分	各短学期学时分配			备注
			短学期1	短学期2	短学期3	
1	军事技能	2.0	3周			
2	电子综合设计I	0.5	1周			
3	单片机原理与接口技术综合设计	1.5		3周		
4	运动控制系统综合设计	1.0			2周	
5	PLC综合设计	1.0			2周	
合计		6.0	4周	3周	4周	

七、学分分布

学分及比例	学分	其中实验实践学分/比例	其中选修学分/比例
通识教育课程	43/25.7%	9/5.4%	6/3.6%
学科平台课程	46.5/27.9%	6.5/3.9%	0
专业必修课程	51/30.5%	29.5/17.7%	0
能力拓展选修课程	26.5/15.9%	8/4.8%	26.5/15.9%
总学分/比例	167/100%	53/31.7%	32.5/19.5%

八、微专业计划及要求

微专业名称：智能无人系统

课程序号	课程名称	学分/学时	各学期周学时分配				备注
			三	四	五	六	
1	程序设计与人工智能基础	2/32	2				
2	传感器与检测技术	2/32		2			
3	通信技术基础	2/32		2			
4	微控制器与嵌入式系统	2/32			2		
5	电机与运动控制系统	2/32				2	

微专业课程为核心课不多于5门，学分控制为10-15学分。

Electrical Engineering and Automation Major 2024 Undergraduate Talent Training Program

I 、 Basic Information

Discipline:	Electrical Engineering	Major Code :	080601
Degrees Conferred:	Bachelor of Engineering	Duration:	4 years
Requirements for Graduation Credits:		167 credit	

II 、 Educational Objectives and Requirements

1. Educational Objectives

Cultivate students' comprehensive development of moral, intellectual and physical beauty, with good humanistic quality, professional ethics, and social responsibility; solidly master the basic theory, professional knowledge and basic skills in the fields of electrical, automation, electronics and information, with the ability to acquire and comprehensively apply knowledge and skills Ability to solve complex engineering problems; have teamwork, project management, communication, independent learning and innovation and entrepreneurship; be able to engage in education, scientific research, engineering design, technology in fields such as electrical engineering, automation, electronics and information, computer applications, etc. Development, system operation, economic management and other work; innovative talents with the characteristics of "thick foundation, wide caliber, strong practice, and innovation" in socialist construction.

Graduates should obtain knowledge and competences as follows:

- (1) Have good humanistic qualities, professional ethics and sustainable development concepts, have a sense of social responsibility, have a spirit of innovation and team consciousness and be able to play a specific role in different functional teams, and become a comprehensive socialism for the development of virtue, wisdom, physical beauty and labor Qualified career builders and reliable successors.
- (2) Have solid natural science knowledge and systematic professional basic theory. It can adapt to the development needs of the modern electrical equipment intelligent manufacturing and operation industry, integrate basic mathematical knowledge and professional basic theory, and analyze and judge engineering projects or subsystems in related fields.
- (3) Possess good professional technology and engineering practice ability, and the ability to acquire and comprehensively apply knowledge and skills to solve complex engineering problems, and be able to provide reasonable solutions to complex engineering problems in the professional field.
- (4) Ability to engage in technology development, engineering / product design, system operation, test / test analysis, scientific research, technical and economic management in the fields of electrical equipment manufacturing and operation, electrical energy transmission, or industrial automation.
- (5) With globalization awareness and international vision, in the constantly changing international situation and environment, he can develop new knowledge and skills through lifelong learning and adapt to professional development.

2. Graduation Requirements

Graduates should obtain knowledge and competences as follows:

This major is characterized by the combination of strong and weak electricity, software and hardware, components and system. Students mainly learn basic theory, professional knowledge and professional skills in circuits, electromagnetic fields, electronic technology, electrical engineering and automatic control. , Basic training in information, control and computer technology, with certain basic knowledge in humanities and social sciences, economic management, etc., mastering the equipment design and manufacturing, electrical system and motor system operation, research and development and management in the field of electrical engineering comprehensive ability, with the ability to track new theories, new knowledge and new technologies in this major.

