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刘兴	程磊	杨小玲 吴谨 张清	邓慧萍 陈晨

电子信息类培养方案

一、大类所包含的专业

自动化类(电子信息类)包含如下专业:电子信息工程;通信工程;电子科学与技术。

二、大类阶段课程设置

大类学科基础课程(必修):大学物理B(一)、线性代数B、高等数学A(一)、高等数学A(二)、C语言程序设计、电路分析基础(一)、C语言程序设计实验。

大类学科选修课程(选修):无。

大类实践课程:军事训练、工程训练C。

电子信息工程专业培养方案

Curriculum for Undergraduate of Electronics and Information Engineering Major

一、专业介绍

电子信息工程专业是湖北省品牌专业、湖北省综合改革试点专业,2017年作为学院主要参与专业获批湖北省试点学院。依托电子信息工程专业,2010年获批“信息处理与控制”二级学科博士点、“电子与通信工程”工程硕士专业学位授权点,2018年获批信息与通信工程一级学科硕士点、电子信息类专业学位授权点。专任教师33人,其中教授9人,副教授、高级工程师17人,讲师7人。楚天学者1人、楚天学子4人,中国爱思唯尔高被引学者3人,88%人员具有博士学位。2019年获批为国家级一流本科专业建设点。

I. Major Introduction

The Electronic Information Engineering program is recognized as a distinguished program in Hubei

Province and serves as a pilot program for comprehensive reform in the region. In 2017, it was a key contributor to the approval of the institution as a Hubei Province Pilot College. Building on its strong foundation, the program achieved significant milestones: in 2010, it was granted approval for a secondary discipline doctoral program in Information Processing and Control and a professional master's degree program in Electronics and Communication Engineering. In 2018, it secured authorization for a first-level discipline master's program in Information and Communication Engineering and a professional master's degree program in the field of Electronic Information. The program boasts a dedicated faculty team of 33 members, including 9 professors, 17 associate professors or senior engineers, and 7 lecturers. Among them, 88% hold doctoral degrees. The faculty includes one Chutian Scholar, four Chutian Young Scholars, and three Elsevier Highly Cited Researchers. In 2019, the program was designated as a National First-class Undergraduate Program Construction Site.

二、培养目标

本专业围绕学校“钢铁品质、社会英才”的人才培养总目标，培养具有良好的人文社会科学素养、社会责任感、职业道德和创新精神，以及一定的国际视野，具有较强的工程实践能力和解决复杂工程问题能力，能够在电子信息、通信、钢铁冶金等行业的电子信息相关领域从事电子信息软硬件系统的研究、设计、开发、工程管理等工作的拔尖创新型人才，使之成为德、智、体、美、劳全面发展的社会主义事业建设者和接班人。

期待毕业生五年左右达到以下目标：

目标1：具有良好的人文社会科学素养和社会责任感，遵守职业道德和规范，在电子信息工程实践中能够综合考虑社会、健康、安全、法律、经济、文化及环境等因素，有意愿并有能力服务所在行业和社会。

目标2：能够将数学、自然科学、专业知识和专业技术用于解决电子信息及相关领域遇到的复杂工程问题，并给出解决方案；能够胜任电子信息相关领域复杂工程项目的研究、设计、开发和管理等相关工作。

目标3：具有一定的国际视野，能在多学科、多文化背景下与业界同行及社会公众进行有效沟通、交流及合作，能够胜任团队的核心或领导工作。

目标4：能够适应国民经济和社会发展需求，持续自主学习、自我发展，在工作中不断创新。

II. Educational objectives

This major focuses on the general goal of talent training of "steel quality and social talents" of the university and cultivates innovative talents in research with good humanities and social sciences accomplishment, social responsibility, professional ethics, innovation spirit, certain international vision, strong engineering practice ability and ability to solve complex engineering problems, who can engage in research, design, development and management of electronic information software and hardware systems in electronic information related fields such as electronic information, communication, iron and steel metallurgy and other industries, so that they can become constructors and successors of the socialist cause with comprehensive development in morality, intelligence, physique, aesthetics and labour education.

Graduates of this major are expected to achieve the following goals in about five years of work:

Objectives 1: Have good humanities and social science literacy and social responsibility, adhere to professional ethics and norms, and be able to consider social, health, safety, legal, economic, cultural and environmental factors in the practice of electronic information engineering, as well as have the willingness and ability to serve the industry and society in which they work.

Objectives 2: Be able to apply mathematics, natural science, professional knowledge and expertise to solve

complex engineering problems encountered in electronic information and related fields, as well as give solutions; capable of designing, developing and managing complex engineering projects in electronic information related fields and other related work.

Objectives 3: Have an international vision and be able to communicate, interact and collaborate effectively with industry peers and the public in a multidisciplinary and multicultural context, and be able to serve as the core or leader of a team.

Objectives 4: Be able to actively adapt to the demands of national economy and social development, as well as constantly update professional knowledge and improve personal ability and technical level through independent learning in the work.

三、专业特色

本专业拥有教育部“互联网+中国制造2025”产教融合创新基地、湖北省电工电子实验教学示范中心、建设首批“互联网+中国制造2025”教育部产教融合创新基地，获批首批“新工科”研究与实践项目等一流本科教学平台，获批国家“卓越工程师培育计划项目”，获批“湖北省战略新兴（支柱）产业计划”。已在多媒体信息处理与通信、信号与信息处理、物联网与移动互联网等方向形成专业特色，校企人才培养与科研合作紧密，社会评价良好。

III. Major characteristics

The program hosts several premier undergraduate teaching platforms, including the Ministry of Education's Industry-Education Integration Innovation Base for "Internet+ Made in China 2025", the Hubei Province Electrical and Electronic Experimental Teaching Demonstration Center, and one of the first Industry-Education Integration Innovation Bases for "Internet+ Made in China 2025" established by the Ministry of Education. It has also been approved for pioneering "New Engineering" Research and Practice Projects, the national "Excellence in Engineering Education Training Program", and the Hubei Province Strategic Emerging (Pillar) Industry Plan. The program has developed distinctive strengths in areas such as multimedia information processing and communication, signal and information processing, as well as the Internet of Things (IoT) and mobile internet. It maintains close collaboration with enterprises in talent cultivation and scientific research, earning widespread recognition and a strong reputation within society.

四、毕业要求

毕业要求及对应的指标点分解如下表所示：

毕业要求	毕业要求指标点分解（35个）
1. 工程知识：能够将数学、自然科学、工程基础和专业类知识用于解决电子信息领域的复杂工程问题。	1.1 掌握数学、自然科学和工程科学知识，能够应用于电子信息领域工程问题的表述。
	1.2 能够针对涉及的电子信息领域的具体对象，建立数学模型并求解。
	1.3 能够将自然科学、工程基础和专业类相关知识及数学模型方法用于推演、分析电子信息领域的复杂工程问题。
	1.4 能够将自然科学、工程基础、专业知识及数学模型方法应用于电子信息领域复杂工程问题解决方案的比较与综合。

毕业要求	毕业要求指标点分解（35个）
2. 问题分析：能够应用数学、自然科学、工程科学的基本原理，对电子信息领域的复杂工程问题进行识别、表达，并通过文献研究对其进行分析，以获得有效结论。	2.1 能够运用数学、自然科学、工程科学的基本原理，识别和判断电子信息领域复杂工程问题的关键环节或参数。
	2.2 能够运用所掌握的科学原理和数学模型方法，正确表达电子信息领域的复杂工程问题。
	2.3 能够认识到解决电子信息领域问题有多种方案可供选择，会通过文献研究寻求解决问题的多种可能方案。
	2.4 能够对电子信息领域的复杂工程问题及影响因素进行分析，获得有效结论。
3. 设计 / 开发解决方案：能够设计针对电子信息领域复杂工程问题的解决方案，设计满足特定需求的电路系统或单元器件，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。	3.1 掌握电子信息系统和产品设计/开发全周期、全流程、全要素的基本方法和技术，能够针对特定需求提出电子信息领域复杂工程问题的解决方案。
	3.2 能够按照电子信息系统复杂工程问题的解决方案设计单元（部件）或工艺流程。
	3.3 能够按照电子信息系统复杂工程问题的解决方案设计电子信息系统，在设计环节中能应用新知识、新理论、新方法、新技术，体现创新意识。
	3.4 能够在电子信息系统设计/开发过程中考虑社会、健康、安全、法律、文化及环境等影响因素。
4. 研究：能够基于科学原理并采用科学方法对电子信息领域的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 能够基于科学原理，通过文献研究或相关方法，调研和分析电子信息工程领域复杂工程问题的解决方案。
	4.2 能够结合基础理论，根据对象特征，选择研究路线，设计可行的实验方案，了解采用科学方法进行研究的过程。
	4.3 能够根据实验方案构建实验系统，科学、安全地开展实验，并正确地采集、整理实验数据。
	4.4 能够对实验结果进行综合分析和解释，并通过信息综合得到合理有效的结论。
5. 使用现代工具：能够针对电子信息领域的复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，包括对复杂工程问题的预测与模拟，并能够理解其局限性。	5.1 掌握电子信息工程专业常用仪器、信息技术工具、现代工程工具和仿真软件的基本原理、使用方法和适用条件。
	5.2 能够选择和使用恰当的仪器、信息资源、现代工程工具、仿真软件等，对电子信息领域复杂工程问题进行仿真、分析、计算与设计。
	5.3 能够运用软硬件基础知识及相关技术，设计实验仿真系统，对电子信息领域复杂工程问题进行模拟、分析和测试，并能够理解其局限性。
6. 工程与社会：能够基于电子信息工程相关背景知识进行合理分析，评价电子信息工程专业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 了解电子信息相关领域的技术标准体系、知识产权、产业政策和法律法规，理解不同社会文化对电子信息工程实践的影响。
	6.2 能够分析和评价电子信息工程实践对社会、健康、安全、法律和文化的的影响，以及这些制约因素对项目的影响，并理解应承担的责任。
7. 环境和可持续发展：能够理解和评价针对电子信息领域的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 树立科学发展观，了解国家环境保护相关政策法规，知晓和理解环境保护和可持续发展的重要性、内涵和意义。
	7.2 能够站在环境保护和可持续发展的角度思考电子信息工程实践的可持续性，评价产品周期中可能对人类和环境造成的损害和隐患。

毕业要求	毕业要求指标点分解（35个）
8. 职业规范：树立和践行社会主义核心价值观，具有人文社会科学素养、社会责任感，能够在电子信息领域的工程实践中理解并遵守工程职业道德和规范，履行责任。	8.1 树立正确的世界观、人生观和价值观，具有人文社会科学素养，了解中国国情国史和国际形势。
	8.2 理解诚实公正、诚信守则的工程职业道德和规范，并能在工程实践中自觉遵守。
	8.3 理解工程师对公众的安全、健康和福祉，以及环境保护的社会责任，能够在工程实践中自觉履行责任。
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 理解多学科背景下个人与团队的关系，能与团队中其他学科成员进行有效沟通交流。
	9.2 在 multidisciplinary 背景团队中，能够根据分工独立或合作开展工作；能够组织、协调和领导团队开展工作。
10. 沟通：能够就电子信息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、回应质疑。并具备一定的国际视野，能够在跨文化背景下进行沟通和交流。	10.1 能够就电子信息工程领域中的专业问题，以口头、文稿、图表等方式，清晰表达自己的观点和思路，回应质疑；理解与业界同行和社会公众交流的差异性，能够进行有效沟通与交流。
	10.2 了解电子信息工程领域的国际发展趋势、研究热点，理解和尊重不同文化的差异性和多样性。
	10.3 具备跨文化交流的口头和书面表达能力，能就电子信息工程领域中的专业问题，在跨文化背景下进行沟通和交流。
11. 项目管理：理解并掌握工程管理原理与经济决策方法，并能在电子信息工程实践及多学科环境中应用。	11.1 掌握工程项目涉及的管理与经济决策的方法。
	11.2 了解电子信息领域工程项目全周期、全流程的成本构成，理解其中涉及的工程管理与经济决策问题；并能在多学科环境（包括模拟环境）下，将工程管理和经济决策方法应用于电子信息及相关领域工程问题的设计、开发和优化等过程中。
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。	12.1 能够认识自主学习和终身学习的必要性，具有持续学习的健康体魄。
	12.2 具有自主学习、终身学习的能力，包括对技术和非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，以适应社会发展。

IV. Requirements for graduation

The requirements for graduation and the corresponding index points are illustrated below:

Requirements	Index points
1. Engineering Knowledge: Be able to apply mathematics, natural science, engineering fundamentals and expertise to solve complex engineering problems in electronic information fields.	Master the knowledge of mathematics and natural sciences that can be applied to the formulation of engineering problems in the field of electronic information.
	Be able to develop mathematical models and solve them for specific objects involved in the field of electronic information.
	Be able to apply knowledge related to natural sciences, engineering fundamentals and professional classes and mathematical modeling methods to derive and analyze complex engineering problems in the field of electronic information.
	Be able to apply natural science, engineering fundamentals, professional knowledge and mathematical modeling methods to the comparison and synthesis of solutions to complex engineering problems in the field of electronic information.

