浙江科技学院电子信息工程专业培养方案

一、培养目标

　　本专业培养具备电子技术和信息系统的基础知识、基本理论和基本技能，能从事各类电子设备和信息系统的研究、设计、开发、制造和应用的应用型高级工程技术人才。

二、毕业要求

本专业是一个电子和信息工程方面的较宽口径专业。学生主要学习信息的获取与处理、电子设备与信息系统等方面的专业知识，受到电子与信息工程实践的基本训练，具备设计、开发、应用和集成电子设备和信息系统的基本能力。毕业生应获得以下几个方面的知识和能力：

（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。

（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。

（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。

（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。

（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。

（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。

（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专业工程实践对环境、社会可持续发展的影响。

（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。

（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。

（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。

（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。

（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。

三、毕业要求达成矩阵

毕业要求	指标点	相关教学活动	学生考核方式
1.能够将数学、自然科学、工程基础和专业知识用于解决化学工程与技术领域复杂工程问题。	1.1 掌握从事电子信息所需的微积分、微分方程、线性代数、概率论和数理统计等数学基本知识，及大学物理等自然科学基本知识，能运用于工程相关问题。	高等数学、大学物理、概率论与数理统计、复变函数与积分变换、数值分析。	书面考试、实验报告
	1.2 掌握从事电子信息所需的电工电子、计算机、自动化和通信学科等专业基础知识，能运用与解决电子信息问题的建模、推理和计算。	电路原理、模拟电子技术、数字电子技术、程序设计语言(C,C++,Java)、数据结构、单片机原理、数据库原理及应用、数据通信与计算机网络、数字通信原理、自动控制原理。	书面考试、课程报告、实验报告。
	1.3 掌握从事电子信息工程所需的标识与感知、数据传输与处理、电子控制、电子信息应用系统集成等专业核心知识，能用于解决复杂电子信息工程问题。	嵌入式系统、RFID技术基础、传感器与检测技术、数据通信与计算机网络、数字通信原理、数据采集系统、电子测量技术、数字图像处理、常用集成器件应用。	书面考试、课程报告、实验报告。
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	2.1.掌握真实工程环境下进行工程系统实践技能，达到对复杂实际工程问题较为准确地识别和表达。	金工实习、电子技术应用设计、电子信息工程综合课程设计、单片机应用系统设计、专业实习、毕业设计。	书面考试、课程报告、实习报告、毕业设计文档。
	2.2 能熟练地运用文献检索、资料查询的基本方法，具有信息分析的能力，并用于复杂工程问题的分析和推理。	科技文献检索、科技文献阅读与写作、电子技术应用设计、电子信息工程综合课程设计、单片机应用系统设计、专业实习、毕业设计。	书面考试、课程报告、实习报告、毕业设计文档。

、表达、开通过文献研究分析复杂工程问题，以获得有效结论。	2.3 能运用数学、自然科学和工程科学的基本原理对复杂电子信息工程问题进行提炼、定义、建模、分析和评价。	高等数学、大学物理、概率论与数理统计、复变函数与积分变换、数值分析、电路原理，模拟电子技术、数字电子技术，自动控制原理、数字通信原理、数据结构、电子技术应用设计、电子信息工程综合课程设计、单片机应用系统设计、专业实习、毕业设计。	书面考试、课程报告、实习报告、毕业设计文档。
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、元件（部件）或工程流程，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、文化以及环境因素。	3.1 了解电子信息技术的应用前景、最新进展与发展动态，掌握基本创新方法，在解决复杂电子信息工程问题中具有追求创新的态度和意识。	电子信息工程导论、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题	书面考试、课程报告、实习报告、毕业设计文档。
	3.2 具有系统需求分析能力以及程序设计与实现能力，能够综合运用自然科学和工程科学的基本原理和技术手段完成电子信息系统的规划与设计。	程序设计语言(C,C++,Java)、数据结构、电子信息工程导论、嵌入式系统原理、RFID原理及应用、数字通信原理、数据结构、电子技术应用设计、电子信息工程综合课程设计、专业实习和毕业设计。	书面考试、课程报告、实习报告、毕业设计文档。
	3.3 针对复杂电子信息工程问题，能综合考虑经济、法律、健康、环境、安全、文化等因素。	电子工艺实验、专业实习、毕业设计、第二课堂。	书面考试、课程报告、实习报告、毕业设计文档。
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。	4.1 能够综合运用所学科学原理，针对复杂工程问题建立合适的抽象模型，确定相关的技术参数。	信息论与编码、课程实验、电子技术应用设计、电子信息工程综合课程设计、专业实习和毕业设计。	书面考试、课程报告、实习报告、毕业设计文档。
	4.2 根据研究需要设计实验。按照合理步骤进行实验并获取数据。	电子技术应用设计、课程实验、电子信息工程综合课程设计、专业实习和毕业设计。	书面考试、课程报告、实习报告、毕业设计文档。
	4.3 参照科学的理论模型对比实验数据和结果，解释实验和理论模型结果的差异。	电子技术应用设计、课程实验、电子信息工程综合课程设计、专业实习和毕业设计。	书面考试、课程报告、实习报告、毕业设计文档。
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。	5.1掌握计算机、信息网络等现代工程工具和信息技术工具、能针对复杂工程问题正确选择、应用，具备运用计算机及信息网络辅助电子信息规划、设计、计算、控制的能力。	程序设计语言(C,C++,Java)、计算机网络、数据库系统、单片机原理、嵌入式系统、RFID原理与应用、数字通信原理、信息技术案例教学、移动设备开发基础、移动设备开发高级专题、信息工程高级专题、电子工程高级专题、专业实习、毕业设计。	书面考试、实验报告、课程报告、实习报告、毕业设计文档。
	5.2 能够利用现代工具对复杂工程问题进行预测与模拟，并能在实践过程中领会相关工具的局限性。	程序设计语言(C,C++,Java)、数据库系统、单片机原理、嵌入式系统、数字图像处理、信息技术案例教学、移动设备开发基础、移动设备开发高级专题、信息工程高级专题、电子工程高级专题、专业实习、毕业设计。	书面考试、实验报告、课程报告、实习报告、毕业设计文档。
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。	6.1了解电子信息领域国际科学技术政策，以及知识产权、信息安全等方面的法律、法规，理解工程技术伦理的基本要求。	电子信息工程导论、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实验报告、实习报告、毕业设计文档。
	6.2能够评价电子信息工程实践中复杂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。	电子信息工程导论、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实验报告、实习报告、毕业设计文档。