Graduation ability requirements and their index point decomposition:

Graduation Requirements	Indices
Requirement 1: Engineering knowledge: be able to use mathematics, natural sciences, engineering foundations and professional knowledge to analyze and identify the key links, key parameters and mutual constraints of complex engineering problems in the fields of electrical systems, electronic circuits, communication systems, information processing, etc., and obtain solutions to the problems.	1-1. Use the knowledge of mathematics and natural sciences to describe the key aspects of complex engineering problems in the major.
	1-2. Apply the basic knowledge of electronic circuits, signals, communication and control to obtain solutions to complex engineering problems in the professional field.
Requirement 2: Problem Analysis: On the basis of information collection and literature retrieval, students can apply the foundation and professional knowledge of mathematics, natural sciences and engineering to identify, express and analyze complex engineering problems in the field of electrical engineering to obtain effective conclusions.	2-1. Be able to use relevant scientific principles to identify, express and analyze the key aspects of complex engineering problems.
	2-2. Be able to use basic principles and literature research to analyze complex engineering problems and obtain effective conclusions.
Requirement 3: Design/development solutions: be able to determine design and development solutions for complex engineering problems in the field of electrical engineering, design systems, units (components) or processes that meet the requirements of specific indicators, and be able to reflect a sense of innovation in the design process, considering social, health, safety, legal, cultural and environmental factors.	3-1. Design the software and hardware solutions of the system for the key links of specific complex engineering problems, test and verify their correctness, and reflect the sense of innovation.
	3-2. Social, health, safety, legal, cultural, and environmental impacts are considered in the design/development of solutions.
Requirement 4: Research: Able to conduct research on complex engineering problems in the field of electrical engineering based on scientific principles and using scientific methods, including designing experiments, analyzing and interpreting data, and reaching reasonable and effective conclusions through information synthesis.	4-1. Be able to design research solutions for complex engineering problems, carry out functional verification, system design and debugging, and obtain effective conclusions.
	4-2. Be able to correctly design experiments, collect and organize experimental data, conduct functional analysis, synthesis, reasoning, and interpret experimental results.
Requirement 5: Use of modern tools: the ability to develop, select and use appropriate technologies, resources, modern engineering tools and information technology tools for complex engineering problems in the field of electrical engineering, to simulate and analyze complex engineering problems, and to understand the characteristics and limitations of the tools used.	5-1. Be able to use modern instruments and equipment, information technology tools, engineering tools and simulation software commonly used in the field of electrical engineering, and be proficient in using various electronic instruments to observe and analyze the performance of the system.
	5-2. Be able to develop, select, and use appropriate programming tools to analyze complex engineering problems, computational development, and system design in their professional fields.
Requirement 6: Engineering & Society: Ability to conduct reasonable analyses based on background knowledge of electrical engineering, evaluate the social, health, safety, legal and cultural impacts of engineering practices and solutions to complex engineering problems in the field of electrical engineering, and understand the responsibilities that should be assumed.	6-1. Ability to rationally analyze social, health, safety, legal, and cultural impacts on engineering practices and solutions to complex engineering problems in the field of electrical engineering.

	6-2. Ability to evaluate the social, health, safety, legal and cultural impacts of engineering practices and solutions to complex engineering problems in the field of electrical engineering, and understand the responsibilities that should be assumed.
Requirement 7: Environment and Sustainability: Ability to understand and evaluate the impact of engineering practices on environmental and social sustainability for complex engineering problems in the field of electrical engineering.	7. Ability to understand the impact of engineering practices on the sustainable development of the environment and society in the field of electrical engineering.
	7. Be able to make a correct evaluation of the engineering practice of complex engineering problems in the field and the sustainable development of the environment and society according to the technical and engineering needs of the professional field of electrical engineering.
Requirement 8: Professional norms: have humanities and social sciences literacy, a sense of social responsibility, abide by professional ethics and norms, and fulfill corresponding responsibilities.	8. Have humanities and social sciences literacy, a sense of social responsibility and family and country feelings, abide by the professional ethics of engineers, and consciously fulfill corresponding responsibilities.
Requirement 9: Individuals and teams: Ability to take on the roles of individuals, team members, and leaders in teams in a multidisciplinary context.	9-1. Ability to identify the roles and responsibilities of individuals, team members and leaders in teams in an interdisciplinary context.
	9-2. Ability to take on tasks in different roles as individuals, team members and leaders in a multidisciplinary team and work together to achieve team goals.
Requirement 10: Communication: Have an international perspective and cross-cultural communication and cooperation skills, and be able to effectively communicate and exchange with industry peers and the public on complex engineering issues in the field of electrical engineering, including writing reports and design manuscripts, making statements, and clearly expressing or responding to instructions.	10-1. Be able to accurately express opinions and respond to questions on complex engineering problems in the form of language, manuscripts, diagrams, etc.
	10-2. Pay attention to the hot issues at the forefront of the profession, have the language and written expression skills of cross-cultural communication, and be able to communicate and exchange complex engineering problems in a cross-cultural context.
Requirement 11: Project Management: Understand and analyze engineering management principles and economic decision-making methods in the field of electrical engineering, and be able to apply them in a multidisciplinary environment.	11-1. Analyze the project management and economic decision-making factors involved in the engineering activities of the specialty.
	11-2. Be able to apply the knowledge, principles and methods of economics and management in the planning, design and implementation of professional engineering projects based on a multidisciplinary environment.
Requirement 12: Lifelong learning: have the awareness of independent learning and lifelong learning, and have the ability to continuously learn and adapt to development.	12. Have the ability of independent learning and the awareness of lifelong learning, including the ability to understand technical problems, the ability to summarize and the ability to ask questions.