Requirements	Index points
2. Problem Analysis: Be able to apply the basic principles of mathematics, natural science and engineering science to identify and express complex engineering problems in the field of electronic information and analyze them through literature research to obtain effective conclusions.	Be able to apply the basic principles of mathematics, natural science, and engineering science to identify and judge the key aspects or parameters of complex engineering problems in the field of electronic information.
	Be able to apply the acquired scientific principles and mathematical modeling methods to correctly express complex engineering problems in the field of electronic information.
	Be able to recognize that there are multiple options available for solving problems in the field of electronic information and seek multiple possible solutions to problems through literature research.
	Be able to analyze complex engineering problems and influencing factors in the field of electronic information and obtain effective conclusions.
3. Design/Development Solutions: Be able to design solutions to complex engineering problems in the field of electronic information, design circuit systems or single components that meet specific needs as well as be able to demonstrate a sense of innovation in the design process, considering social, health, safety, legal, cultural, and environmental factors.	Master the basic methods and techniques of the whole cycle, process and elements of electronic information systems and product design/development, as well as be able to propose solutions to complex engineering problems in the field of electronic information for specific needs.
	Be able to design electronic information systems, units (components) or processes in accordance with solutions to complex engineering problems in electronic information systems.
	Be able to apply new knowledge, new theories, new methods, and new technologies in the design aspects of complex engineering problems in the field of electronic information, reflecting a sense of innovation.
	Be able to consider social, health, safety, legal, cultural, and environmental influences in the design/development of electronic information systems.
4. Research: Be able to study complex engineering problems in the field of electronic information based on scientific principles and using scientific methods, including designing experiments, analyzing, and interpreting data, as well as synthesizing information to reach reasonable and valid conclusions.	Be able to investigate and analyze solutions to complex engineering problems in the field of electronic information engineering based on scientific principles and through literature research or related methods.
	Be able to combine basic theory, select a line of research based on the characteristics of the object, design a feasible experimental protocol, and understand the process of using the scientific method to conduct research.
	Be able to construct experimental systems according to experimental protocols, conduct experiments scientifically and safely, as well as collect and organize experimental data correctly.
	Be able to synthesize and interpret experimental results as well as to draw reasonable and valid conclusions from the synthesis of information.
5. Application of Modern Tools: Be able to develop, select and use appropriate technologies, resources, modern engineering tools and information technology tools for complex engineering problems in the field of electronic information, including prediction and simulation of complex engineering problems, as well as to understand their limitations.	Master the basic principles, usage methods and applicable conditions of common instruments, information technology tools, modern engineering tools and simulation software in electronic information engineering.
	Be able to select and use appropriate instruments, information resources, modern engineering tools, simulation software, etc. to simulate, analyze, calculate, and design complex engineering problems in the field of electronic information.
	Be able to design experimental simulation systems to simulate, analyze and test complex engineering problems in the field of electronic information using basic knowledge of software and hardware and related technologies, as well as be able to understand their limitations.

Requirements	Index points
6. Engineering and Society: Be able to perform sound analysis based on background knowledge related to electronic information engineering, evaluate the social, health, safety, legal, and cultural impacts of professional engineering practices and solutions to complex engineering problems in electronic information engineering, as well as understand the responsibilities to be assumed.	Understand the technical standard system, intellectual property rights, industrial policies and laws and regulations in electronic information related fields, as well as understand the influence of different social cultures on the practice of electronic information engineering.
	Be able to analyze and evaluate the social, health, safety, legal, cultural impacts of electronic information engineering practices and the impact of these constraints on project implementation, as well as understand the responsibilities to be assumed.
7. Environment and Sustainable Development: Be able to understand and evaluate the impact of engineering practices on environmental, social sustainability for complex engineering problems in the field of electronic information.	Establish a scientific concept of development, know about the national policies and regulations related to environmental protection, as well as understand and be aware of the importance, connotation and significance of environmental protection and sustainable development.
	Be able to consider the sustainability of electronic information engineering practices from the perspective of environmental protection and sustainable development as well as evaluate the possible damage, potential hazards to humans and the environment during the product cycle.
8. Professional Ethics and Norms: Establish and practice socialist core values, have humanities and social science literacy, sense of social responsibility, and be able to understand and abide by engineering professional ethics and norms as well as fulfill responsibilities in engineering practice in the field of electronic information.	Establish a correct world view, outlook on life and values, have humanities and social science literacy, as well as understand China's national history and international situation.
	Comprehend the engineering professional ethics and norms of honesty and fairness, integrity code, and be able to consciously comply with them in engineering practice.
	Comprehend the social responsibility of engineers for the safety, health, and well-being of the public, as well as for environmental protection, and be able to consciously fulfill their responsibilities in engineering practice.
9. Individual and Teamwork: Be able to assume the role of individual, team member and leader of a team in a multidisciplinary context.	Comprehend the relationship between individuals and teams in a multidisciplinary context and be able to communicate effectively with members of other disciplines in the team.
	Be able to work independently or collaboratively in a multidisciplinary background team, depending on the division of labor; ability to organize, coordinate and lead the work of a team.
10. Communication: Be able to communicate and interact effectively with industry peers and the public on complex engineering issues in the field of electronic information, including writing reports and design briefs, presenting statements, articulating clearly, and responding to queries. And have a certain international perspective as well as be able to communicate and interact in a cross-cultural context.	Be able to express their views and thoughts clearly and respond to queries on professional issues in the field of electronic information engineering, orally, in manuscripts, diagrams, etc.; as well as understand the differences in communication with industry peers and the public and be able to communicate and exchange effectively.
	Understand the international development trends and research hotspots in the field of electronic information engineering, as well as understand and respect the differences and diversity of different cultures.
	Have the abilities to communicate verbally and in writing in an intercultural context regarding professional issues in the field of electronic information engineering.

Requirements	Index points
11. Project Management: Understand and master the principles of engineering management and economic decision-making methods as well as be able to apply them in electronic information engineering practice and in a multidisciplinary environment.	Master the methods of management and economic decision making involved in engineering projects. Understand the cost components of the whole cycle and process of engineering projects in the field of electronic information, understand the engineering management and economic decision-making issues involved; as well as be able to apply engineering management and economic decision-making methods to the design, development, and optimization of engineering problems in electronic information and related fields in a multidisciplinary environment (including simulation environment).
12. Lifelong Learning: Have sense of self-directed and lifelong learning, with the ability to continuously learn and adapt to development.	Be able to recognize the need for independent and lifelong learning and have a healthy body for continuous learning. Have the ability of learning independently and lifelong learning, including the ability to understand technical and non-technical issues, the ability to summarize, and the ability to ask questions, to adapt to social development.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4
毕业要求 1		√		
毕业要求 2		√		
毕业要求 3		√		
毕业要求 4		√		
毕业要求 5		√		
毕业要求 6	√			
毕业要求 7	√			√
毕业要求 8	√			
毕业要求 9	√		√	
毕业要求 10	√		√	√
毕业要求 11		√	√	
毕业要求 12	√			√

五、专业主干课程

电路分析基础、模拟电子技术、数字电子技术、通信电子电路、信号与系统、数字信号处理、信息论基础、通信原理、电磁场与电磁波、微机原理与应用、数字系统设计、电子系统设计、网络技术及应用、数字图像处理。

V. Core courses

Circuit Analysis Basis, Analog Electronics Technology, Digital Electronics Technology, Electronic Circuit for Communications, Signals and Systems, Digital Signal Processing, Fundamentals of Information Theory, Principles of Communications, Electromagnetic Field and Electromagnetic Wave, Principles and Applications of Microcomputer, Digital System Design, Integrated Design of Electronic Systems, Techniques and Applications of Computer Networks, Digital Image Processing.

六、基本学制：四年

VI. Recommended length of the program: 4 years
七、授予学位：工学学士

学生修满所规定的最低毕业学分，符合武汉科技大学授予学士学位规定，授予工学学士学位。

VII. Degree: Bachelor of Engineering

Students who have acquired minimum credits for graduation will be awarded Degree of Bachelor of Science in Engineering subjected to the Bachelor Degree Awarding Regulations of Wuhan University of Science and Technology.

八、毕业学分要求：160学分

课程类型		学分要求	课程类型		学分要求
1、公共课程平台		41	3、专业课程模块		50.5
公共基础课程		28	专业必修课程		38
通识教育课程	必修	7	专业选修课程		12.5
	选修	6	4、实践教学模块		20
2、学科基础平台		42.5	大类实践课程		3
大类学科基础课程	必修	22	专业实践课程	必修	17
	选修	0		选修	0
专业学科基础课程	必修	20.5	5、素质拓展模块		6
	选修	0			

*通识教育选修课6学分包括：理工类、医学类、人文社科类、经济管理类中选择2学分（学生在本专业所属类别外的3个类中选择2个学分）；思想政治及新时代素质教育类选择2学分（“四史”1个学分，国家安全教育1个学分）；美育教育类选择2学分（美学和艺术史论类、艺术鉴赏和评论类课程至少选修1个学分）。

VIII. Credits required for graduation: 160 credits

Type of courses		Academic credits	Type of courses		Academic credits
1. Common Courses		41	3. Specialized Courses		50.5
Common Basic Courses		28	Required Courses		38
General Education Courses	Required Courses	7	Elective Courses		12.5
	Elective Courses	6	4. Practicum and Internship Courses		20
2. General Disciplinary Courses		42.5	Large Category Practical Courses		3
Large Category Basic Courses	Required Courses	22	Disciplinary Practical Courses	Required Courses	17
	Elective Courses	0		Elective Courses	0
Disciplinary Basic Courses	Required Courses	20.5	5. Quality Development Courses		6
	Elective Courses	0			

九、学分比例

IX. Ratio of Credits

1、必修选修学分比例

The proportion of compulsory elective credits

类别	学分	占总学分比例
必修	141.5	88.4%
选修	18.5	11.6%

2、实践教学环节学分比例

The Proportion of credits in practice teaching

类别		学分	占总学分比例
实践教学环节	实验教学学分	19.6	28.5%
	实践教学模块	20	
	素质拓展模块	6	

十、辅修

修读本专业辅修课程达到26学分且主修专业达到毕业要求者，颁发辅修专业证书。修读本专业辅修课程达到40学分（含实践教学），并达到辅修学位授予条件的，颁发辅修学位证书。

X. Minor

The minor certificate will be issued to those who have completed 26 credits of minor courses of their own major and their major has met the graduation requirements. The minor degree certificate will be issued to those who have completed 40 credits of minor courses (including practical teaching) and meet the conditions for awarding minor degree.

十一、毕业要求实现矩阵

XI. Graduation Realization Matrix

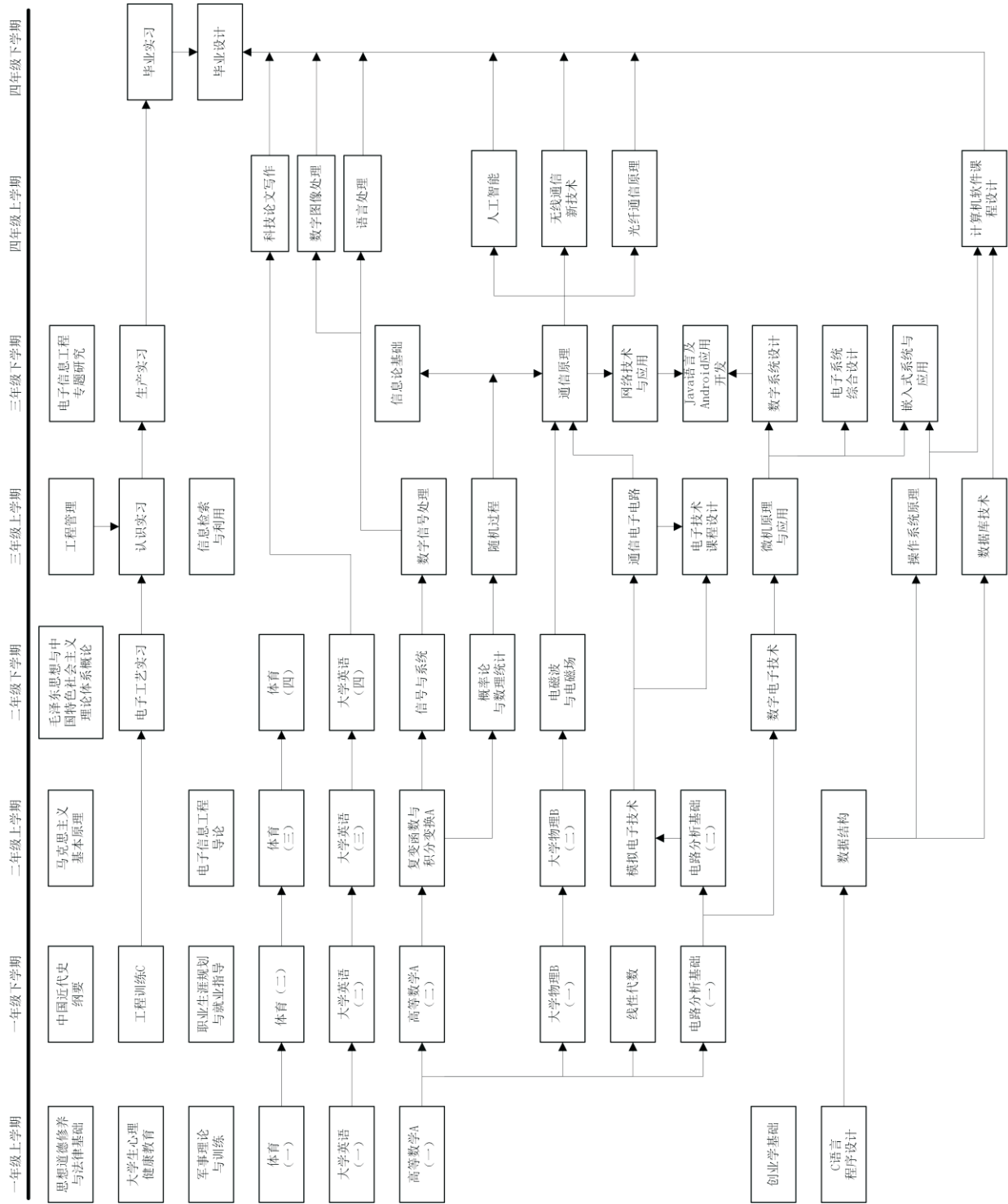
课程体系对毕业要求的支撑矩阵表

毕业要求 课程名称	1				2				3				4				5			6		7		8			9		10		11		12	
	1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4	3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4	5-1	5-2	5-3	6-1	6-2	7-1	7-2	8-1	8-2	8-3	9-1	9-2	10-1	10-2	11-1	11-2	12-1	12-2
思想道德与法治												L								H						L								
中国近现代纲要																								M						L				
马克思主义基本原理																							H											L
毛泽东思想和中国特色社会主义理论体系概论												L										M			L									
大学生心理健康教育																									M		M							
大学英语							M																						M					M
体育																								M			L						L	
职业生涯规划与就业指导																									M								M	
军事理论与训练																								L				M					M	
公益劳动																												L						
形势与政策																					M			L									L	
高等数学 A	H				L																													
大学物理	M				L								M																					
大学物理实验													L											L										
C 语言程序设计														M																		L		
C 语言程序设计实验														L			M															L		
电路分析基础	M					L								M																				
概率论与数理统计	M																																M	
电路分析基础实验		M					L								M			H																
线性代数													M																					
复变函数与积分变换		L				M																												
模拟电子技术		H				H			M										L															
模拟电子技术实验		M												M			M																	
数字电子技术			M			H			M									M																
数字电子技术实验						L								M			M																	
信号与系统		H											H				L												L					
数字信号处理				H				H								M		L																