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专业工程实践对环境、社会可持续发展的影响。	7.1 了解专业工程实践涉及的环境保护和可持续发展等方面的方针、政策和法律、法规。	电子信息工程导论、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告。
	7.2 能正确认识复杂电子信息工程问题的工程实践对于环境和社会可持续发展的影响，在工程实践中具有良好的质量、安全、服务和环保意识。	电子信息工程导论、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实验报告、实习报告、毕业设计文档。
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。	8.1 具备文学、哲学、政治学、社会学等基本知识，能够运用哲学的，历史的方法认识和分析事物。	通识课程、沟通与职业素质、第二课堂。	课堂讨论、课程报告。
	8.2 具备良好的社会公德和职业道德，具有较强的社会责任感。	通识课程、专业实习、沟通与职业素质、毕业设计、第二课堂。	课堂讨论、课程报告、实习报告、毕业设计文档。
	8.3 了解本专业相关职业和行业的生产、设计、研究与开发的国内外行业规范和法律法规。	电子信息工程导论、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	书面考试、读书报告、实习报告、毕业设计文档。
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 了解电子信息工程问题的多学科技术背景和技术特点，能够在团队合作中进行分工与协作，合理处理个人与团队的关系。	电子信息工程导论、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课堂讨论、课程报告、实习报告、毕业设计文档。
	9.2 充分理解多学科背景下团队成员的作用，能按照明确的需求承担系统设计与开发中的基本任务。	电子信息工程导论、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实习报告、毕业设计文档
	9.3 具备一定的组织能力，能合理制定工作计划，根据团队成员的知识和能力特征分配任务，并协调完成工作任务。	电子信息工程导论、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实习报告、毕业设计文档
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。	10.1 具有良好的语言表达和文字组织能力，能够通过书面报告和口头陈述清晰地表达复杂电子信息工程问题的解决方案、过程和结果，与业界同行和社会公众进行有效沟通和交流。	电子信息工程导论、科技文献阅读与写作、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实习报告、毕业设计文档。
	10.2 具有外语听说写能力，通过阅读国内外技术文献，参加学术讲座等环节，理解不同文化、技术行为之间的差异，能够在跨文化背景下进行沟通和交流，具有一定的国际视野。	电子信息工程导论、科技文献阅读与写作、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实习报告、毕业设计文档。
11、项目管理：理解并掌握工程管	11.1 掌握管理学中的基本概念和方法，能够理解工程活动中涉及的重要经济和管理因素。	电子信息工程导论、科技文献阅读与写作、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实习报告、毕业设计文档。

	11.2 能够在多学科环境中运用现代管理知识进行技术组织和管理，具备物联网系统的实施与管理能力。	英语、双语课程、电子信息工程导论、科技文献阅读与写作、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实习报告、毕业设计文档。
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 具有时间观念和效率意识，能够针对学习任务自觉开展预习、复习和总结。	高等数学、大学物理、概率论与数理统计、线性代数、复变函数与积分变换、程序设计、数据结构、电路与电子技术、操作系统原理、计算机网络。	书面考试、实验报告、课程报告。
	12.2 对终身学习有正确的认识，能够及时更新知识体系，有效地选择和获取新知识，适应技术的发展和进步。	电子信息工程导论、科技文献阅读与写作、专业英语、信息技术案例教学、电子工程高级专题、信息工程高级专题专、业实习、毕业设计、第二课堂。	课程报告、实习报告、毕业设计文档。