III、Main Disciplines and Related Majors

Main Disciplines: Electrical Engineering, Control Science and Engineering

Related Majors: Automation, electronic information, computer, energy and power related majors

IV、Core Courses

6-10core courses

Power Electronics Technology, Engineering Electromagnetic Field, Automatic Control Principle, Microcontroller Principle and Interface Technology, Motor and Traction Basics, Motion Control System, Power System Analysis, Electrical Control and PLC

V、Practical Teaching Session

1、Separate Practice (Experiment, Programming and Practice) :

Total Credits: 22 ; Total Hours: 630 .

2、Intensive Practice

No.	Course Name	Weeks	Credit	Training Mode
(1)	Military Skill Training	3	2.0	Schools
(2)	Innovation and Entrepreneurship Training	6	4.0	Schools and Enterprises (Society)
(3)	Engineering Training	2	1.0	Schools
(4)	Electronic Comprehensive Design I	1	0.5	Schools
(5)	Electronic Comprehensive Design II	1	0.5	Schools
(6)	Comprehensive Design of Single Chip Microcomputer Principle and Interface Technology	3	1.5	Schools
(7)	Comprehensive Design of Power Electronics	2	1.0	Schools
(8)	Comprehensive Design of Power Engineering	2	1.0	Schools
(9)	Comprehensive Design of Motion Control Systems	2	1.0	Schools
(10)	Comprehensive Design of PLC	2	1.0	Schools
(11)	Comprehensive Design of Electrical Technology	3	1.5	Schools
(12)	Electrical Engineering Training and Integrated Practice (including Production Practice)	16	8.0	Schools and Enterprises (Society)
(13)	Graduation Design (Thesis)	16	8.0	Schools and Enterprises (Society)
Total		59	31.0	-
3、	Practice Credits Proportion: <u>31.7</u> % Calculation Method :(Separate practice credits + Intensive practice credits)/ Total credits of this major			

VI、Short Semester Arrangement

No.	Course Name	Credit	Short Semester Hour Distribution			
			Short Semester 1	Short Semester 2	Short Semester 3	
1	Military Skill Training	2.0	3 weeks			
2	Electronic Comprehensive Design	1.0	1 weeks			
3	Comprehensive Design of Single Chip Microcomputer Principle and Interface Technology	1.5		3weeks		
4	Comprehensive Design of Motion Control Systems	1.0			2weeks	
5	Comprehensive Design of PLC	1.0			2weeks	
Total		6.0	4 weeks	3 weeks	4 weeks	

VII、Credit Distribution

Credits and Proportion	Credits	Experiment and Practice Credits/Proportion	Optional Credits/Proportion
General Education	43/25.7%	9/5.4%	6/3.6%
Discipline Education	46.5/27.9%	6.5/3.9%	0
Specialized Education	51/30.5%	29.5/17.7%	0
Elective Courses for Expanding Abilities	26.5/15.9%	8/4.8%	26.5/15.9%
Total Credits/Proportion	167/100%	53/31.7%	32.5/19.5%

VIII、Micro major Programs and Requirements

Micro major:

No.	Course Name	Credits/Hours	Weekly Hour Per Semester				Notes
			3	4	5	6	
1	Fundamentals of Programming and Artificial Intelligence	2/32	2				
2	Sensors & Detection Technology	2/32		2			
3	Fundamentals of Communication Technology	2/32		2			
4	Microcontrollers & Embedded Systems	2/32			2		
5	Motors and motion control systems	2/32				2	
	Thesis	(10-15)					