毕业要求 课程名称	1				2				3				4				5			6		7	8				9		10			11		12	
	1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4	3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4	5-1	5-2	5-3	6-1	6-2	7-1	7-2	8-1	8-2	8-3	9-1	9-2	10-1	10-2	10-3	11-1	11-2	12-1	12-2
微机原理与应用								M				M									M											M			
微机原理与应用实验								L					M				H																		
通信原理			H					M								M														H					M
数据结构								M	M										M																
电磁场与电磁波			H																	L		M								M					
信息论基础			M		M							L				L																			
通信电子电路				M										H						M															
网络技术的应用							M				L								M										M						
数字系统设计											H					L				M											L				
工程训练 C											L														H		M								
软件设计与开发课程设计											M						H													M				H	
认识实习																						M							M			M			
信号处理与分析课程设计				H		M					H					H							M												
电子技术课程设计					H						H											H							H						
通信系统设计与分析课程设计				M							M					M			M																M
创新创业实践											M											M						M							
电子信息工程导论																				M		L				M									
毕业实习												M									L				M		M	H				M			
毕业设计												H		H			M								H					M		H		H	
工程概论	L									L															M							H			
生产实习											M										M		M					H							
电子工艺实习																							H										L		
数字图像处理								M						M																	M				
电子系统综合设计								H		H									H		H					M		H			H				
创业学基础																												M				M			

十二、课程修读进程表
(四年制本科 2024级 电子信息工程专业)

XII. Course Reading Progress Table



通信工程专业培养方案

Curriculum for Undergraduate of Communications Engineering Major

一、专业介绍

依托我校1958年“工业企业电气化”和1981年“控制理论与控制工程”硕士点师资以及1998年“电子信息工程”本科专业师资，2014年开办了“通信工程”本科专业并招生。本专业开办本科10年来，已培养近800名通信工程专门人才。2018年获批信息与通信工程一级学科硕士点、电子信息类专业学位授权点。专任教师33人，其中教授9人，副教授、高级工程师17人，讲师7人。楚天学者1人、楚天学子4人，中国爱思唯尔高被引学者3人，88%人员具有博士学位。2021年通信工程正式获批为湖北省一流本科专业建设点。

I. Introduction

Building upon the faculty resources from the university's master's programs in Industrial Enterprise Electrification (established in 1958) and Control Theory and Control Engineering (established in 1981), as well as the undergraduate program in Electronic Information Engineering (launched in 1998), the undergraduate program in Communication Engineering was introduced in 2014 and began enrolling students. Over the past decade, the program has trained nearly 800 specialized professionals in communication engineering. In 2018, it was authorized as a first-level discipline master's program in Information and Communication Engineering and approved for a professional master's degree program in Electronic Information. The program has 33 full-time faculty members, including 9 professors, 17 associate professors or senior engineers, and 7 lecturers. Among them, 88% hold doctoral degrees. The team includes one Chutian Scholar, four Chutian Young Scholars, and three Elsevier Highly Cited Researchers. In 2021, the Communication Engineering program was officially recognized as a Hubei Province First-class Undergraduate Program Construction Site.

二、培养目标

培养德、智、体、美、劳全面发展的，具有扎实的数理基础和通信工程专业基础，具有较强的复杂电子、信息与通信系统分析、设计和解决问题能力，具有创新创业精神、较强的社会责任感、良好的工程职业道德以及一定的国际视野，能在通信工程及相关领域从事研究、设计、开发、制造、运营、维护和管理等工作，并能适应未来职业发展和社会需求的拔尖创新型人才。

期待毕业生五年左右达到以下目标：

1. 具备扎实的数学、自然科学基础知识，良好的人文社会科学素养、较强的社会责任感和良好的职业道德；
2. 系统掌握通信工程专业基础理论与技术，能对电子、信息与通信相关的复杂工程项目给出系统的解决方案，具有良好的工程设计和技术开发能力，能胜任电子、信息与通信产品的研究、设计、开发、制造、运维工作和管理等相关工作；
3. 具备良好的表达能力、沟通能力、独立工作能力、团队合作能力和组织管理能力；
4. 具备创新创业精神、发展观、良好的自主学习和终身学习的习惯及能力，能够适应不断变化的形势和环境；

5. 具有一定的国际视野和良好的外语应用能力。

II. Training Objectives

This major aims to cultivate innovative talents in research talents with all-round development of moral, intellectual, physical, aesthetics and labor education, solid foundation of both mathematics, physics, electronics information and communication, equipped with good abilities of analyzing, designing and solving problems in complicated electronics, information and communication systems, who behave good innovative and pioneering spirit, social responsibility, professional ethics, international view, and are capable of conducting research, design, development, manufacture, operation, maintenance, management in the field of Communication Engineering or related ones, adapting to the career development and social demands in the future.

Undergraduate students are expected to achieve the following objectives in about five years:

1. Be equipped with solid foundation of mathematics and natural science, good humanistic accomplishment, social responsibility and professional ethics;
2. Systematically master the basic theory and technology of Communication Engineering, be capable to find solutions to complicated engineering problems in designing electronics, information and communication systems, have good abilities of engineering design the technical development, can undertake jobs of research, design, development, manufacture, operation, maintenance, management of electronics and information products;
3. Have good ability of expression, communication, independent work, team cooperation and organization management;
4. Behave good innovative and pioneering spirit, form the habit of self and lifelong learning, adapt the changing circumstances and environment;
5. Have international vision and good foreign language application ability.

三、专业特色

本专业所在单位2023年作为副理事单位加入“全国移动通信产教融合共同体”。本专业拥有教育部“互联网+中国制造2025”产教融合创新基地、湖北省电工电子实验教学示范中心、建设首批“互联网+中国制造2025”教育部产教融合创新基地，获批首批“新工科”研究与实践项目等一流本科教学平台。已在多媒体信息处理与通信、信号与信息处理、下一代无线通信技术与系统、自主导航与空间通信、物联网与移动互联网等方向形成专业特色，为通信、人工智能、冶金行业和区域经济发展，打造新时代高素质应用型一流人才。

III. Major characteristics

In 2023, the program's hosting unit became a deputy council member of the National Industry-Education Integration Community for Mobile Communications. The program features several leading undergraduate teaching platforms, including the Ministry of Education's Industry-Education Integration Innovation Base for "Internet+ Made in China 2025" and the Hubei Province Electrical and Electronic Experimental Teaching Demonstration Center. It is also among the first to establish "Internet+ Made in China 2025" Industry-Education Integration Innovation Bases approved by the Ministry of Education and has been selected for pioneering "New Engineering" Research and Practice Projects. The program has established distinctive strengths in multimedia information processing and communication, signal and information processing, next-generation wireless communication technologies and systems, autonomous navigation and space communication, as well as the Internet of Things (IoT) and mobile internet. It is dedicated to cultivating high-caliber, application-oriented talents

to meet the demands of the modern era, serving industries such as telecommunications, artificial intelligence, metallurgy, and regional economic development.

四、毕业要求

毕业要求	指标点（36个）
1. 工程知识：能够将数学、自然科学、工程基础和专业知识用于解决复杂工程问题。	（1）掌握数学、自然科学知识，理解并掌握重要数学、物理思想及方法。
	（2）理解通信系统问题的物理本质，并能利用数学和自然科学知识对其进行合理表述。
	（3）掌握工程基础知识，理解其在通信系统建模、分析和设计中的应用。
	（4）掌握专业知识，理解其在解决复杂通信系统工程问题中的作用。
2. 问题分析：能够应用数学、自然科学和工程科学的基本原理，识别、表达、并通过文献研究分析复杂工程问题，以获得有效结论。	（1）能够运用数学、自然科学、工程科学的基本原理，识别、判断、描述复杂通信系统中的工程问题。
	（2）能够应用工程科学的基本原理和工程建模方法，对通信系统中的复杂工程问题进行建模。
	（3）能够通过文献检索分析通信系统中复杂工程问题，寻求解决问题的多种可能方案。
	（4）能够对通信系统的复杂工程问题的解决方案进行分析和评估，获得有效结论。
3 设计 / 开发解决方案：能够设计针对复杂工程问题的解决方案，设计满足特定需求的系统、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。	（1）掌握通信系统和产品设计/开发全周期、全流程、全要素的基本方法和技术，能够提出通信系统中复杂工程问题的解决方案。
	（2）能够按照通信系统复杂工程问题的解决方案设计通信系统、单元（部件）或工艺流程。
	（3）在通信系统复杂工程问题的设计环节中，能应用新知识、新理论、新方法、新技术，体现创新意识。
	（4）能够在通信系统设计/开发过程中考虑社会、健康、安全、法律、文化及环境等影响因素。
4 研究：能够基于科学原理并采用科学方法对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。	（1）针对通信工程领域复杂工程问题，能够基于科学原理，通过调研和文献研究，确定研究路线；了解科学研究的全过程。
	（2）能够根据对象特征，设计用于研究通信系统复杂工程问题的实验方案。
	（3）能够根据实验方案构建实验系统，安全地开展实验，正确地采集、整理实验数据。
	（4）能够对实验数据进行分析和解释，并通过信息综合得到合理有效的结论。
5 使用现代工具：能够针对复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，包括对复杂工程问题的预测与模拟，并能够理解其局限性。	（1）掌握通信工程领域常用仪器、信息技术工具、现代工程工具和仿真软件的原理、使用方法和适用条件。
	（2）能够运用硬件基础知识及相关技术，选择和使用恰当的仪器和现代工程工具，对通信系统复杂工程问题进行模拟、分析和测试，设计 / 开发硬件模拟系统，并理解其局限性。
	（3）能够运用软件基础知识及相关技术，选择和使用恰当的信息资源和仿真软件等，对通信系统中的复杂工程问题进行软件仿真、预测与分析，并理解其局限性。

毕业要求	指标点（36个）
6. 工程与社会：能够基于工程相关背景知识进行合理分析，评价专业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。	（1）了解通信工程相关领域的技术标准体系、知识产权、产业政策和法律法规，理解不同社会文化对通信工程实践活动的影响；
	（2）能够分析和评价通信工程实践活动对社会、健康、安全、法律、文化的影响，以及上述制约因素对项目实施的影响，并理解应承担的责任。
7. 环境和可持续发展：能够理解和评价针对复杂工程问题的工程实践对环境、社会可持续发展的影响。	（1）树立科学发展观，了解国家环境保护相关法律法规，理解社会可持续发展的重要性、内涵和意义；
	（2）能够站在环境保护和可持续发展的角度思考通信工程实践的可持续性，正确评价产品周期中可能对人类和环境造成的损害和隐患。
8. 职业规范：具有人文社会科学素养、社会责任感，能够在工程实践中理解并遵守工程职业道德和规范，履行责任。	（1）形成正确的世界观、人生观，具有人文社会科学素养和健康体魄，了解国情国史和国际形势；
	（2）理解诚实公正、诚信守则的工程职业道德和规范，并能在工程实践中自觉遵守；
	（3）理解工程师对公众的安全、健康、福祉，以及环境保护的社会责任，能够在工程实践中自觉履行责任。
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。	（1）理解多学科背景下个人与团队的关系，能与团队中其他学科成员有效沟通交流，合作共事；
	（2）在 multidisciplinary 背景团队中，能够根据分工独立或合作开展工作。能够组织、协调和领导团队开展工作。
10. 沟通：能够就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，并具备一定的国际视野，能够在跨文化背景下进行沟通和交流。	（1）能够就通信工程领域中的专业问题，以口头、文稿、图表等方式，清晰表达自己的观点；理解与业界同行和社会公众交流的差异性，能够进行有效沟通与交流；
	（2）了解通信工程领域的国际发展趋势、研究热点，理解和尊重不同文化的差异性和多样性；
	（3）具备跨文化交流的口头和书面表达能力，能就通信工程领域中的专业问题，在跨文化背景下进行沟通和交流。
11. 项目管理：理解并掌握工程管理原理与经济决策方法，并能在多学科环境中应用。	（1）学习工程管理原理，掌握工程项目涉及的管理与经济决策方法；
	（2）了解工程及产品全周期、全流程的成本构成，理解其中涉及的工程管理与经济决策问题；
	（3）能在多学科环境（包括模拟环境）下，在设计/开发解决方案的过程中，运用工程管理与经济决策方法。
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。	（1）具备自主学习、终身学习的意识，及持续学习的健康体魄；
	（2）具有自主学习、终身学习的能力，包括对技术和非技术问题的理解能力和归纳总结的能力等，以适应社会发展。