四、主干学科

电子科学与技术、信息与通信工程、计算机科学与技术

五、专业核心课程

电路原理、模拟电子技术、数字电子技术、信号与系统基础、数字信号处理、程序设计语言、单片机原理、嵌入式系统、数据通信与计算机网络、传感器与检测技术、数字通信原理等。

六、主要实践环节

军训、社会实践、电路及电子线路实验、课程设计、金工实习、工程（技术）实习、毕业设计（论文）。

七、学制、学位及毕业学分要求

1、学制：实行弹性学制，本科基本学制一般为4年，可提前1年毕业，最长不超过8年。
2、授予学位：工学学士学位
3、本专业毕业最低学分要求：178

八、学分结构要求

课程设置及修读类型			学分及占比	
			学分	学分比例
理论教学环节	通识教育课	必修	46	25.8%
		选修	22	12.4%
	学科专业类基础课	必修	20	11.2%
	专业核心课（必修）		21	11.8%
	拓展复合课（选修）		16	9.0%
	小计		125	70.2%
实践教学环节	必修		53	29.8%
合计			178	100.0%

Undergraduate Program in Electronic and Information Engineering

I. Educational Objectives

The aim of the programme is to bring the students as advanced professional talents with prominent performance of pratical application ability in electronic and information engineering. Students are equiped with basic knowledge, principles and skills in electronic technology and information system, and can be engaged in researching, designing, developing, manufacturing and applying various types of electronic devices and

II. Graduation Requirements

The specialty addresses broad-based curriculum and training and to provide flexibility of career choices in electronic and information engineering.The broad-based curriculums cover the information acquisition and processing as well as the specialized knowledges in the areas of electronic equipments and information systems,etc. It strikes to provide a foundation of professional practice, the students will also be able to design, develop, apply and integrate the electronic devices and information systems. The graduates should acquire the knowledge and abilities of the following aspects:

1. Engineering Knowledge: an ability to apply knowledge of mathematics, science, engineering and professional to solve complex engineering problems.

2. Problem analysis: An ability to apply basic principles of mathematics, natural sciences and engineering sciences to identify, express and analyze complex engineering problems through literature research, in order to obtain an effective conclusion.

3. Design / Develop Solutions: An ability to design solutions to solve complex engineering problems, design systems, devices (components) or engineering processes that meet specific needs, and being able to embody innovation in design, with consideration of social, health, safety, legal, cultural and environmental factors.

4. Research: An ability to use scientific methods to study complex engineering problems based on scientific principles, including the design of experiments, analysis and interpretation of data, and obtain an reasonable and effective conclusion through information synthesis.

5. Using modern tools: An ability to develop, select and use appropriate technologies, resources, modern engineering tools, and information technology tools for complex engineering problems, including predictions and simulations of complex engineering problems, and understanding their limitations.

6. Engineering and Society: An ability to rationally analyze and evaluate the impact of professional engineering practices and complex engineering solutions on society, health, safety, legal, and cultural issues, based on engineering-related background knowledge, and understanding the responsibilities to be undertaken.

7. Environment and sustainable development: An ability to understand and evaluate the impact of professional engineering practices on environmental and social sustainable development for complex engineering problems.

8. Professional norms: with the humanities and social sciences, social responsibility, understand and comply with professional ethics and norms in engineering practice, fulfill their responsibilities.

9. Individuals and teams: An ability to take the role of individuals, team members and the person in charge in a multidisciplinary team.

10. Communication: An ability to communicate effectively with industry peers and the public on complex engineering issues, including writing reports and designing documents, presentations, clear expression or responding to instructions or. And have a certain international perspective, be able to communicate and exchange in the cross-cultural context.

11. Project Management: Understanding and mastering engineering management principles and economic decision-making methods, and can be applied in a multidisciplinary environment.

III. Achievement Matrix of Graduation Requirements

Graduation Requirements	Indicators of Graduation Requirements	The Main Courses and Programs	Assessment