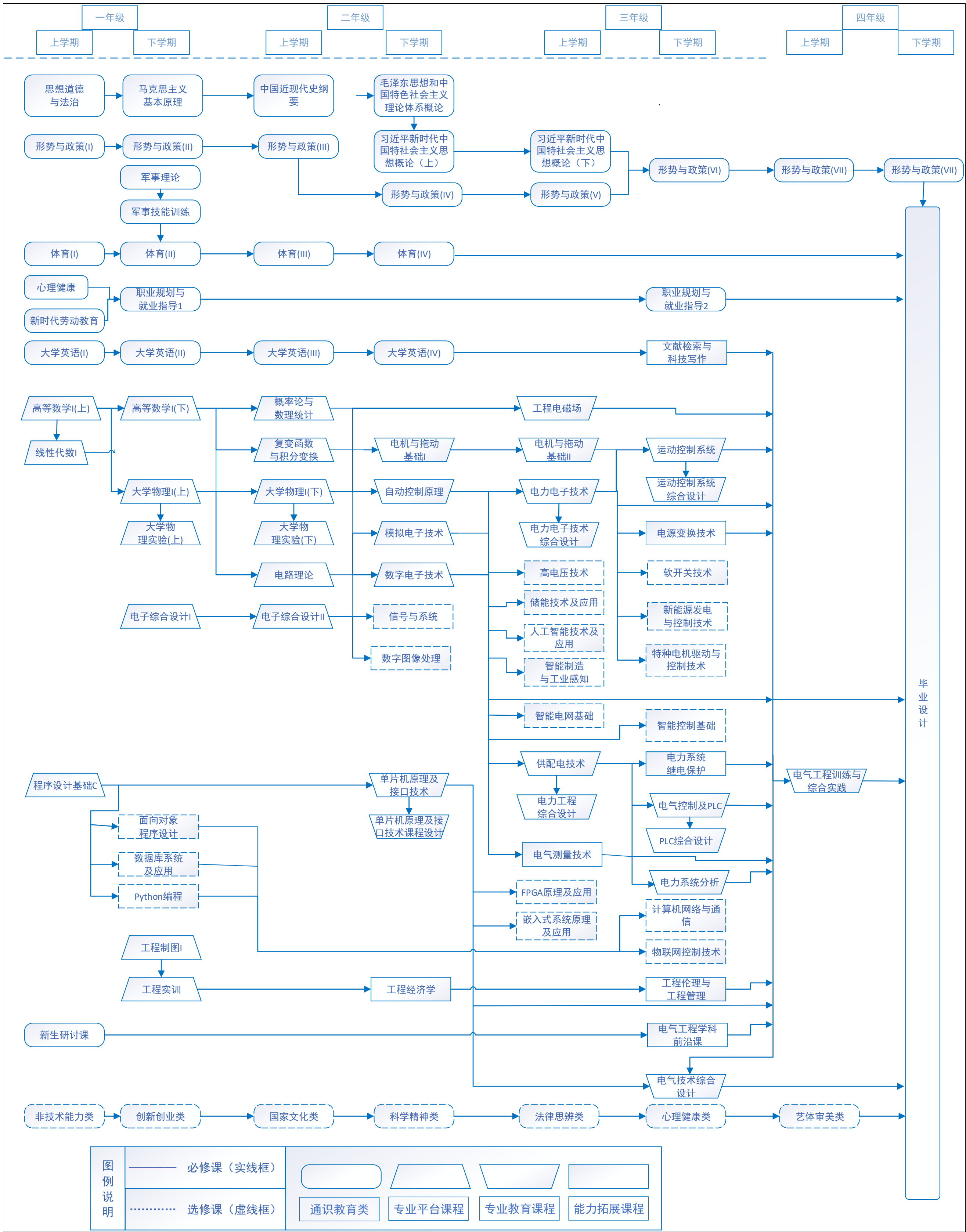
IX、主要课程与毕业能力要求关系矩阵图(相关性强H, 相关性中M, 相关性弱L)

IX、 Correlation Matrix between Key Courses and Graduation Requirements (High Correlation—H, Medium Correlation—M, Low Correlation—L) (每项毕业要求指标点都有3-6门课程支撑(至少一门课对该指标点是H), 每门课能支撑3-6个指标点(至少对一个指标点是H))