IV. Requirements for Graduation

The requirements for graduation and the corresponding index points are illustrated below:

Requirements	Index points
1. Engineering Knowledge: Be able to solve complicated engineering problems with the knowledge of mathematics, natural science, engineering basis and communication engineering major.	Index Point 1-1: Master the knowledge of mathematics and natural science. Comprehend important thoughts and methods of mathematics and physics.
	Index Point 1-2: Comprehend the physical essence of the problems in the communication systems. Be able to express these problems by means of mathematics or natural science knowledge reasonably.
	Index Point 1-3: Master the knowledge of engineering basis. Comprehend its applications in system modeling, analysis and design in communication systems.
	Index Point 1-4: Master the knowledge of electronic and communication engineering major. Comprehend its role in solving complicated problems in the field of communication engineering.
2. Problem Analysis: Be able to apply the basic principles of mathematics, natural science and engineering science, with literature research to recognize, express and analyze complex engineering problems in communication systems to obtain effective conclusions.	Index Point 2-1: Be able to recognize, judge and describe the complicated problems in communication systems by applying the basic principles of mathematics, natural science and engineering science.
	Index Point 2-2: Be able to model the complicated problems in communication systems by applying the basic principles and modeling methods of engineering science.
	Index Point 2-3: Be able to analyze the complex engineering problems in communication systems by literature research to seek a variety of possible solutions to the problems.
	Index Point 2-4: Be able to analyze and estimate the solutions to the complex engineering problems in communication systems to obtain effective conclusions.
3. Design / Development Solutions: Be able to design solutions for complex engineering problems. Be able to design systems, units (parts) or technological process which meet specific needs while embodying innovation in the design process, considering social, health, safety, legal, cultural and environmental factors.	Index Point 3-1: Master basic methods and technology with whole cycle, whole process and whole elements to propose design/development solution for complex engineering problems in communication systems or products.
	Index Point 3-2: Be able to design units (parts), systems or technological process according to the solution of complex engineering problems in communication systems.
	Index Point 3-3: Be able to apply new knowledge, new theories, new methods and new technologies to embody innovation in the design process of complex engineering problems in communication systems.
	Index Point 3-4: Be able to consider social, health, safety, legal, cultural and environmental factors in the design/development of communication systems.
4. Research: Be able to research on complex engineering problems in communication systems based on scientific principles and methods, including designing experiments, analyzing and interpreting data, obtaining reasonable and effective conclusions through information synthesis.	Index Point 4-1: Be able to determine research route for complex engineering problems in communication systems based on scientific principles and literature research. Understand the whole process of scientific research.
	Index Point 4-2: Be able to design experiments for complex engineering problems in communication systems according to the features of objects.
	Index Point 4-3: Be able to build experimental systems according to the experimental schemes to carry out the experiments safely. Be able to collect and sort out the experimental data correctly.
	Index Point 4-4: Be able to analyze and interpret data, obtain reasonable and effective conclusions through information synthesis.
5. Application of Modern Tools: Be able to develop, select and use appropriate technologies, resources, modern engineering tools and information technology tools, including the prediction and simulation of complex engineering problems in communication systems. Be able to understand the limitations.	Index Point 5-1: Master the principles, usage and applicable conditions of common instruments, information technology tools, modern engineering tools and simulation software in the field of communication engineering.
	Index Point 5-2: Be able to choose appropriate instruments and modern engineering tools by applying fundamental hardware knowledge and related technologies to simulate, analyze and test complex engineering problems in communication systems, design / develop hardware simulation systems and understand the limitations.
	Index Point 5-3: Be able to choose and use appropriate information resource and simulation software by applying fundamental software knowledge and related technologies to simulate, predict and analyze complex engineering problems in communication systems, and understand the limitations.

Requirements	Index points
6. Engineering and Society: Be able to conduct rational analysis based on engineering-related background knowledge, evaluate the impacts of the engineering practice and complex engineering problems solutions on society, health, safety, law and culture. Understand the responsibility in this process.	Index Point 6-1: Understand technical standard, intellectual property, industrial policies, laws and regulations in the fields of communication engineering. Comprehend the impact of different social cultures on the practical activities of communication engineering.
	Index Point 6-2: Be able to analyze and evaluate the impact of the communication engineering practice on society, health, safety, law and culture, as well as the impact of the above constraints on project implementation. Understand the responsibilities in this process.
7. Environment and Sustainable Development: Be able to comprehend and evaluate the impact of engineering practices on complex engineering problems in the field of electronics and information on environment and social sustainable development.	Index Point 7-1: Establish scientific development concepts. Understand the related national policies and regulations of environmental protection. Comprehend the importance, connotation and significance of social sustainable development.
	Index Point 7-2: Be able to consider the sustainability of communication engineering practice from the perspective of environmental protection and sustainable development. Be able to evaluate the possible damage and hidden dangers to humans and the environment correctly in the product cycle.
8. Professional Ethics and Norms: Have humanistic accomplishment, social science literacy and social responsibility. Understand and abide by engineering professional ethics and conduct code in the engineering practice, and fulfill the responsibilities.	Index Point 8-1: Foster a correct outlook on the world and life. Have humanistic and social scientific literacy. Have healthy physique. Understand the situation and history of China, as well as international situation.
	Index Point 8-2: Comprehend the engineering professional ethics and conduct code of honesty, justice, integrity, and regulation-abiding. Be able to consciously abide by them in engineering practice.
	Index Point 8-3: Comprehend the social responsibility of engineers for public safety, health, well-being and environmental protection. Be able to consciously fulfill their responsibilities in engineering practice.
9. Individual and Teamwork: Be able to take different roles of an individual, a team member, and principal in multidisciplinary teams.	Index Point 9-1: Comprehend the relationship between individuals and teams against multidisciplinary background. Be able to communicate and cooperate with other discipline members in the team.
	Index Point 9-2: Be able to work independently or cooperatively according to the division of labor in a team with multi-disciplinary background. Be able to organize, coordinate and lead the team to work.
10. Communication: Be able to communicate effectively with industry peers and the public on complex engineering problems of communication systems, including writing reports and design manuscripts, presentation, clearly expressing or responding to directives. Have a certain international perspective, be able to communicate in a cross-cultural context.	Index Point 10-1: Be able to clearly express their views on professional issues in the field of communication engineering in the form of oral, manuscript, chart and so on. Understand the differences between communicating with peers in the industry and with the public. Be able to communicate effectively.
	Index Point 10-2: Understand the developing trend and research hotspots of the field of communication engineering. Understand and respect the differences and diversity of different cultures.
	Index Point 10-3: Have the abilities to communicate orally and in writing in a cross-cultural context. Be able to communicate and exchange professional issues in the field of communication engineering in a cross-cultural context.
11. Project Management: Understand and master the principles of engineering management and economic decision-making methods. Be able to apply the principles and methods in a multidisciplinary environment.	Index Point 11-1: Learn the principles of engineering management. Master the management and economic decision-making methods related to engineering projects.
	Index Point 11-2: Understand the cost composition of the whole cycle and whole process of engineering and products. Comprehend the engineering management and economic decision-making problems involved.
	Index Point 11-3: Be able to apply the principles of engineering management and economic decision-making methods in the process of designing / developing solutions in multidisciplinary environment (including simulation environment).
12. Lifelong Learning: Have the consciousness of independent learning and lifelong learning. Have the ability of lifelong learning and to adapt to development.	Index Point 12-1: Have the consciousness of independent learning and lifelong learning. Have a healthy physique for lifelong learning.
	Index Point 12-2: Have the ability of independent learning and lifelong learning, including the ability to understand and summarize technical and non-technical problems to adapt to social development.

附：培养目标实现矩阵

本专业毕业要求	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
毕业要求 1	√				
毕业要求 2		√			
毕业要求 3		√			
毕业要求 4		√			
毕业要求 5		√			
毕业要求 6	√				
毕业要求 7	√			√	
毕业要求 8	√				
毕业要求 9			√		√
毕业要求 10					√
毕业要求 11			√		
毕业要求 12				√	

The Supporting Matrix of Requirements for graduation to Training Objectives

Requirements for Graduation	Training Objective 1	Training Objective 2	Training Objective 3	Training Objective 4	Training Objective 5
Requirement 1	√				
Requirement 2		√			
Requirement 3		√			
Requirement 4		√			
Requirement 5		√			
Requirement 6	√				
Requirement 7	√			√	
Requirement 8	√				
Requirement 9			√		√
Requirement 10					√
Requirement 11			√		
Requirement 12				√	

五、专业主干课程

电路分析基础、模拟电子技术、数字电子技术、通信电子电路、连续时间信号与系统、数字信号处理、信息论与编码理论、通信原理、电磁场与电磁波、微机原理与应用、网络技术及应用。

V. Core courses

Circuit Analysis Basis, Analog Electronics Technology, Digital Electronics Technology, Continuous-time Signals and Systems, Digital Signal Processing, The Theory of Information and Coding, Principle of Communications, Electromagnetic Fields and Waves, Principles and Applications of Microcomputer, Techniques and Applications of Computer Networks.

六、基本学制：四年

VI. Recommended length of the program: 4 years

七、授予学位：工学学士

VII. Degree: Bachelor of Engineering

学生修满所规定的最低毕业学分，符合武汉科技大学授予学士学位规定，授予工学学士学位。

Students who have acquired minimum credits for graduation will be awarded the Bachelor Degree of Engineering subjected to the Bachelor Degree Awarding Regulations of Wuhan University of Science and Technology.

八、毕业学分要求：160学分

课程类型		学分要求	课程类型		学分要求
1、公共课程平台		41	3、专业课程模块		49.5
公共基础课程		28	专业必修课程		33
通识教育课程	必修	7	专业选修课程		16.5
	选修	6	4、实践教学模块		21
2、学科基础平台		42.5	大类实践课程		3
大类学科基础课程	必修	22	专业实践课程	必修	18
	选修	0		选修	0
专业学科基础课程		20.5	5、素质拓展模块		6

*通识教育选修课6学分包括：理工类、医学类、人文社科类、经济管理类中选择2学分（学生在本专业所属类别外的3个类中选择2个学分）；思想政治及新时代素质教育类选择2学分（“四史”1个学分，国家安全教育1个学分）；美育教育类选择2学分（美学和艺术史论类、艺术鉴赏和评论类课程至少选修1个学分）。

VIII. Credits required for graduation: 160 credits

Type of courses		Academic credits	Type of courses		Academic credits
1.Common Courses		41	3. Specialized Courses		49.5
Common Basic Courses		28	Required Courses		33
General Education Courses	Required Courses	7	Elective Courses		16.5
	Elective Courses	6	4.Practicum and Internship Courses		21
2.General Disciplinary Courses		42.5	Large Category Practical Courses		3
Large Category Basic Courses	Required Courses	22	Disciplinary Practical Courses	Required Courses	18
	Elective Courses	0			0
Disciplinary Basic Courses		20.5	5. Quality Development Courses		6

九、学分比例

XI、Ratio of Credits

1.必修选修学分比例

The proportion of compulsory elective credits

类别	学分	占总学分比例
必修	137.5	85.9%
选修	22.5	14.1%

2.实践教学环节学分比例

The Proportion of credits in practice teaching

类别		学分	占总学分比例
实践教学环节	实验教学学时	18.7	28.56%
	实践教学模块	21	
	素质拓展模块	6	

十、辅修

修读本专业辅修课程达到26学分且主修专业达到毕业要求者，颁发辅修专业证书。修读本专业辅修课程达到40学分（含实践教学），并达到辅修学位授予条件的，颁发辅修学位证书。

X. Minor

The minor certificate will be issued to those who have completed 26 credits of minor courses and their own major has met the graduation requirements. The minor degree certificate will be issued to those who have completed 40 credits of minor courses (including practical teaching) and meet the conditions for awarding minor degree.