1. Engineering Knowledge: an ability to apply knowledge of mathematics, science, engineering and professional to solve complex engineering problems.	1.1 Mastering the basic mathematical knowledge such as calculus, differential equations, linear algebra, probability theory and mathematical statistics, and basic knowledge of natural science such as university physics, that is needed in electronic information and can be applied to solve engineering-related problems.	Advanced Mathematics,College Physics,Probability Theory and Mathematical Statistics,Functions of Complex Variable and Integral Transforms,Numerical Calculation	Written examinations, Experimental reports, Course reports, Internship
	1.2 Mastering the basic professional knowledge of electrical and electronic, computer, automation and communication discipline required in electronic information and being able to use and solve the problem of electronic information modeling, reasoning and calculation.	Principles of Electrical Circuits,Analog Electronics Technology,Digit Electronics Technology,Fundamentals of Programming (C Language),C++ Programming,Data Structure,Principle of Microcontroller,Java Programming,Principles and Application of Database,Modern Communication	Written examinations, Experimental reports, Course reports, Internship reports, Graduate
	1.3 Mastering the professional core knowledge required in electronic information engineering, such as identification and sensing, data transmission and processing, electronic control, electronic information application system integration and so on, which can be used to solve complex electronic information engineering problems.	Embedded Systems,RFID Technology,Sensors and Detection Technology,Modern Communication Networks,Digtial Communication Principles,Electronic Measurement Technology,Data Acquisition Systems,Digital Image Processing,Application of	Written examinations, Experimental reports, Course reports, Internship reports, Graduate
2. Problem analysis: An ability to apply basic principles of mathematics, natural sciences and engineering sciences to identify, express and analyze complex	2.1 Grasping the practical skills of engineering system under the real engineering environment, to achieve accurately identify and express of complex real engineering problems.	Metalworking Practice,Application and Design of Electronic Technology,Comprehensive Course Design of Electronic Information Engineering,Mono-Chip Computers Application System Design,Engineering	Written examinations, Experimental reports, Course reports, Internshi
	2.2 Being able to retrieve literatures and documents proficiently, with the ability of information analysis, and being able to analyze and reason complex engineering problems.	Scientific Documents Retrieval,Science and Technology Literature Reading and Writing,Application and Design of Electronic Technology,Comprehensive Course Design of Electronic Information Engineering,Mono-Chip Computers Application	Written examinations, Experimental reports, Course reports, Internship reports,

Identify, express and analyze complex engineering problems through literature research, in order to obtain an effective conclusion.	2.3 Being able to use the basic principles of mathematics, natural science and engineering science to refine, define, model, analyze and evaluate complex electronic information engineering problems.	Advanced Mathematics,College Physics,Probability Theory and Mathematical Statistics,Functions of Complex Variable and Integral Transforms,Numerical Calculation,Principles of Electrical Circuits,Analog Electronics Technology,Digit Electronics Technology,Digtial Communication Principles,Principle of Automatic Control,Application and Design of Electronic Technology,Comprehensive	Written examinations, Experimental reports, Course reports, Internship reports, Graduate project documents.
3. Design / Develop Solutions: An ability to design solutions to solve complex engineering problems, design systems, devices (components) or engineering processes that meet specific needs, and being able to embody innovation in design, with consideration of social, health, safety, legal, cultural and environmental factors.	3.1 Understanding the application prospects, the latest developments and developments trends of electronic information technology, mastering the basic innovative methods, with the pursuit of innovation in attitudes and awareness in solving complex engineering problems of electronic information	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering	Written examinations, Experimental reports, Course reports, Internshi
	3.2 Have the ability of system requirement analysis and program design and implementation, and can complete the planning and designing of electronic information system by using the basic principles and technical means of natural science and engineering science.	Fundamentals of Programming (C Language),C++ Programming,Data Structure,Principle of Microcontroller,Java Programming,Introduction to Electronic Information Engineering,Embedded Systems,RFID Technology,Digtial Communication Principles,Application and Design of Electronic Technology,Comprehensive Course Design of Electronic Information	Written examinations, Experimental reports, Course reports, Internship reports, Graduate project documents.
	3.3 Comprehensively considering economic, legal, health, environment, safety, culture and other factors for complex electronic information engineering problems.	Experiments for Electronic Technology,Extracurricular Teaching,Engineering Technique Practice,Graduate Project (Thesis).	Written examinations, Experimental reports,
4. Research: An ability to use scientific methods to study complex engineering	4.1 Using the scientific principles to establish an appropriate abstract model for complex engineering problems, determine the relevant technical parameters.	Information Theory and Coding,Extracurricular Teaching,Engineering Technique Practice,Graduate Project (Thesis).	Written examinations, Experimental reports,

problems based on scientific principles, including the design of experiments, analysis and interpretation of data, and obtain an reasonable and effective conclusion through information synthesis.	4.2 Designing the experiment according to research needs, and accomplish the experiment and obtain the data by following the reasonable steps	Extracurricular Teaching,Engineering Technique Practice,Graduate Project (Thesis).	Written examinations, Experimental reports
	4.3 Comparing the experimental data and results with the reference of theoretical model, explain the differences between experimental and theoretical results.	Extracurricular Teaching,Engineering Technique Practice,Graduate Project (Thesis).	Written examinations, Experimental
5. Using modern tools: An ability to develop, select and use appropriate technologies, resources, modern engineering tools, and information technology tools for complex engineering problems, including predictions and simulations of complex engineering problems, and understanding their limitations.	5.1 Mastering modern engineering tools and information technology tools such as computer and information network, being able to select and apply correctly for complex engineering problems, have the ability to use computer and information network aided electronic information for planning, design, calculation and control.	Fundamentals of Programming (C Language),C++ Programming,Data Structure,Java Programming,Case Study Based Information Technology,Foundation of Mobile Devices Development,Advanced Topics of Mobile Devices Development,Advanced Topics of Information Engineering,Advanced Topics	Written examinations, Experimental reports, Course reports, Internship reports, Graduate project docume
	5.2 Using modern tools to predict and simulate complex engineering problems, and understanding the limitations of the relevant tools in the practice processes.	Fundamentals of Programming (C Language),C++ Programming,Data Structure,Java Programming,,Case Study Based Information Technology,Foundation of Mobile Devices Development,Advanced Topics of Mobile Devices Development,Advanced	Written examinations, Experimental reports, Course reports, Internship reports, Graduate
6. Engineering and Society: An ability to rationally analyze and evaluate the impact of professional engineering practices and complex engineering solutions on society, health, safety, legal, and cultural issues, based on engineering-related background knowledge, and understanding the responsibilities to be undertaken.	6.1 Understanding the international science and technology policy in the field of electronic information, as well as laws and regulations of intellectual property and information security, and understand the basic requirements of engineering and technology ethics.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information	Written examinations, Experimental reports, Course reports, Internshi
	6.2 Being able to evaluate the impact of complex problem solutions on social, health, safety, legal, and cultural issues in electronic information engineering practice, and understanding the responsibilities to be undertaken.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information	Written examinations, Experimental reports, Course reports, Internshi