[illegible]

[illegible]

电气工程及其自动化专业课程体系配置图 Curriculum System Configuration Diagram



电气工程及其自动化专业教学进程表

Table of Teaching Schedule for Electrical Engineering and Automation Major

课程类别 Course Type	课程性质 Course Nature		序号No.	课程名称 Course Name	学 分 Credits	总学时 数 Total Credit Hours	学时分配 Credit Hour Distribution				各学期周学时分配 Weekly Hours Per Semester								课程考试 学期 Examination Semester	开课学 院 School	备 注 Notes	
							讲 课 Lecture		实 验 Experiment	上 机 Program -ming	实 践 Practice	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th				八 8th
							线下课时 offline	线上课时 online														
通识教育课程 General Education	通识教育必修课程 General Education (Compulsory)	思政类 Ideological and Political Courses	1	思想道德与法治 Cultivation of Ideological Morality and Basis of Law	3.0	48	48				3								1	26		
			2	中国近现代史纲要 Outline of Chinese Contemporary and Modern History	3.0	48	48							3（理工类） (Science and Engineering)							26	
			3	马克思主义基本原理 Elementary Theory of Marxism	3.0	48	48						3（理工类） (Science and Engineering)							2	26	
			4	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thought and Theory of Socialism with Chinese Characteristics	3.0	64	32				32				3					4	26	思想政治理论实践环节（2.0学分）
			5	习近平新时代中国特色社会主义思想概论 Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	3.0	64	32				32					3					26	
			6	形势与政策 Current Situation and Policies	2.0	64	16				48	1	1	1	1	1	1	1			26	第1-2学期讲课，第3-8学期采用备案制 (Semester 1-2 using lectures, semester 3-8 using the filling system)
			7	国家安全教育 National Security Education for College Students	1.0	16	2	12			2	2									97	
		外语类 Foreign Language Courses	8	大学英语 College English	8.0	160	128	32				2	2	2	2					1234	12	
			9	军事理论 Military Theory	2.0	36					4		2								26	
			10	军事技能训练 Military Skill Training	2.0	3周 (Three weeks)					3周		3周								20	短学期1 (Short semester 1)

课程类别 Course Type	课程性质 Course Nature		序号No.	课程名称 Course Name	学 分 Credits	总学时 数 Total Credit Hours	学时分配 Credit Hour Distribution				各学期周学时分配 Weekly Hours Per Semester								课程考试 学期 Examination Semester	开课学 院 School	备 注 Notes		
							讲 课 Lecture		实 验 Experiment	上 机 Program -ming	实 践 Practice	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th				八 8th	
							线下课时 offline	线上课时 online															
		军体类 Military Courses	11	体育 Physical Education	4.0	144	16					128	2	2	2	2					14	实践中含课外体测理论考试16学时In practice,16 credit hours of extracurricular physical theory examination are included.	
		成长规划类 Growth Planning Courses	12	新生研讨课 Freshman Seminar	1.0	16						2									03		
			13	职业规划与就业指导 Career Planning and Employment Guidance	0.5	16							2				2				97		
			14	心理健康 Mental Health	0.5	16						2									97		
			15	新时代劳动教育 Labor Education in the New Era	1.0	16	4	12				2									03		
		小计 Subtotal			37.0	740	164	44			244	14	10	8	10	3	3	1	1				
	通识教育选修课 General Education (Optional)		分为科学精神、创新创业、四史文化、心理健康、艺体审美、计算机和非技术能力课程类7个模块， 每个模块最多选修2.0学分（其中四史文化类、心理健康类、艺体审美类需选修不少于1.0学分），每学期最多选修2门课程，共修满6.0学分。																				
			小计 Subtotal			6.0																	
	合计 Total					43.0																	
				16	高等数学I Advanced Mathematics	11.0	176	176					6	5							1 2	13	
17				线性代数I Linear Algebra I	2.5	40	40					3								1	13		
18				概率论与数理统计I Probability Theory and Mathematical Statistics	2.5	40	40							3						3	13		
19				复变函数与积分变换 Complex Variable Function and Integral Transformation	3.0	48	48							3						3	13		