十一、毕业要求实现矩阵

XI. Graduation Realization Matrix

课程体系对毕业要求的支撑矩阵表

毕业要求 课程名称	1				2				3				4				5			6		7		8			9		10			11		12		
	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7	8	8	8	9	9	10	10	10	11	11	11	12	12
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	1	2	1	2	1	2	3	1	2	-	1	2	3	1	2	1	2
思想道德与法治												L								H					L											
中国近现代纲要																								M							L					
马克思主义基本原理																								H												L
毛泽东思想和中国特色社会主义理论体系概论												L										M			L											
大学生心理健康教育																								M		M										
大学英语							M																							M						M
体育																								M			L								L	
职业生涯规划与就业指导																									M										M	
军事理论与训练																								L				M							M	
公益劳动																												L								
形势与政策																				M				L											L	
高等数学 A	H				L																															
大学物理	M				L								M																							
大学物理实验													L											L												
C 语言程序设计														M																				L		
C 语言程序设计实验														L			M																	L		
电路分析基础	M					L								M																						
概率论与数理统计	M																																		M	
电路分析基础实验		M					L								M			H																		
线性代数													M																							
复变函数与积分变换		L			M																															
模拟电子技术		H				H			M										L																	
模拟电子技术实验		M													M		M																			

毕业要求 课程名称	1				2				3				4				5			6		7		8			9		10		11		12				
	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7	8	8	8	9	9	10	10	10	11	11	11	12	12	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	2	2
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	1	2	1	2	1	2	3	1	2	-	-	-	-	-	-	-	-	-
数字电子技术			M			H			M								M																				
数字电子技术实验						L									M	M																					
连续时间信号与系统		H											H				L													L							
数字信号处理				H				H							M	L																					
微机原理与应用								M				M								M												M					
微机原理与应用实验								L					M				H																				
通信原理			H					M							M																H					M	
数据结构								M	M										M																		
电磁场与电磁波			H																	L	M										M						
信息论与编码理论			M		M							L				L																					
通信电子电路				M											H				M																		
网络技术及应用							M			L									M											M							
信号与系统实验				L				H						H				M																			
现代管理理论与方法									M																								M	M			
工程训练 C											L															H		M									
软件设计与开发课程设计										M							H														M				H		
认识实习																						M							M				M				
信号处理与分析课程设计				H		M						H				H							M														
微机原理与应用课程设计				M								H				M																					
通信系统设计与分析课程设计				M								M				M		M																		M	
通信系统综合课程设计				M								M				M		M																		M	
创新创业实践											M											M					M										
通信工程导论																				M		L				M											
毕业实习												M									L					M		M	H				M				
毕业设计(论文)												H	H				M									H					M		H		H		
生产实习												M									M	M					H										

毕业要求 课程名称		1				2				3				4				5			6		7		8			9		10			11		12	
		1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7	8	8	8	9	9	1	1	1	1	1	1	
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	1	1	1	1
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	1	2	1	2	1	2	3	1	2	1	2	3	1	2	1	2
电子工艺实习																							H											L		
数字图像处理							M						M																	M						

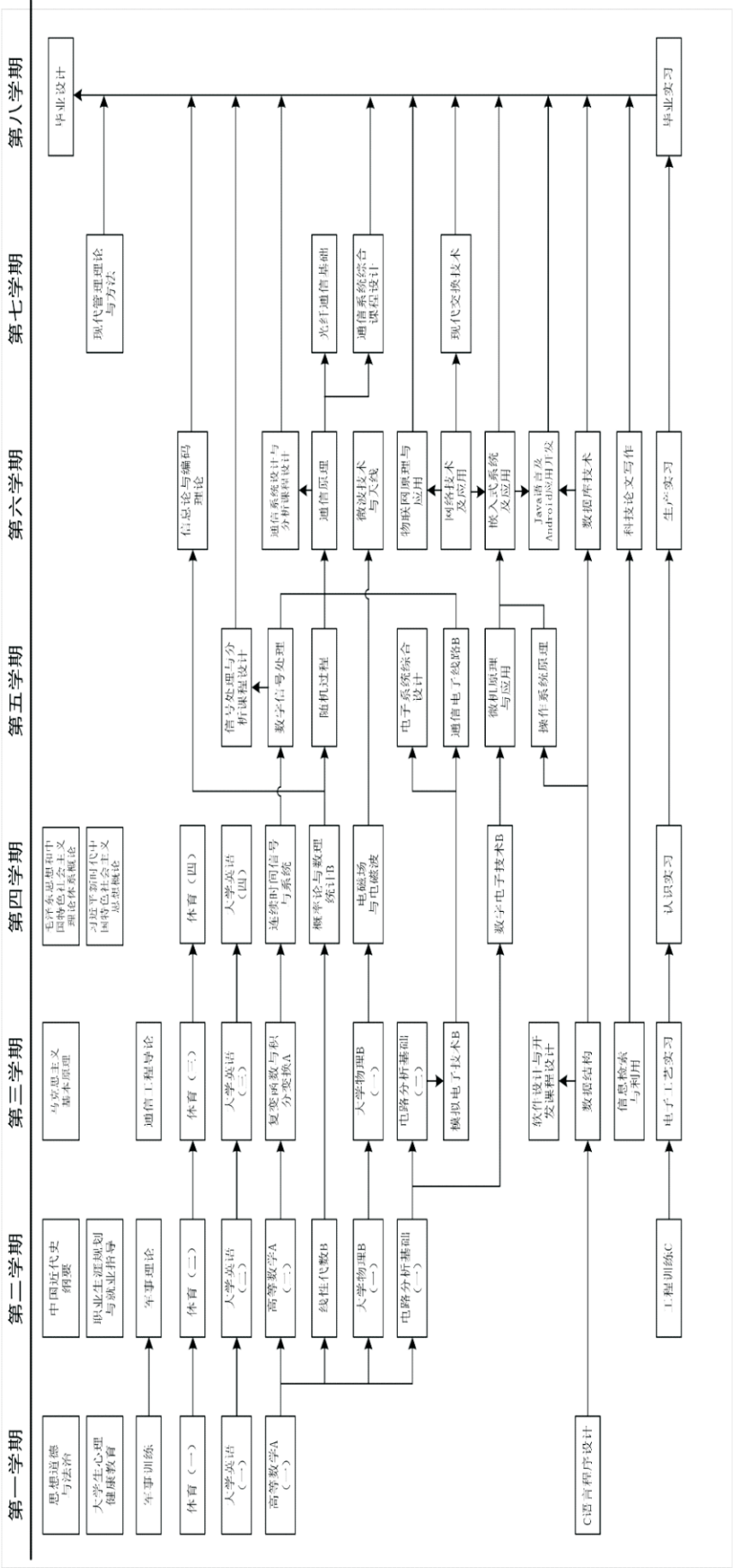
通信工程专业

2024级

（四年制本科）

十二、课程修读进程表

XII. Course Reading Progress Table



电子科学与技术专业培养方案

Curriculum for Undergraduate of Electronic Science and Technology Major

一、专业介绍

本专业源自武汉科技大学1998年设立的“电子信息工程”专业。2017年鉴于国家战略性新兴产业——集成电路国产替代的迫切性，为充分发挥我校本科教育的优势，面向市场需求，以集成电路及电子信息系统设计为目标，开办电子科学与技术专业并招生。目前有专任教师16人，其中教授3人，副教授10人，讲师3人，100%人员具有博士学位。拥有省级人才5人，爱思唯尔中国高被引学者2人。

I. Major Introduction

This major originates from the “Electronics and Information Engineering” specialty established by Wuhan University of Science and Technology in 1998. In 2017, in view of the urgency of domestic substitution for the national strategic industry of integrated circuits, in order to fully leverage the advantages of our undergraduate education and meet market demand, with the goal of designing integrated circuits and electronic information systems, the Electronic Science and Technology major was established and enrolled. At present, there are 16 full-time teachers, including 3 professors, 10 associate professors, and 3 lecturers. 100% of the personnel have doctoral degrees. 5 provincial-level talents and 2 highly cited scholars from Elsevier China are teaching in this major.

二、培养目标

本专业旨在培养思想素质高、基础扎实、实践能力强、德、智、体、美、劳全面发展，以集成电路及电子信息系统设计为目标，培养掌握集成电路设计的基本理论、基本方法及EDA工具使用，具备一定的国际视野。能在集成电路及系统集成相关领域从事科学研究、工程设计、技术开发、项目管理等工作的卓越应用型人才。

期待毕业生五年左右达到以下目标：

1. 具备扎实的数学、自然科学基础知识，良好的人文素养、社会责任感和职业道德；
2. 掌握电子科学与技术专业所必需的基础理论和技术，能够设计电子科学与技术及相关领域复杂工程问题解决方案，具备承担电子科学与技术相关领域工程项目的能力；
3. 具有文献检索和资料查询的能力，了解电子科学与技术前沿动态和发展趋势；
4. 具有良好的表达和沟通能力以及团队合作和组织管理能力；
5. 具备良好的主动发展意识、创新创业精神与自主终身学习能力；
6. 具有国际视野和良好的外语应用能力。

II. Training objectives

This major aims to cultivate high-quality applied talents with high-quality thinking, solid foundation, practical ability, and strong moral, intellectual, physical, aesthetic and labor all-round development. Targeted to design integrated circuit and all sorts of electronic information systems, this program aims at training advanced talents who can grasp fundamental integrated circuit theories, methods and EDA tools, and have a certain international vision. These excellent applied talents can meet the demands of scientific research, engineering design, technique development, project management for the integrated circuit and system and its related fields.

Graduates of this major are expected to achieve the following goals in five years:

1. Be equipped with solid mathematical, basic knowledge of natural science, good humanistic accomplishment, social responsibility and professional ethics;
2. Master the basic theory and technology of the field of electronic science and technology, have the ability to design solutions for complex engineering problem in the field of electronic science and technology and its related fields. Can undertake engineering projects in the related fields of electronic science and technology;
3. Have the ability of literature retrieval and data inquiry; understand the frontier of electronic science and technology and its development trend;
4. Have good command and communication skills, teamwork and organization and management skills;
5. Have a good sense of initiative development, innovative and pioneering spirit, and have the ability of independent lifelong learning;
6. Have international vision and good foreign language application ability.

三、专业特色

电子科学与技术专业依托国家“新一代信息技术创新”重大战略部署，汇聚了包括集成电路与系统创新实验室、电子科学与技术基础实验室、集成电路设计与仿真实验室等教学和科研平台等教学资源，构筑了一流的教学与科研环境。该专业在集成电路设计、微纳电子器件、光电子技术与器件、射频与微波工程等前沿领域形成了鲜明的专业特色。毕业生深受国内外知名企业和科研院所青睐，就业率与深造率处于较好水平，社会评价良好。

III. Major characteristics

Relying on the major strategic deployment of the national “New Generation of information Technology innovation”, the major of Electronic Science and Technology has assembled teaching resources including Integrated Circuit and System Innovation Laboratory, Electronic Science and Technology Basic Laboratory”, Integrated Circuit Design and Simulation Laboratory, and other teaching and research platforms, and built a first-class teaching and research environment. The major has formed distinct professional characteristics in the frontier fields of integrated circuit design, micro and nano electronic devices, optoelectronic technology and devices, radio frequency and microwave engineering. Graduates are favored by well-known enterprises and research institutes at home and abroad, and the employment rate and further study rate are at a good level, and the social evaluation is good.

四、毕业要求

毕业要求及其对应的观测指标点如下：

专业毕业要求	毕业要求观测指标点
毕业要求 1（工程知识）：能够将数学、自然科学、工程基础和电子科学与技术专业知识用于解决复杂工程问题。	指标点 1-1：
	掌握数学和自然科学知识，领会重要数学、物理思想方法。
	指标点 1-2：
	能够运用工程基础理论，建立电子信息系统工作过程的模型并进行推理，并采用适当的方法进行分析。
	指标点 1-3：
	获得并可运用电子科学与技术专业知识，以解决电子科学与技术领域复杂工程问题。

专业毕业要求	毕业要求观测指标点
毕业要求 2（问题分析）：能够应用数学、自然科学和工程科学的基本原理，识别、表达、并通过文献研究分析电子信息系统中的复杂工程问题，以获得有效结论。	指标点 2-1：
	能够使用数学、物理知识，选择与使用适当的方法描述电子信息系统中的复杂工程问题。
	指标点 2-2：
	能够通过文献检索分析电子信息系统中复杂工程问题，寻求解决问题的初步方案。
	指标点 2-3：
	通过应用电子科学与技术专业知识和原理，分析、选择与设计可行的工程问题解决方案并验证其合理性。
毕业要求 3（设计/开发解决方案）：能够针对电子科学与技术领域复杂工程问题提出解决方案，设计满足特定需求的单元（部件）、系统或工艺流程，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。	指标点 3-1：
	掌握典型电子信息系统及部件的设计方法。
	指标点 3-2：
	掌握典型电子信息系统及部件的实现技术。
	指标点 3-3：
	能够针对电子科学与技术领域复杂工程问题提出解决方案，能够在设计与实践环节中获得创新意识。
毕业要求 4（研究）：能够基于科学原理并采用科学方法对电子科学与技术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。	指标点 3-4：
	能够在社会、健康、安全、环境等因素的约束下对电子科学与技术领域复杂工程研发方案的可行性进行分析，并提出解决方案。
	指标点 4-1：
	能够根据工程基础知识与科学原理，确定器件和材料，设计并实施基础实验。
	指标点 4-2：
	能够运用专业理论和技术，选择研究路线，设计、构建和实施电子科学与技术领域复杂工程专业实验，了解采用科学方法进行研究的過程。
	指标点 4-3：
	能够正确地采集、整理实验数据与解释数据，对实验结果进行关联。
毕业要求 5（使用现代工具）：能够针对电子科学与技术领域复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，包括对复杂工程问题的预测与模拟，并能够理解其局限性。	指标点 4-4：
	对信息的获取、处理与传输有关的复杂工程问题，能够通过信息分析与综合得到合理有效的结论结果，并能科学解释。
	指标点 5-1：
	针对电子科学与技术领域中复杂工程问题，能够选择恰当的技术、资源和现代工程工具进行方案设计。
	指标点 5-2：
	针对电子科学与技术领域复杂工程问题，能够选择软件仿真工具进行模拟和测试，并理解其适用范围及局限性。
	指标点 5-3：