7. Environment and sustainable development: An ability to understand and evaluate the impact of professional engineering practices on environmental and social sustainable development for complex engineering problems.	7.1 Understanding the principles, policies, laws and regulations of the environmental protection and sustainable development of the professional engineering practice.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information	Written examinations, Experimental reports, Course reports, Internshi
	7.2 Correctly understanding the impact of engineering practice of the complex electronic information engineering problems on environmental and social sustainable development, with good quality, safety, service and environmental awareness in engineering practice.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information	Written examinations, Experimental reports, Course reports, Internshi
8. Professional norms: with the humanities and social sciences, social responsibility, understand and comply with professional ethics and norms in engineering practice, fulfill their responsibilities.	8.1 Using the philosophical, historical methods to understand and analyze things with basic knowledge of literature, philosophy, political science, sociology, etc.	Engineering Technique Practice,Graduate Project (Thesis).	Written examinations, Experimental reports,
	8.2 Have a good social morality and professional ethics, with a strong sense of social responsibility.	Engineering Technique Practice,Graduate Project (Thesis).	Written examinations, Experim
	8.3 Understanding the domestic and international laws and regulations and industry standards of production, design, research and development in the related professional industry.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering Engineering	Written examinations, Experimental reports, Course reports, Internshi p
9. Individuals and teams: An ability to take the role of individuals, team members and the person in charge in a multidisciplinary team.	9.1 Understanding the multidisciplinary technical background and technical features of electronic information engineering problems, and be able to divide and cooperate in team work, and properly deal with the relationship between individual and team.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering Engineering	Written examinations, Experimental reports, Course reports, Internshi p
	9.2 Fully understanding the role of team members under the multidisciplinary background, and undertake the basic tasks of system design and development according to specific requirements.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering,Engineering	Written examinations, Experimental reports, Course reports, Internshi p

		Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering,Engineering	Written examinat ions, Experim ental reports, Course reports, Internshi p
	9.3 With an ability of a certain organizational skills, being able to develop a reasonable work plan, and assign tasks according to the knowledge and ability of team members, and coordinate to complete the task.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering,Engineering	Written examinat ions, Experim ental reports, Course reports, Internshi p
10. Communication: An ability to communicate effectively with industry peers and the public on complex engineering issues, including writing reports and designing documents, presentations, clear expression or responding to instructions or. And have a certain international perspective, be able to communicate and exchange in the cross-cultural context.	10.1 Have good expressional and written organizational skills, be able to clearly express the solutions, processes and results of complex electronic information engineering problems through written reports and oral presentations, communicate and exchange effectively with industry peers and the general public.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering,Engineering	Written examinat ions, Experim ental reports, Course reports, Internshi p
	10.2 Have good foreign language listening, speaking, writing skills, understanding the differences between different cultural and technical behaviors, and be able to communicate and exchange with each other in a cross-cultural context, and have a certain international perspective through reading the domestic and foreign technical literature and academic lectures and other sectors.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering,Engineering Technique Practice,Graduate Project	Written examinat ions, Experim ental reports, Course reports, Internshi p reports, Graduate
11. Project Management: Understanding and mastering engineering management principles and economic decision-making methods, and can be applied in a multidisciplinary environment.	11.1 Mastering the basic concepts and methods of management, being able to understand the important economic and managerial factors that are involved in engineering activities.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information	Written examinat ions, Experim ental reports, Course reports, Internshi
	11.2 Being able to use modern management knowledge in a multidisciplinary environment for technical organization and management, with the ability of implementation and management capabilities of electronic information systems.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information Engineering,Engineering	Written examinat ions, Experim ental reports, Course reports, Internshi p