课程类别 Course Type	课程性质 Course Nature	序号No.	课程名称 Course Name	学 分 Credits	总学时 数 Total Credit Hours	学时分配 Credit Hour Distribution					各学期周学时分配 Weekly Hours Per Semester								课程考试 学期 Examination Semester	开课学 院 School	备 注 Notes
						讲 课 Lecture		实 验 Experiment	上 机 Program -ming	实 践 Practice	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th			
						线下课时 offline	线上课时 online														
学科平台课程 Discipline Education	学科基础课程 Basic Courses	20	大学物理I College Physics I	7.0	112	112					4	3						23	13		
		21	大学物理实验 Experiments in College Physics	1.5	48	0		48				3	3					23	13		
		22	工程制图III Engineering Drawing III	2.0	40	32			8			3						2	04		
		23	程序设计基础C C Programming Design Basis	3.0	64	32			32		4							1	03		
		24	电路理论 Circuit Theory	4.5	80	64		16					6					3	03		
		25	模拟电子技术 Analog Electronic Technology	4.0	72	60		12					5					4	03		
		26	数字电子技术 Digital Electronic Technology	3.5	64	52		12					4					4	03		
		小计 Subtotal		44.5	784	656		88	40		13	15	18	9	0	0	0				
	集中性实践环节 Intensive Practice Sessions	27	工程实训（含金工实习） Engineering Training	1.0	2周					2周		2周							04		
		28	电子综合设计1 Comprehensive Design of Electronic	0.5	1周					1周		1周							03	短学期1	
		29	电子综合设计2 Comprehensive Design of Electronic	0.5	1周					1周			1周						03		
		小计 Subtotal		2.0	4周					4周		3周	1周								
	合计 Total				46.5	784	656		88	40		13	15	18	9	0	0	0			
		30	电机与拖动基础 Motor and Drag Foundation	3.5	60	48		12					4					4	03		
		31	单片机原理与接口技术 Single Chip Microcomputer Principle and Interface Technology	3.5	64	48		16					4					4	03		

课程类别 Course Type	课程性质 Course Nature	序号No.	课程名称 Course Name	学 分 Credits	总学时 数 Total Credit Hours	学时分配 Credit Hour Distribution					各学期周学时分配 Weekly Hours Per Semester								课程考试 学期 Examination Semester	开课学 院 School	备 注 Notes	
						讲 课 Lecture		实 验 Experiment	上 机 Program -ming	实 践 Practice	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th				
						线下课时 offline	线上课时 online															
专业必修课程 Specialized Education	专业核心课程 Core Courses	32	自动控制原理 Automatic Control Principle	4.0	64	56		8						4					4	03		
		33	工程电磁场 Engineering Electromagnetic Field	2.0	32	24		8							4					5	03	
		34	供配电技术 Power supply and distribution technology	2.0	36	28		8							4					5	03	
		35	电力电子技术 Power Electronics Technology	2.5	48	32		16							4					5	03	
		36	电机与拖动基础II Motor and Drag Foundation （Part II）	1.5	28	20		6	2						4					5	03	1-8周
		37	电力系统分析 Power System Analysis	3.0	48	48										4				6	03	
		38	运动控制系统（双语） Motion Control Systems	3.5	64	48		16								4				6	03	
		39	电气控制及PLC Electrical Control and PLC	2.5	40	24		16								4				6	03	
		小计 Subtotal		28.0	484	376		106	2		0	0	0	13	16	12	0	0				
		40	单片机原理与接口技术综合设计 Comprehensive Design of Single Chip Microcomputer Principle and Interface Technology	1.5	3周									3周							03	短学期2
		41	电力电子技术综合设计 Comprehensive Design of Power Electronics	1.0	2周										2周						03	分散进行
		42	电力工程综合设计 Comprehensive design of power engineering	1.0	2周										2周						03	分散进行