专业毕业要求	毕业要求观测指标点
	能够运用硬件基础知识及相关技术，设计实验仿真系统，对电子科学与技术领域复杂工程问题进行模拟、分析和测试。
毕业要求 6（工程与社会）：能够基于工程相关背景知识进行合理分析，评价电子科学与技术专业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。	指标点 6-1： 了解电子信息行业的特性，了解电子信息产业相关的方针和政策。
	指标点 6-2： 能够认知、分析和评价所设计电子科学与技术对社会、健康、安全、法律以及文化的影响，并理解应承担的社会责任。
毕业要求 7（环境和可持续发展）：能够理解和评价针对电子科学与技术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。	指标点 7-1： 树立科学发展观，了解国家环境保护相关政策法规，理解社会可持续发展的重要性、内涵和意义。
	指标点 7-2： 能够描述和评价电子科学与技术领域工程实践对环境、社会可持续发展的影响。
毕业要求 8（职业规范）：具有人文社会科学素养、社会责任感，能够在工程实践中理解并遵守工程职业道德和规范，履行责任。	指标点 8-1： 形成正确的世界观、人生观，理解中国发展道路及对个人的意义。
	指标点 8-2： 具有人文社会科学素养、社会责任感，能在工程实践中理解、遵守职业道德和规范，并履行责任。
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。	指标点 9-1： 了解多学科背景下团队的构成以及不同角色成员的职责。
	指标点 9-2： 能共享信息，倾听他人意见，能够在团队中承担团队成员角色，并发挥团队协作精神。
	指标点 9-3： 具有一定组织能力，能够在团队中承担团队负责人的角色，并发挥管理、协调作用。
毕业要求 10（沟通）：能够就信息系统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；并具备一定的国际视野，能够在跨文化背景下进行沟通和交流。	指标点 10-1： 能知悉和跟踪电子科学与技术学科发展趋势，并能与业界同行及社会公众进行有效交流沟通，给出清晰的书面或口头表达或反馈，能撰写报告和设计文稿。
	指标点 10-2： 具备一定的国际视野，能够在跨文化背景下进行有效沟通。
	指标点 10-3： 具有以英语为基础的专业外语听说读写基本能力和英语应用能力。

专业毕业要求	毕业要求观测指标点
毕业要求 11（项目管理）：理解并掌握工程管理原理与经济决策方法，并能在多学科环境中应用。	指标点 11-1：
	学习工程管理原理，理解并掌握工程项目设计流程和管理方法。
	指标点 11-2：
	理解并掌握基本的经济决策方法，能够在电子信息系统设计和生产中考虑经济因素。
	指标点 11-3：
	能将工程管理原理与经济决策方法在 multidisciplinary 环境中应用。
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，树立和践行社会主义核心价值观。	指标点 12-1：
	具备自主学习、终身学习的意识，及持续学习的健康体魄。
	指标点 12-2：
	初步具备持续学习和自主学习能力，以适应社会发展，树立和践行社会主义核心价值观。

IV. Requirements for Graduation

The requirements for graduation and the corresponding index points are illustrated below: electronic science and technology

1. Engineering Knowledge: Be able to solve complicated engineering problems with knowledge of mathematics, natural science, engineering basis and electronic science and technology major.	Index Point 1-1: Master the knowledge of mathematics and natural science, comprehend important thoughts and methods of mathematics and physics.
	Index Point 1-2: Be able to establish and reason models for the working process of electronics information systems, and analyze them with proper methods.
	Index Point 1-3: Acquire and use professional technical knowledge to solve complicated engineering problems in the field of electronic science and technology.
2. Problem Analysis: Be able to apply the basic principles of mathematics, natural science and engineering science, with literature research to analyze and express complex engineering problems in electronics information systems in order to obtain effective conclusions.	Index Point 2-1: Be able to apply the knowledge of mathematics and physics, choose and use proper methods to express the engineering problems in electronics and information systems.
	Index Point 2-2: Be able to analyze complex engineering problems in electronics and information systems, and find preliminary solutions to them through literature retrieval.
	Index Point 2-3: By applying professional knowledge and principles of electronic science and technology major, choose and design practical solutions to engineering problems, and verify their rationalities.
3. Design / Development Solution: Be able to propose solutions for complex engineering problems in the field of electronic science and technology, design units (parts), systems or technological process which meet specific needs while embody innovation in the design process, considering social, health, safety, legal, cultural and environmental factors.	Index Point 3-1: Master basic design technology for typical electronics and information systems.
	Index Point 3-2: Master the realization technology for typical electronics and information systems.
	Index Point 3-3: Acquire innovative consciousness in the process of design and application.
	Index Point 3-4: Be able to analyze the feasibility of the research and develop plan with restraint of realistic factors as society, safety, environment, etc.

4. Research: Be able to research on complex engineering problems in the field of electronic science and technology based on scientific principles and methods, including designing experiments, analyzing and interpreting data, obtaining reasonable and effective conclusions through information synthesis.	Index Point 4-1: Be able to determine the equipment and materials needed to design and implement fundamental experiments based on the engineering knowledge and scientific principles.
	Index Point 4-2: Be able to choose research route, design, construct and implement experiments of the electronic science and technology major by using professional principles and technologies. Understand the research process of using scientific methods.
	Index Point 4-3: Be able to obtain results by analyzing and synthesizing information aiming at the problems in the field of electronic science and technology, and interpret data scientifically.
	Index Point 4-4: Be able to determine the equipment and materials needed to design and implement fundamental experiments based on the engineering knowledge and scientific principles.
5. Application of Modern Tools: Be able to develop, select and use appropriate technologies, resources, modern engineering tools and information technology tools for complex engineering issues in the field of electronic science and technology, including the prediction and simulation of complex engineering problems in automation systems and the ability to understand its limitations.	Index Point 5-1: Be able to choose theoretical tools to design schemes aiming at engineering problems in electronics and information systems.
	Index Point 5-2: Be able to choose software simulation methods aiming at engineering problems in electronics and information systems, and understand their application scope and limitation.
	Index Point 5-3: Be able to design experimental simulation systems by using fundamental and related knowledge of hardware, and predict, analyze and simulate engineering problems in electronics and information systems.
6. Engineering and Society: Have the ability to conduct rational analysis based on engineering-related background knowledge, recognize the impacts that solutions to engineering applications and complex engineering problems in electronic science and technology major may bring to the society, health, safety, law and culture, and understand the responsibility they undertake.	Index Point 6-1: Understand the characteristics of the electronics and information industry, and know the corresponding policy and guidelines.
	Index Point 6-2: Understand the impacts of the designed projects on society, health, safety, law and culture, and the responsibility one may undertake.
7. Environment and Sustainable Development: Have the ability to understand and evaluate the impact of engineering practices on complex engineering problems in the field of electronic science and technology on environment and social sustainable development.	Index Point 7-1: Establish scientific development concepts. Know the related state policy and laws of environmental protection. Understand the importance, connotation and significance of social sustainable development.
	Index Point 7-2: Be able to describe the impact of engineering practices in the field of electronic science and technology on environment and social sustainable development.
8. Professional Ethics and Norms: Be equipped with humanistic & scientific accomplishment, and social responsibility. Understand and comply with engineering ethics and norms in the project practice, and fulfill the responsibilities.	Index Point 8-1: Gain proper concepts of world and life. Understand the developing path China takes and the significance to individuals.
	Index Point 8-2: Be equipped with humanistic & scientific accomplishment, social responsibility and professional ethics.

9. Individual and Teamwork: Have the ability to take the role of an individual, a team member, and person in charge of a multidisciplinary team.	Index Point 9-1: Know the composition of a multidisciplinary team and the responsibilities of different role members.
	Index Point 9-2: Gain the concept of teamwork. Be able to hear and summarize suggestions of different members, and make the reasonable decision.
	Index Point 9-3: Have a certain ability of organizing, be able to take the role of taking charge, managing and adjusting in a team.
10. Communication: Be able to communicate effectively with industry peers and the public on complex engineering problems of information systems, including writing reports, design manuscripts, presenting statements, clearly expressing or responding to directives, and have a certain international perspective, be able to communicate in a cross-cultural context.	Index Point 10-1: Know and follow the developing trend of the subject of electronic science and technology, and communicate effectively with industry peers and the public, giving clear feedbacks in written or oral form.
	Index Point 10-2: Have a certain international perspective, be able to write reports, design manuscripts, and communicate effectively with industry peers and public both home and abroad in a cross-cultural context.
	Index Point 10-3: Have the basic abilities of professional listening, speaking, reading and writing in English.
11. Project Management: Understand, master and apply the principles of engineering management and economic decision-making methods for the projects in multidisciplinary environment.	Index Point 11-1: Learn the principles of engineering management. Know the engineering project design, implement process and management methods.
	Index Point 11-2: Acquire basic knowledge of economics. Be able to take economic facts into account in designing electronics and information systems and manufacture.
	Index Point 11-3: Be able to apply the principles of engineering management and economic decision-making methods in multidisciplinary environment.
12. Lifelong Learning: Be equipped with independent learning and lifelong learning consciousness, have the ability to continue to learn and adapt to development. Gain and apply the concepts of socialist core values.	Index Point 12-1: Be equipped with lifelong learning consciousness and a fit body for continuous learning.
	Index Point 12-2: Be ready for social development. Have the preliminary ability to develop independently. Gain and apply the concepts of socialist core values.

附：培养目标实现矩阵

本专业毕业要求	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5	培养目标 6
毕业要求 1	√					
毕业要求 2		√				
毕业要求 3	√	√				
毕业要求 4		√				
毕业要求 5		√				
毕业要求 6	√					
毕业要求 7			√		√	
毕业要求 8	√					
毕业要求 9				√		

本专业毕业要求	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5	培养目标 6
毕业要求 10				√		√
毕业要求 11		√		√		
毕业要求 12					√	

The Supporting Matrix of Requirements for graduation to Training Objectives

Requirements for Graduation	Training Objective 1	Training Objective 2	Training Objective 3	Training Objective 4	Training Objective 5	Training Objective 6
Requirement 1	√					
Requirement 2		√				
Requirement 3	√	√				
Requirement 4		√				
Requirement 5		√				
Requirement 6	√					
Requirement 7			√		√	
Requirement 8	√					
Requirement 9				√		
Requirement 10				√		√
Requirement 11		√		√		
Requirement 12					√	

五、专业主干课程

模拟集成电路基础、数字集成电路基础、半导体物理、半导体器件物理、微电子工艺技术、信号与系统、电磁场与电磁波、模拟集成电路设计讨论课、Verilog HDL与FPGA数字系统设计、微机原理与单片机。

V. Core courses

Fundamentals of analog integrated circuit, Fundamentals of digital integrated circuit, Semiconductor physics, Semiconductor device physics, Microelectronic processing technique, Signals and systems, Electromagnetic fields and waves, Discussion course of analog IC design, Verilog HDL and FPGA digital system design, Microcomputer principle and single chip microcomputer.

六、基本学制：四年

VI. Recommended length of the program: 4 years

七、授予学位：工学学士

VII. Degree: Bachelor of Engineering

学生修满所规定的最低毕业学分，符合武汉科技大学授予学士学位规定，授予工学学士学位。

Students who have acquired minimum credits for graduation will be awarded the Bachelor Degree of Engineering subjected to the Bachelor Degree Awarding Regulations of Wuhan University of Science and Technology.

八、毕业学分要求：160学分

课程类型		学分要求	课程类型		学分要求
1、公共课程平台		41	3、专业课程模块		48.5
公共基础课程		28	专业必修课程		34
通识教育课程	必修	7	专业选修课程		14.5
	选修	6	4、实践教学模块		22
2、学科基础平台		42.5	大类实践课程		3
大类学科基础课程	必修	22	专业实践课程	必修	19
	选修	0		选修	0
专业学科基础课程		20.5	5、素质拓展模块		6

*通识教育选修课6学分包括：理工类、医学类、人文社科类、经济管理类中选择2学分（学生在本专业所属类别外的3个类中选择2个学分）；思想政治及新时代素质教育类选择2学分（“四史”1个学分，国家安全教育1个学分）；美育教育类选择2学分（美学和艺术史论类、艺术鉴赏和评论类课程至少选修1个学分）。

VIII. Credits required for graduation: 160 credits

Type of courses		Academic credits	Type of courses		Academic credits
1.Common Courses		41	3. Specialized Courses		48.5
Common Basic Courses		28	Required Courses		34
General Education Courses	Required Courses	7	Elective Courses		14.5
	Elective Courses	6	4.Practicum and Internship Courses		22
2.General Disciplinary Courses		42.5	Large Category Practical Courses		3
Large Category Basic Courses	Required Courses	22	Disciplinary Practical Courses	Required Courses	19
	Elective Courses	0		Elective Courses	0
Disciplinary Basic Courses		20.5	6. Quality Development Courses		6

九、学分比例

IX. Ratio of Credits

1、必修选修学分比例

The proportion of compulsory elective credits

类别	学分	占总学分比例
必修	139.5	87.2%
选修	20.5	12.8%

2、实践教学环节学分比例

The Proportion of credits in practice teaching

类别		学分	占总学分比例
实践教学环节	实验教学学分	18	28.7%
	实践教学模块	22	
	素质拓展模块	6	

十、辅修

修读本专业辅修课程达到26学分且主修专业达到毕业要求者，颁发辅修专业证书。修读本专业辅修课程达到40学分（含实践教学），并达到辅修学位授予条件的，颁发辅修学位证书。

X. Minor

The minor certificate will be issued to those who have completed 26 credits of minor courses and their own major has met the graduation requirements. The minor degree certificate will be issued to those who have completed 40 credits of minor courses (including practical teaching) and meet the conditions for awarding minor degree.