12. Lifelong learning: Have a sense of self-learning and lifelong learning, and ability of continuous learning and adapt to the development.	12.1 With the concept of time and efficiency awareness, being able to carry out consciously preview, review and summarize for learning task.	Advanced Mathematics,College Physics,Probability Theory and Mathematical Statistics,Functions of Complex Variable and Integral Transforms,Numerical Calculation,Principles of Electrical Circuits,Analog Electronics Technology,Digit Electronics Technology,Digtial Communication Principles,Principle of Automatic Control,Application and Design of Electronic Technology,Comprehensive	Written examinations, Experimental reports, Course reports, Internship reports, Graduate project documents.
	12.2 Have a correct understanding of lifelong learning; be able to update the knowledge system timely, effectively select and acquire new knowledge to meet the development and progress of technology.	Introduction to Electronic Information Engineering,Specialty English,Case Study Based Information Technology,Advanced Topics of Electronic Engineering,Advanced Topics of Information	Written examinations, Experimental reports, Course reports, Internshi

IV. Major Disciplines

Electronic Science and Technology, Information and Communication Engineering, Computer Science and Technology

V. Core Courses

Circuit theory, Analog Electronic Technology, Digital Electronic Technology, Fundamentals of Signals and System,Programming languages, Principle of Microcontroller, Embedded Systems,Modern Communication Networks, Digital Signal Processing, Sensing and Detection Technology, Digtial Communication Principles, etc.

VI. Internship and Practice

Military training, social practice, circuit and electronic circuit experiment curriculum design, metalworking, engineering (technology) internship, graduation design (thesis).

VII. Duration of Schooling, Degree and Credits Requirements for Graduation

1．Duration of Schooling：The length of schooling is flexible, generally it lasts four years. The students can graduate one year in advance or within 8 years.
2．Degree Conferred：Bachelor's degree in Engineering.
3．The Minimum Graduation Credits：178 Credits

VIII．Credits Structure and Ratio：

The curriculum Provision and Course Type		Credits	Credits Ratios
General Education	Required	46	25.8%

Theory Teaching	Courses	Optional	22	12.4%
	Discipline & Specialty Basic Courses	Required	20	11.2%
	Specialized Core Courses （Required）		21	11.8%
	Expand and Recombination Courses （Optional）		16	9.0%
	Subtotal		125	70.2%
Practice Teaching	Required		53	29.8%
Total			178	100.0%

课程设置与学时安排（表一）

专业名称：电子信息工程

课程类别	课程性质		课程代码	课程名称	学分	总学时	理论学时	实验学时实践	习题学时	研讨学时	课外学时	考试学期	长1 16周	长2 16周	长3 16周	长4 16周	长5 16周	长6 16周	长7 16周	长8 16周	备注
通识教育课程	思政类	必修	2615A101	中国近现代史纲要 Outline of Contemporary Chinese History	3	48	32	16	2	4		1	2								
			2615A079	思想道德修养与法律基础 Fundamentals of Morality and Law	3	48	36	2	4	6		2		3							
			2615A080	马克思主义基本原理概论 Introduction to Fundamental Principles of Marxism	3	48	36	2	4	6		3			3						
			2615A102	毛泽东思想与中国特色社会主义理论体系概论 Introduction to Mao Zedong's Thought and Theoretical System of Socialism with Chinese Characteristics	3	48	32	16	4	8		4				4					
			26115201-26115204	形势与政策 Situation and Policy	2	32	32						长1-4讲座								
	外语类	必修	5214A001 5214A002 5214A004 5214A005	大学英语2-3 工程师英语1-2 College English 2-3 Engineer English 1-2	10	160	124		18	18	160	1-4	3	3	2	2					实施分级教学 2选1
			5214A002 5214A003 5214A004 5201A005	大学英语3-4 工程师英语1-2 College English 3-4 Engineer English 1-2																	
	体育类	必修	1316A007-1316A010	体育1-4 Physical Education 1-4	4	144			144			1-4	2	2	2	2					
	数理基础类	必修	1011A120 1011A121	高等数学A++1-A++2 Advanced Mathematics A++1-A++2	12	192	136		34	22	290	1-2	6	6							
			1011A107	线性代数B Linear Algebra B	2	32	24		4	4	32	2		2							
			1011A113	概率论与数理统计A Probability Theory and Mathematical Statistics A	3	48	34		8	6	48	3			3						
			1011A116	复变函数与积分变换 Functions of Complex Variable and Integral Transforms	2	32	24		4	4	32	3			2						
			1012A110 1012A111	大学物理B1-2 College Physics B	5	80	48		20	12	80	2-3		3	2						
			0211A001	数值计算 Numerical Calculation	2	32	28		2	2		4				2					
	创新创业类	必修	3717A039	创业基础 Entrepreneurial Fundamental	2	32	26			6	16			2							