课程类别 Course Type	课程性质 Course Nature	序号No.	课程名称 Course Name	学 分 Credits	总学时 数 Total Credit Hours	学时分配 Credit Hour Distribution					各学期周学时分配 Weekly Hours Per Semester								课程考试 学期 Examination Semester	开课学 院 School	备 注 Notes
						讲 课 Lecture		实 验 Experiment	上 机 Program -ming	实 践 Practice	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th			
						线下课时 offline	线上课时 online														
	集中性实践环节 Intensive Practice Sessions	43	运动控制系统综合设计 Comprehensive Design of Motion Control Systems	1.0	2周												2周			03	短学期3
		44	PLC综合设计 Comprehensive Design of PLC	1.0	2周											2周				03	短学期3
		45	电气技术综合设计 Comprehensive Design of Electrical Technology	1.5	3周											3周				03	分散进行
		46	电气卓越工程师实践 Excellence Engineer Practice of Electrical	8.0	16周															03	二选一
		47	电气工程综合训练（含生 产实习） Comprehensive Traning of Electrical Engineering											16 周							
		48	毕业设计（论文） Graduation Design （Thesis）	8.0	16周											16 周			03	分散进行	
		小计 Subtotal		23.0	46周									3周	4周	7周	16 周	16 周			
	合计 Total				51.0	484	376		106	2		0	0	0	13	16	12	0	0		
		49	◆电气测量技术 Measuring Technology of Electric	3.0	48	40		8							4					03	
		50	◆文献检索与科技写作 Technical English Writing and Literature Search	1.0	16	8			8							2				03	9-16周(ZD)
		51	◆电力系统继电保护 Power system relay protection	2.0	32	28		4							4					03	1-8周
		52	特种电机及驱动技术 Special motor and drive Technology	2.0	32	32									4					03	9-16周

[illegible]

课程类别 Course Type	课程性质 Course Nature	序号No.	课程名称 Course Name	学 分 Credits	总学时 数 Total Credit Hours	学时分配 Credit Hour Distribution				各学期周学时分配 Weekly Hours Per Semester								课程考试 学期 Examination Semester	开课学 院 School	备 注 Notes	
						讲 课 Lecture		实 验 Experiment	上 机 Program -ming	实 践 Practice	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th				八 8th
						线下课时 offline	线上课时 online														
		64	Python编程技术 Python Programming	2.0	40	24			16			5							03	9-16周(Q)	
			合计 16 门课	32.0	552	424		64	64		0	15	0	0	35	14	0	0			
		◆为限选课程																			
	专业自主课程（含本硕贯通培 养课程） Individualized Courses	65	◆电气工程学科前沿课 Electric Engineering Frontier Courses	1.0	16	16										2				03	1-8周
		66	◆工程经济学 Engineering economics	1.0	16	16								2						商学院 Mooc学 习	
		67	◆工程伦理与工程管理 Engineering Ethics and Engineering Management	1.0	16	8	8									2				03	1-8周(Q)
		68	◆电源变换技术 Power Conversion Technology	2.0	32	16	8	8								4				03	9-16周(ZD)
		69	软开关技术 Soft- Switching Technology	2.0	32	32										4				03	1-8周
		70	计算机网络与通信 Computer Networks and Communications	2.0	32	24		8								4				03	1-8周(ZD)
		71	物联网控制技术 IoT Control Technology	2.0	32	32										4				03	9-16周(Q)
		72	智能控制基础 Fundamentals of intelligent control	2.0	32	32										4				03	9-16周(ZD)
		73	新能源发电与控制 New energy generation and control	2.0	32	32										4				03	1-8周(ZD)
			合计 9 门课	15.0	240	208	16	16						2	0	28	0	0			
		◆为限选课程																			
		74	电源技术基础 Fundamentals of power supply technology	2.0	32	32										4				03	1-8周

课程类别 Course Type	课程性质 Course Nature	序号No.	课程名称 Course Name	学 分 Credits	总学时 数 Total Credit Hours	学时分配 Credit Hour Distribution					各学期周学时分配 Weekly Hours Per Semester								课程考试 学期 Examination Semester	开课学 院 School	备 注 Notes
						讲 课 Lecture		实 验 Experiment	上 机 Program -ming	实 践 Practice	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th			
						线下课时 offline	线上课时 online														
	跨专业选修课程 Multiple Interdisciplinary Elective Courses	75	能源互联网技术导论 Introduction to Energy Internet Technology	2.0	32	32										4				03	1-8周
		小计 Subtotal		4.0	64	64										8					
		修读要求：至少修满22.5学分（其中至少修读1门其他专业开设的跨专业课程，或其他专业的专业课程）																			
	创新实践环节 Innovation Practice	第二课堂 Co-curricular Activities		2.0	按《江南大学本科生第二课堂成绩单实施办法》执行															30	
		创新创业训练 Innovation and Entrepreneurship Training		2.0	按《江南大学本科生创新创业训练学分认定办法》执行															03	
	合计 Total				26.5	856	696	16	80	64	0	0	15	0	10	35	47	0	0		
总计 Sum				167.0	2864	1892	60	274	106	244	27	40	26	32	54	59	1	1			