十一、毕业要求实现矩阵

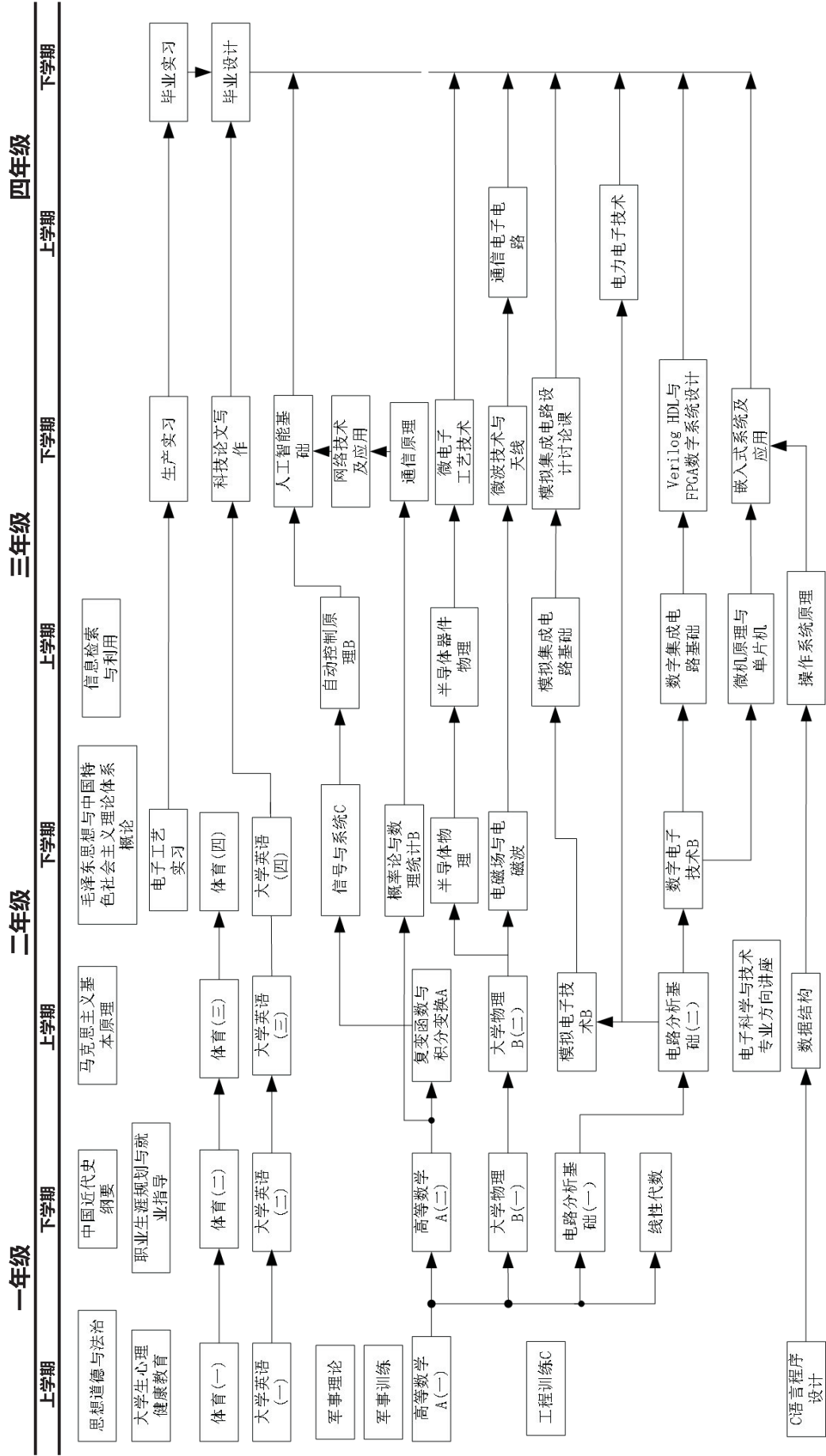
XI. Graduation Realization Matrix

指标点 教学活动	毕业要求 1			毕业要求 2			毕业要求 3				毕业要求 4				毕业要求 5			毕业要求 6		毕业要求 7		毕业要求 8		毕业要求 9			毕业要求 10			毕业要求 11			毕业要求 12		
	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4	5-1	5-2	5-3	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	9-3	10-1	10-2	10-3	11-1	11-2	11-3	12-1	12-2	
思想道德与法治																			H	M		M													
中国近现代史纲要																						M												M	
马克思主义基本原理										L												M													
毛泽东思想和中国特色社会主义理论体系概论										L												M													
大学生心理健康教育																						L	H											L	
大学英语																													H						
体育																																			H
职业生涯规划与就业指导																		L									H								L
军事理论与训练																						M				M									L
公益劳动																						M				M									
形势与政策										L											H														
高等数学 A	H			H																															
大学物理 B	M			H																															
大学物理实验 B										M																									
C 语言程序设计															M															M					
C 语言程序设计实验															M																				
电路分析基础		M					M																												
概率论与数理统计 B	L			L																															
电路分析基础实验										M	L																								
线性代数	L			L																															
复变函数与积分变换	L			L																															
模拟电子技术 B		M					M																												
模拟电子技术实验										M						M																			
数字电子技术 B							M																												
数字电子技术实验										M						M																			
信号与系统		H													M													M							

指标点 教学活动	毕业要求 1			毕业要求 2			毕业要求 3				毕业要求 4				毕业要求 5			毕业要求 6		毕业要求 7		毕业要求 8		毕业要求 9			毕业要求 10			毕业要求 11			毕业要求 12		
	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4	5-1	5-2	5-3	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	9-3	10-1	10-2	10-3	11-1	11-2	11-3	12-1	12-2	
电路分析基础实验											M		L																						
线性代数	L			L																															
复变函数与积分变换	L			L																															
模拟电子技术 B		M					M																												
模拟电子技术实验											M						M																		
数字电子技术 B							M																												
数字电子技术实验											M						M																		
信号与系统		H													M													M							
信号与系统实验															M																				
半导体物理			H					M			L																								
微机原理与单片机															M																				
微机原理与单片机实验												M				M																			
半导体器件物理			H					M			L																								
模拟集成电路基础								M								M																			
数字集成电路基础								M															L												
电子科学与技术专业基础实验								M								L																			
Verilog HDL 与 FPGA 数字系统设计								H									M																		
微电子工艺技术								L			M					L																			
模拟集成电路设计讨论课								M				M																L							
工程训练 C																								M											
计算机软件课程设计									H							L														L					
信号处理课程设计								L							M																				
数字集成电路课程设计								L				M					M																		
模拟集成电路课程设计								L				M		M																					
创新创业教育									M							M										M						M			
第二课堂																																		M	
毕业实习															M						H			M											
毕业设计					H				M									M		M								M							M

指标点 教学活动	毕业要 求 1			毕业要 求 2			毕业要求 3				毕业要求 4				毕业要 求 5			毕业 要求 6		毕业 要求 7		毕业 要求 8		毕业要 求 9			毕业要 求 10			毕业要 求 11			毕业 要求 12	
	1- 1	1- 2	1- 3	2- 1	2- 2	2- 3	3- 1	3- 2	3- 3	3- 4	4- 1	4- 2	4- 3	4- 4	5- 1	5- 2	5- 3	6- 1	6- 2	7- 1	7- 2	8- 1	8- 2	9- 1	9- 2	9- 3	10- 1	10- 2	10- 3	11- 1	11- 2	11- 3	12- 1	12- 2
现代管理理论与方法																								H							H			
生产实习																							M									H		
电子工艺实习																									M							H		

十二、课程修读进程表
XII. Course Reading Progress Table
(四年制本科 2024级 电子科学与技术专业)



十三、电子信息类教学环节设置及学分分布表

(四年制本科 2024级 电子信息类)

XIII. Offered Course and Distribution of Academic Credits

课 程 类 型			课程性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实践学时	学 期	是否辅修/双学位课程	先 修 课 程/备 注
								讲 课	实 验	上 机				
平台	公共课程平台课程	公共基础课	必修	1401010	大学英语(一) College English (I)	2	32	32	0	0	0	1		
				1501882	体育(一) Physical Education(I)	1	26	26	0	0	0	1		
				5105017	思想道德与法治 Ideology and morality and rule of law	3	48	42	0	0	6	1		
				5106001	形势与政策 World Affairs and State Policy	2	64	64	0	0	0	1-8		分散进行
				1401062	大学英语(二) College English (II)	2	32	32	0	0	0	2		
				1501883	体育(二) Physical Education(II)	1	34	34	0	0	0	2		
				5103001	中国近现代史纲要 An Outline of Modern and Contemporary History of China	3	48	42	0	0	6	2		
				1401011	大学英语(三) College English (III)	2	32	32	0	0	0	3		
				1501884	体育(三) Physical Education(III)	1	34	34	0	0	0	3		
				5102001	马克思主义基本原理 Fundamentals of Marxism	3	48	44	0	0	4	3		
				1401064	大学英语(四) College English (IV)	1	16	16	0	0	0	4		
				1501885	体育(四) Physical Education(IV)	1	34	34	0	0	0	4		
				5101005	毛泽东思想和中国特色社会主义理论体系概论 Theoretical System of Socialism with Chinese Characteristics	3	48	32	0	0	16	4		
				5101006	习近平新时代中国特色社会主义思想概论 An Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	3	48	32	0	0	16	4		
		通识教育课程	必修	1501024	体质健康测试 Physical Health Test	0	16	0	0	0	16	1-8		分散进行
				2502006	大学生心理健康教育 Mental Health Education	2	32	24	0	0	8	1		

电子信息类教学环节设置及学分分布表

(四年制本科 2024级 电子信息类)

Offered Course and Distribution of Academic Credits

课 程 类 型	课程 性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实 践 学 时	学 期	是否 辅修/ 双学位 课程	先 修 课 程/备 注
						讲 课	实 验	上 机				
平台	公共课程平台课程	必修	2501016 大学生劳动教育 College student labor education	1	32	2	0	0	30	1-4		分散进行
			2503001 职业生涯规划与就业指导 Career Planning and Employment Guidance	1	16	16	0	0	0	2		
			2504005 军事理论 Military Theory	2	36	36	0	0	0	2		
			8001003 大学生创新创业基础 Foundation of Innovation and Entrepreneurship for college students	1	16	16	0	0	0	2		
		选修	美育教育类 2 学分 Art Education2 Academic Credit									
			医学类 1 学分 Medicine1 Academic Credit									
			思想政治及新时代素质教育类 2 学分 Ideological Political Education2 Academic Credit									
			人文社科类 1 学分 Humanity Social Sciencel Academic Credit									
			经济管理类 1 学分 Economic Managementl Academic Credit									
		必修	0402084 C语言程序设计实验 Experiments in Programming with C Language	1	16	0	16	0	0	1		
			0402164 C语言程序设计 Programming with C Language	3	48	48	0	0	0	1		
			0702601 高等数学A(一) Advanced Mathematics A(I)	5	80	80	0	0	0	1		
			0401041 电路分析基础 (一) Circuit Analysis Basis (I)	2	32	32	0	0	0	2		
			0702104 线性代数B Linear Algebra B	2	32	32	0	0	0	2		
			0702602 高等数学A(二) Advanced Mathematics A(II)	6.5	104	104	0	0	0	2		
			0703605 大学物理B(一) College Physics B(I)	2.5	40	40	0	0	0	2		

电子信息类教学环节设置及学分分布表

(四年制本科 2024级 电子信息类)

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								讲课	实验	上机				
平台	学科基础平台	电子信息工程专业学科基础课程	必修	0401022	电路分析基础实验 Experiments in Circuit Analysis	1	16	0	16	0	0	3		
				0401023	模拟电子技术实验 Experiments in Analog Electronic Technology	1	16	0	16	0	0	3		
				0401100	电路分析基础（二） Circuit Analysis basis（II）	2.5	40	40	0	0	0	3		
				0402163	模拟电子技术B Analog Electronic Technology B	3.5	56	56	0	0	0	3		
				0702301	复变函数与积分变换A Complex Function and Integral Transform(A)	3	48	48	0	0	0	3		
				0703606	大学物理B(二) College Physics B(II)	2	32	32	0	0	0	3		
				0703607	大学物理实验B Experiments of College Physics B	1	24	0	24	0	0	3		
				0401024	数字电子技术实验 Experiments in Digital Electronic Technology	1	16	0	16	0	0	4		
				0402162	数字电子技术B Digital Electronic Technology B	3	48	48	0	0	0	4		
				0702304	概率论与数理统计B Probability and Mathematical Statistics(B)	2.5	40	40	0	0	0	4		
	电子科学与技术专业学科基础课程	必修	0401022	电路分析基础实验 Experiments in Circuit Analysis	1	16	0	16	0	0	3			
			0401023	模拟电子技术实验 Experiments in Analog Electronic Technology	1	16	0	16	0	0	3			
			0401100	电路分析基础（二） Circuit Analysis basis（II）	2.5	40	40	0	0	0	3			
			0402163	模拟电子技术B Analog Electronic Technology B	3.5	56	56	0	0	0	3	是	电路分析基础（二）， 电路分析基础（一）	

电子信息类教学环节设置及学分分布表

(四年制本科 2024级 电子信息类)

Offered Course and Distribution of Academic Credits

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								讲 课	实 验	上 机				
平台	电子科学与技术专业学科基础课程	必修		0702301	复变函数与积分变换A Complex Function and Integral Transform(A)	3	48	48	0	0	0	3		
				0703606	大学物理B(二) College Physics B(II)	2	32	32	0	0	0	3		
				0703607	大学物理实验B Experiments of College Physics B	1	24	0	24	0	0	3		
				0401024	数字电子技术实验 Experiments in Digital Electronic Technology	1	16	0	16	0	0	4		
				0402162	数字电子技术B Digital Electronic Technology B	3	48	48	0	0	0	4	是	
				0702304	概率论与数理统计B Probability and Mathematical Statistics(B)	2.5	40	40	0	0	0	4		
	学科基础平台	必修		0401022	电路分析基础实验 Experiments in Circuit Analysis	1	16	0	16	0	0	3		
				0401023	模拟电子技术实验 Experiments in Analog Electronic Technology	1	16	0	16	0	0	3		
				0401100	电路分析基础（二） Circuit Analysis basis（II）	2.5	40	40	0	0	0	3		
				0402163	模拟电子技术B Analog Electronic Technology B	3.5	56	56	0	0	0	3		
				0702301	复变函数与积分变换A Complex Function and Integral Transform(A)	3	48	48	0	0	0	3		
				0703606	大学物理B(二) College Physics B(II)	2	32	32	0	0	0	3		
				0703607	大学物理实验B Experiments of College Physics B	1	24	0	24	0	0	3		
				0401024	数字电子技术实验 Experiments in Digital Electronic Technology	1	16	0	16	0	0	4		
				0402162	数字电子技术B Digital Electronic Technology B	3	48	48	0	0	0	4		
				0702304	概率论与数理统计B Probability and Mathematical Statistics(B)	2.5	40	40	0	0	0	4		