类别		课程编号	课程名称	学分	总学时	讲课	实验	上机	课内实践	其他	考核学期	一	二	三	四	五	六	七	八	备注
文化素质类	必修	5115A087	大学语文 College Chinese	2	32	10	6	4	12			2								
就业指导（健康教育与）	必修	2717A122	大学生心理健康教育 Mental Health Education for College Students	1	16	8		4	4		1	1								
	必修	31117082-31117083	大学生职业发展与就业指导1-2 Career Planning and Guidance for College Students 1-2	1	16	16								2				2		
素质选修课	8个学分必修，课程选修		自然科学拓展及工程技术拓展之外的课程群至少选修6个学分	6	96	96							2	3	3					
			自然科学拓展及工程技术拓展课程群至少选修2个学分	2	32	32														
通识教育类课程小计				**68**	**1168**	**774**	**42**	**256**	**114**	**658**		**16**	**23**	**19**	**13**	**0**	**2**	**0**	**0**	
学科专业基础课程	必修	0222A006	0222A006智能信息技术导论（Introduction to Intelligent Information Technology）	0.5	8	8						2								
		0223A003	程序设计基础（C语言）Fundamentals of Programming(C Language)	3	48	48				48	1	3								
		0222A002	电路分析基础 Principles of Electrical Circuits	3	48	38		6	4	48	2		3							
		0222A124	模拟电子技术B Analog Electronics Technology B	3.5	56	44		8	4	36	3			4						
		0222A125	数字电子技术B Digit Electronics Technology B	3	48	38		6	4	32	3			3						
		0222A003	C++程序设计 C++ Programming	2	32	28		4		32	4				2					
		0222A004	信号与系统基础 Fundamentas of Signals and Systems	3	48	44		4		48	4				3					
		0222A005	算法与数据结构 Algorithms and Data Structure	2	32	28		4		32	5					2				
学科专业基础课程小计				**20**	**320**	**276**	**0**	**32**	**12**	**228**		**5**	**3**	**7**	**5**	**2**	**0**	**0**	**0**	
专业核心课程	必修	0232A001	单片机原理 Principle of Microcontroller	3	48	42	4	2		48	4				3					
		0232A002	Java程序设计 Java Programming	2	32	30		2		32	4				2					
		0232A003	嵌入式系统 Embedded Systems	2	32	28		4		32	5					2				注1
		0232A004	数字信号处理 Digital Signal Processing	2.5	40	36		4		40	5						3			双语
		0232A005	传感器与检测技术 Sensors and Detection Technology	2	32	28		4		32	5					2				
		0232A006	数字图像处理 Digital Image Processing	2	32	28		4		32	6						2			

类别	模块	课程代码	课程名称	学分	总学时	讲课	实验	上机	课外	合计	周学时	一	二	三	四	五	六	七	八	备注
		0232A007	数据通信与计算机网络 Modern Communication Networks	3	48	36	8	4		48	6						3			
		0232A008	数字通信原理 Digtial Communication Principles	2.5	40	36		4		40	6						3			双语
		0232A009	RFID技术基础 RFID Technology	2	32	28		4		32	7							4		
专业核心课小计				21	336	292	8	30	6	336		0	0	0	5	7	8	4	0	
拓展复合课	专业拓展（按模块选修）模块1（电子工程方向）	0242B001	EDA-电子设计自动化技术 Electronic Design Automation	2	32	12	16	4		32						2				
		0242B002	信息技术案例教学 Case Study Based Information Technology	2.5	40	20	16	4		40						3				
		0242B003	FPGA与数字系统设计 FPGA and Digital System Design	2.5	40	28	8	4		40	6						3			
		0242B004	电子工程高级专题 Advanced Topics of Electronic Engineering	2.5	40	20	16	4		40							3			
	小计			10	152	80	56	16		152		0	0	0	0	5	6	0	0	
	至少选修学分			6	96	96														
	模块2（信息工程方向）	0242B005	移动设备开发基础 Foundation of Mobile Devices Development	3	48	28	16	4		48	5					3				
		0242B002	信息技术案例教学 Case Study Based Information Technology	2.5	40	20	16	4		40						3				
		0242B006	移动设备开发高级专题 Advanced Topics of Mobile Devices Development	2	32	20	8	4		32							2			
		0242B007	信息工程高级专题 Advanced Topics of Information Engineering	2.5	40	20	16	4		40							3			
	小计			10	160	88	56	16		160		0	0	0	0	6	5	0	0	
	至少选修学分			6	96	96														
专业拓展至少选修学分				6	96	96														
		0242B008	信息论与编码 Information Theory and Coding	2.5	40	28	8	4			5						3			
		0242B009	电子测量技术 Electronic Measurement Technology	2.5	40	28	8	4			5						3			
		0222B011	数据库原理及应用 Principles and Application of Database	2.5	40	28	8	4			5						3			
		0242B012	工程电磁场 Electromagnetic Fields	2.5	40	36		4			5						3			
		0246B029	专业英语 Specialty English	2	32	32											2			
		0246B028	通信电子电路 Communication Electronic Circuits	3	48	34	8	6			6						3			