电子信息类教学环节设置及学分分布表

(四年制本科 2024级 电子信息类)

Offered Course and Distribution of Academic Credits

课 程 类 型			课程性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实践学时	学 期	是否辅修/双学位课程	先 修 课 程/备 注
								讲 课	实 验	上 机				
模块	专业	电子信息工程	必修	0402019	数据结构 Data Structure	3	48	40	0	8	0	3		
				0402178	电子信息工程导论 Introduction of Electronics Information Engineering	0.5	8	8	0	0	0	3		
				0402167	电磁场与电磁波 Electromagnetic Field and Electromagnetic Wave	2	32	32	0	0	0	4		
				0402183	信号与系统C signals and systems C	3.5	56	56	0	0	0	4		
				0402184	信号与系统实验 Experiments in signals and systems	1	16	0	16	0	0	4		
				0402065	微机原理与应用实验 Experiments in Principles and Applications of Microcomputer	1	16	0	16	0	0	5		
				0402141	电子系统综合设计 Integrated Design of Electronic Systems	2.5	40	20	0	0	20	5		
				0402166	通信电子电路B Electronic Circuit for Communications B	3.5	56	48	8	0	0	5		
				0402169	微机原理与应用 Principles and Applications of Microcomputer	3.5	56	56	0	0	0	5		
				0402172	数字信号处理 Digital Signal Processing	3.5	56	48	8	0	0	5		
				0402029	通信原理 Communications Principle	4	64	56	8	0	0	6		
				0402120	数字图像处理 Digital Image Processing	2.5	40	32	8	0	0	6		
				0402168	网络技术的应用 Techniques and Applications of Computer Networks	3	48	48	0	0	0	6		
				0402171	信息论基础 Fundamentals of Information Theory	2	32	32	0	0	0	6		
				0402173	数字系统设计 Digital System Design	1.5	24	12	12	0	0	6		

电子信息类教学环节设置及学分分布表

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						讲 课	实 验	上 机				
模块	专业 课程 模块	电子科学与技术专业必修课程	0402188 工程概论 Introductions to Engineering	1	16	16	0	0	0	7		
			0402167 电磁场与电磁波 Electromagnetic Field and Electromagnetic Wave	2	32	32	0	0	0	4		
			0402183 信号与系统C signals and systems C	3.5	56	56	0	0	0	4	是	复变函数与积分变换A
			0402184 信号与系统实验 Experiments in signals and systems	1	16	0	16	0	0	4		
			0406024 半导体物理 Semiconductor Physics	3.5	56	56	0	0	0	4	是	
			0502012 现代管理理论与方法 Modern Management Theory and Methods	1	16	16	0	0	0	4		
			0403211 微机原理与单片机 Microcomputer Principle and Single-chip Microcomputer	3	48	48	0	0	0	5	是	
			0403212 微机原理与单片机实验 Experiments in Microcomputer Principle and Single-chip Microcomputer	1	16	0	16	0	0	5		
			0406021 模拟集成电路基础 Fundamentals of Analog Integrated Circuit	3	48	48	0	0	0	5	是	模拟电子技术B
			0406022 数字集成电路基础 Fundamentals of Digital Integrated Circuit	3	48	48	0	0	0	5		数字电子技术B
			0406025 半导体器件物理 Physics of Semiconductor Devices	3.5	56	56	0	0	0	5	是	
			0406029 电子科学与技术专业基础实验(一) Specialized Fundamental Experiments of Electronic Science and Technology(I)	1	16	0	16	0	0	5	是	
			0406008 Verilog HDL与FPGA数字系统设计 Verilog HDL and FPGA Digital System Design	3	48	40	8	0	0	6	是	
			0406009 微电子工艺技术 Microelectronic Processing Technique	3	48	48	0	0	0	6	是	
			0406028 模拟集成电路设计讨论课 Discussion Course of Analog IC Design	1.5	24	24	0	0	0	6		

电子信息类教学环节设置及学分分布表

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							讲 课	实 验	上 机				
平台	电科与术业必修课程	必修	0406030	电子科学与技术专业基础实验(二) Specialized Fundamental Experiments of Electronic Science and Technology(II)	1	16	0	16	0	0	6	是	
			0402019	数据结构 Data Structure	3	48	40	0	8	0	3		
	学科基础平台	必修	0402177	通信工程导论 Introduction to communications engineering	0.5	8	8	0	0	0	3		
			0402150	连续时间信号与系统 Continuous-time Signals and Systems	4	64	64	0	0	0	4		
			0402167	电磁场与电磁波 Electromagnetic Field and Electromagnetic Wave	2	32	32	0	0	0	4		
			0402184	信号与系统实验 Experiments in signals and systems	1	16	0	16	0	0	4		
			0402065	微机原理与应用实验 Experiments in Principles and Applications of Microcomputer	1	16	0	16	0	0	5		
			0402166	通信电子电路B Electronic Circuit for Communications B	3.5	56	48	8	0	0	5		
			0402169	微机原理与应用 Principles and Applications of Microcomputer	3.5	56	56	0	0	0	5		
			0402172	数字信号处理 Digital Signal Processing	3.5	56	48	8	0	0	5		
			0402029	通信原理 Communications Principle	4	64	56	8	0	0	6		
			0402165	信息论与编码理论 The Theory of Information and Coding	3	48	40	8	0	0	6		
			0402168	网络技术的应用 Techniques and Applications of Computer Networks	3	48	48	0	0	0	6		
			0502012	现代管理理论与方法 Modern Management Theory and Methods	1	16	16	0	0	0	7		
	专业选修课程	选修	0302609	工程制图B Engineering Drawing B	3	48	40	0	8	0	3		

电子信息类教学环节设置及学分分布表

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								讲 课	实 验	上 机				
模块				选修	1601004	信息检索与利用 Information Retrieval	1	16	16	0	0	0	3	
					0402189	电子设计竞赛与实践 Electronic Design Competition and Practice	1.5	24	16	0	0	8	4	
					0403220	Python编程 Python Programming	2	32	24	0	8	0	4	
					1701011	先进制造与创新实践 Advanced Manufacturing and Innovatiaon Practice	2	36	20	16	0	0	4	
					0402006	操作系统原理 Principles of Operating System	2.5	40	32	8	0	0	5	
					0702094	随机过程 Stochastic Process	3	48	48	0	0	0	5	
					0402020	数据库技术 Database Technology	2	32	26	0	6	0	6	
					0402058	嵌入式系统及应用 Embeded System and Its Applications	2.5	40	32	8	0	0	6	
					0402077	单片机原理 Principles of One-chip Computer	2.5	40	32	8	0	0	6	
					0402101	物联网原理与应用 Principle and application of Internet of Things	2	32	32	0	0	0	6	
					0402134	无线通信新技术 Wireless Communications New Technology	2.5	40	32	8	0	0	6	
					0402147	Java 语言及Android 应用开发 Java and Android APP development	3	48	32	16	0	0	6	
					0402156	科技论文写作 Scientific paper writing	1	16	16	0	0	0	6	
					0403070	人工智能基础 Fundamentals of Artifical Intelligence	2	32	24	0	8	0	6	
					0402036	语音处理 Speech Signal Processing	2	32	32	0	0	0	7	
					0402039	光纤通信基础 Optical Fiber Communications	2	32	32	0	0	0	7	

电子信息类教学环节设置及学分分布表

(四年制本科 2024级 电子信息类)

Offered Course and Distribution of Academic Credits

课 程 类 型			课程性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实践学时	学 期	是否辅修/双学位课程	先 修 课 程/备 注
								讲 课	实 验	上 机				
模块	专业课程模块	专业选修课程	选修	0402094	电子信息工程专题研究 Research on Special Topics on Electronic Information engineering	2	32	32	0	0	0	7		
				0402019	数据结构 Data Structure	3	48	40	0	8	0	3		
				0406001	电子科学与技术专业方向讲座 The lecture of electronic science and technology professional direction	0.5	8	8	0	0	0	3		
				0403138	自动控制原理B Automatic Control System Principle B	3	48	48	0	0	0	5		
				0402029	通信原理 Communications Principle	4	64	56	8	0	0	6		
				0402168	网络技术的应用 Techniques and Applications of Computer Networks	3	48	48	0	0	0	6		
				0405071	数字信号处理 Digital Signal Processing	2	32	28	4	0	0	6		
				0402166	通信电子电路B Electronic Circuit for Communications B	3.5	56	48	8	0	0	7		
				0403043	电力电子技术 Electric and Electronic Technologies	2	32	26	6	0	0	7		
				0402141	电子系统综合设计 Integrated Design of Electronic Systems	2.5	40	20	0	0	20	5		
				0402120	数字图像处理 Digital Image Processing	2.5	40	32	8	0	0	6		
				0402132	微波技术与天线 Microwave Technique and Antenna	2	32	32	0	0	0	6		电磁场与电磁波
				0402121	现代交换技术 Modern Switching techniques	2.5	40	32	8	0	0	7		
				0402160	通信新技术研讨 Symposium on Novel Communication Technology	1.5	24	24	0	0	0	7		
实践教学模块	大类实践课程	必修		2504006	军事训练 Military Training	2	112	0	0	0	112	1		
				1701009	工程训练C Engineering Training C	1	2(周)	0	0	0	2(周)	2		

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								讲 课	实 验	上 机				
模块			必修	0402176	电子工艺实习 Practice Experience in Electronic Techniques	1	1 (周)	0	0	0	1 (周)	3		
				0402185	软件设计与开发课程设计 Course Project in Software Design and Development	1	1 (周)	0	0	0	1 (周)	3		
				0402047	认识实习 Introductory Practice Experience	1	1 (周)	0	0	0	1 (周)	4		
				0402125	电子技术课程设计 Electronic Course Project	1	2 (周)	0	0	0	2 (周)	5		
				0402186	信号处理与分析课程设计 Course Project in Signal Analysis and Processing	1	1 (周)	0	0	0	1 (周)	5		
				0402174	生产实习 Production Practice	1	2 (周)	0	0	0	2 (周)	6		
				0402187	通信系统设计与分析课程设计 Course Project in Communication System Analysis and Design	1	1 (周)	0	0	0	1 (周)	6		
				0402098	毕业设计(论文) Graduation Project(Thesis)	8	13 (周)	0	0	0	13 (周)	7,8		
				0402175	毕业实习 Pre-graduation Internship	2	3 (周)	0	0	0	3 (周)	7,8		
			必修	0402176	电子工艺实习 Practice Experience in Electronic Techniques	1	1 (周)	0	0	0	1 (周)	3		
				0402185	软件设计与开发课程设计 Course Project in Software Design and Development	1	1 (周)	0	0	0	1 (周)	3		
				0402125	电子技术课程设计 Electronic Course Project	1	2 (周)	0	0	0	2 (周)	4		
				0402186	信号处理与分析课程设计 Course Project in Signal Analysis and Processing	1	1 (周)	0	0	0	1 (周)	5		
				0406080	数字集成电路课程设计 Course Project for Digital IC Design	1	1 (周)	0	0	0	1 (周)	6	是	
				0406081	模拟集成电路课程设计 Course Project for Analog IC Design	1	1 (周)	0	0	0	1 (周)	6		

电子信息类教学环节设置及学分分布表

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							讲 课	实 验	上 机				
模块	电子科学与技术专业实践课程	必修	0406097	生产实习 Production Practice	2	2 (周)	0	0	0	2 (周)	6		
			0406098	毕业实习 Pre-graduation Practice Experience	3	3 (周)	0	0	0	3 (周)	7, 8		
			0406099	毕业设计(论文) Undergraduate Project(Thesis)	8	13 (周)	0	0	0	13 (周)	8	是	
	通信工程专业实践课程	必修	0402176	电子工艺实习 Practice Experience in Electronic Techniques	1	1 (周)	0	0	0	1 (周)	3		
			0402185	软件设计与开发课程设计 Course Project in Software Design and Development	1	1 (周)	0	0	0	1 (周)	3		
			0402047	认识实习 Introductory Practice Experience	1	1 (周)	0	0	0	1 (周)	4		
			0402085	微机原理与应用课程设计 Course Project in Principles and Applications of Microcomput	1	1 (周)	0	0	0	1 (周)	5		
			0402186	信号处理与分析课程设计 Course Project in Signal Analysis and Processing	1	1 (周)	0	0	0	1 (周)	5		
			0402174	生产实习 Production Practice	1	2 (周)	0	0	0	2 (周)	6		
			0402187	通信系统设计与分析课程设计 Course Project in Communication System Analysis and Design	1	1 (周)	0	0	0	1 (周)	6		
			0402137	通信系统综合课程设计 Colligation Course Project on Communication System	1	1 (周)	0	0	0	1 (周)	7		
			0402098	毕业设计(论文) Graduation Project(Thesis)	8	13 (周)	0	0	0	13 (周)	7, 8		
			0402175	毕业实习 Pre-graduation Internship	2	3 (周)	0	0	0	3 (周)	7, 8		
	素质拓展模块	创新创业教育必修	创新创业实践3学分 Innovation Practices 3 Academic Credits										
		第二课堂必修	第二课堂3学分 Second Classroom 3 Academic Credits										

*创新创业教育和第二课堂主要安排在小学期进行