类别	课程代码	课程名称	学分	学时						先修									备注
专业复合课	0246B032	Zigbee 技术 ZigBee Technology	2	32	20	8	2	2		6					2				注1
	0242B013	数据采集系统 Data Acquisition Systems	2.5	40	28	8	4								3				
	0246B031	DSP及其应用 DSP and Its Applications	3	48	28	16	2	2							3				
	0246B027	科技文献阅读与写作 Science and Technology Literature Reading and Writing	2	32	14	16		2							2				
	0246B038	自动控制原理 Automatic Control Principle	2	32	22	8	2			7							4		
	0246B036	人工智能导论 Introduction of Artificial Intelligence	2	32	22	8		2									4		
	0242B014	沟通与职业素质 Communcation and Career Quality	0.5	8	8												2		
		小计	29	464	328	96	32	8	0		0	0	0	0	14	14	10	0	
		专业复合至少选修学分	10	160															
		专业拓展复合至少选修学分合计	16	256															
		理论教学学分学时合计	125	2080															

注1：准备建设为企业（培训）引进课程。

实践教学安排（表二）

课程代码	所属模块	实践教学活动名称	学分	周或学时	第一学年			第二学年			第三学年			第四学年		备注
					长1	长2	短1	长3	长4	短2	长5	长6	短3	长7	长8	
31461014	公共实践	大学始业教育 Induction of University Life	1	1周	1周											
13461013		军事理论及训练 Military Theory and Training	4	4周	4周											
13461015		体质健康训练 Health Training	0.5	16								2				
31463007		思政社会实践 Ideological Social Practice	2	2周						2						
31467084		大学生职业发展与就业指导实践 Practice of Career Planning and Guidance for College Students	1	22							22					
1012A022	基础实验	大学物理实验B Physical Experiment of College B	1	33		3										
0261A201		数值计算实验 Experiments for Numerical Calculation	0.5	16					2							
0267A101		程序设计基础（C语言）实验 Experiments in Fundamentals of Programming(C Language)	0.5	16	2											
0261A203		电路分析基础实验 Experiments of Circuit Principles	0.5	16				2								
0261A204		低频电子线路实验 Experiments for Low Frequency Electric Circuit	0.5	16				2								
0261A205		数字逻辑实验 Experiments for Digital Logic	0.5	16				2								
0261A206		C++程序设计实验 Experiments for C++ Programming	0.5	16					2							
0261A207		算法与数据结构实验 Experiments for Algorithms and Data Structure	0.5	16							2					
0261A208		单片机原理实验 Experiments for Principle of Microcontroller	0.5	16					2							
0261A209		Java程序设计实验 Experiments for Java Programming	0.5	16					2							
0261A210		嵌入式系统实验 Experiments for Embedded Systems	0.5	16							2					
0261A211	专业	数字信号处理实验 Experiments for Digital Signal Processing	0.5	16							2					

代码	类别	课程名称	学分	学时	1	2	3	4	5	6	7	8	9	10	11	12
0261A212	大实验	传感器与检测技术实验 Experiments for Sensors and Detection Technology	0.5	16							2					
0261A213		数字图像处理实验 Experiments for Digital Image Processing	0.5	16								2				
0261A214		数字通信原理实验 Experiments for Digtial Communication Principles	0.5	16								2				
0261A215		RFID技术基础实验 Experiments for RFID Technology	0.5	16										2		
0254A201	专项设计	Java程序设计课程设计 Design of Java Programming	1	1					1							
0254A202		单片机应用系统课程设计 Mono-Chip Computers Application System Design	1	1						1						
0254A203		模块方向综合课程设计 Comprehensive Course Design of Modules Direction	1	1									1			
3752A019	基础实践	电工电子实习A Electrics and Electronic Practice A	2	2				2								
3752A018		金工实习B Metalworking Practice B	2	2				2								
0251A201	专业实践	工程技术实习 Engineering Technique Practice	10	10										10		
0257A501		毕业设计（论文） Graduate Project (Thesis)	16	16											16	
31462009		第二课堂 Extracurricular Teaching	3						3							
合计			53													

学期	课程
第一学期	程序设计基础（C语言）　电子信息工程导论　高等数学A1　大学英语2
第二学期	大学物理实验B　大学物理B　电路原理B　高等数学A2　线性代数A　大学英语3
第三学期	C++程序设计　模拟电子技术　数字电子技术　概率论与数理统计A　复变函数与积分变换　工程师英语1
第四学期	数值仿真与计算　Java程序设计　数据结构　单片机原理　信号与系统基础　工程师英语2
第五学期	数字图像处理　移动设备开发基础　信息技术案例教学　EDA-电子设计自动化　传感器与检测技术　数字信号处理　专业英语
第六学期	移动设备开发高级专题　信息工程高级专题　电子工程高级专题　FPGA与数字系统设计　嵌入式系统　数字通信原理　数据通信与计算机网络　科技文献检索
第七学期	多媒体技术　技术实习　DSP及其应用　沟通与职业素质
第八学期	毕业设计（论文）

右侧竖排：自然科学拓展及工程技术拓展群以及之外的课程选修

图例：
- ┈┈ 电子工程模块
- ┈┈ 信息工程模块
- ┈┈ 垮学科专业类