浙江科技学院通信工程专业培养方案

一、培养目标

本专业旨在培养信息与通信领域的高级应用型人才，要求学生具有良好的人文科学素养，数学与自然科学知识，能够系统掌握信息与通信工程领域的基本理论知识，并具有较强的工程实践能力和一定的国际化视野，能够从事信息与通信工程领域的科学研究、工程应用、管理和教育等工作或攻读研究生继续深造。具体分为以下四个方面：

1、具备信息与通信工程领域的基本理论、工程基础知识和自然科学与数理知识，掌握某专业方向的专门知识与技能。

2、在本领域的相关行业中，能够应用所学的专业知识和专业技能，发现与研究问题，并能设计出合理的解决方案。

3、在本领域的相关职业工作中，具有较强的实践应用能力的专业优势，并具有一定的国际化视野，能有效的进行科技交流与合作。

4、具有良好的道德修养与人文素质，能过持续不断的学习和发展积极服务国家与社会，或能够继续深造，攻读国内外本学科或相关学科的硕士学位。

二、毕业要求

学生通过本专业学习所掌握的知识、技能和素养要求如下：

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电子通信与计算机领域的复杂工程问题。

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电子通信与计算机领域复杂工程问题，以获得有效结论。

3.**设计/开发解决方案**：能够设计针对电子通信与计算机领域的复杂工程问题的解决方案，设计满足特定需求的 系统、模块（组件）活工艺流程，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**：能够基于电子通信与计算机的科学原理并采用有关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**：能够针对电子通信与计算机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，对电子通信与计算机领域的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**：能够基于电子通信与计算机领域的工程相关背景知识进行合理分析，评价有关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电子通信与计算机领域的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，能够在电子通信与计算机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。

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
	1.1 具备运用数学、自然科学基础知识的能力。	高等数学、线性代数、概率论与数理统计、复变函数与积分变换、大学物理、自然科学类拓展选修课	课程平时考核；期末考核

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电子通信与计算机领域的复杂工程问题。	1.2 掌握计算机系统基础知识和基本理论。	程序设计基础（C语言）、电子电路基础 、脉冲与数字电路 、信息论与编码 、电磁场与电磁波基础	课程平时考核;期末考核
	1.3 掌握通信工程基本理论和方法。	通信工程专业导论 、信号与系统基础、数字信号处理 、数据通信与计算机网络	课程平时考核;期末考核
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通信与计算机领域复杂工程问题，以获得有效结论。	2.1 拥有计算和抽象思维能力，对软件系统及相关问题进行抽象和建模。	程序设计基础（C语言）、复变函数与积分变换、信号与系统基础、通信原理（双语） 、通信工程导论	课程平时考核;期末考核
	2.2 利用互联网等现代信息技术方法获取资料和专业文献并进行研究分析	科技文献检索、第二课堂、认知实习、毕业设计	课程平时考核;期末考核
3.设计/开发解决方案：能够设计针对电子通信与计算机领域的复杂工程问题的解决方案，设计满足特定需求的 系统、模块（组件）活工艺流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。	3.1 针对特定复杂工程问题的需求，能够提出并设计合理的解决方案，并能考虑社会、健康、安全、法律、文化及环境等因素。	思想道德修养与法律基础、、通信工程专业导论、沟通与职业素质、毕业设计	课程平时考核;期末考核
	3.2 具备追求创新的态度和意识，能在工程实践中提出新思路和新方案。	通信系统综合设计、第二课堂、工程技术实习、毕业设计	课程平时考核;期末考核
4.研究：能够基于电子通信与计算机的科学原理并采用有关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 掌握设计过程模型、软件设计思路和基本原理、软件工程方法等。	基于MATALB的通信信号处理、信息论与编码	课程平时考核;期末考核
5.使用现代工具：能够针对电子通信与计算机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，对电子通信与计算机领域的复杂工程问题的预测与模拟，并能够理解其局限性。	5.1 掌握通信设计和开发过程中使用的各种工具和方法	程序设计基础（C语言）实验 ）、电子电路基础实验、单片机应用系统设计、通信系统设计与仿真实践等等	课程平时考核;期末考核
	5.2 掌握多种开发工具、技术资源和方法的特性，针对特定复杂通信工程问题对其进行分析、比较和选择。	通信系统设计与仿真实践、第二课堂、工程技术实习、毕业设计	课程平时考核;期末考核
6.工程与社会：能够基于电子通信与计算机领域的工程相关背景知识进行合理分析，评价有	6.1 掌握人、网络、计算机、社会等之间关系，了解软件工程实践问题可能对社会、健康、安全、法律及文化方面的影响。	思想道德修养与法律基础、通信工程专业导论 、数据通信与计算机网络、沟通与职业素质	课程平时考核;期末考核

进行合理分析，评价有关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。	6.2 理解并运用通信工程行业中相关的行业规范、国际标准和法律法规，评价软件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。	思想道德修养与法律基础、沟通与职业素质 、形势与政策	课程平时考核；期末考核
7.环境和可持续发展：能够理解和评价针对电子通信与计算机领域的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 理解通信工程实践所涉及的环境保护和社会可持续发展的方针、政策和法律。	思想道德修养与法律基础、通信工程专业导论、数据通信与计算机网络、形势与政策	课程平时考核；期末考核
	7.2 能认识并评价复杂通信工程问题的专业实践和对环境以及社会可持续发展的影响。	通信工程专业导论 、大学生职业发展与就业指导、沟通与职业素质 、形势与政策、工程技术实习、毕业设计	课程平时考核；期末考核
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 能够树立正确的世界观、人生观、价值观，具备良好的人文社会科学素养、社会责任感。	中国近现代史纲要、思想道德修养与法律基础、马克思主义基本原理概论、毛泽东思想与中国特色社会主义理论体系概论	课程平时考核；期末考核
9.个人和团队：能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。	9.1 能够在多学科背景下理解团队的意义，了解软件项目团队的角色及职责。	通信系统综合设计、思政社会实践、军事理论及训练、第二课堂	课程平时考核；期末考核
	9.2 具备组织、沟通、协调、服务等能力，能够在复杂项目实施过程中承担相关角色。	电子技术课程设计、通信系统综合设计、工程技术实习、毕业设计	课程平时考核；期末考核
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 具有良好语言表达和文字组织能力，能够有效进行技术交流与沟通。	实验报告、课程设计报告、课程设计答辩、课堂研讨、工程技术实习、毕业设计	课程平时考核；期末考核
	10.2 能够具备一定的国际视野，掌握一门外语，能够了解和跟踪通信工程专业的最新发展趋势，具有跨文化交流和沟通能力。	大学英语、双语课程	课程平时考核；期末考核
	10.3 能够按照行业规范、国际标准进行技术文档撰写和交流。	企业课程、双语课程	课程平时考核；期末考核
11.项目管理：理解并掌握工程管理原理与经济决策方法，并在多学科环境中应用。	11.1 能够理解和掌握复杂工程项目管理原理和经济决策方法。	管理和经济类选修课、通信系统设计与仿真实践、通信系统综合设计	课程平时考核；期末考核
	11.2 能够在多学科环境中根据复杂通信工程项目特征选择恰当的项目管理方法和经济决策方法。	通信系统综合设计、技术实习、毕业设计	课程平时考核；期末考核
	11.3 能够选择恰当的项目管理工具、工程模型，具备对复杂通信工程项目进行项目管理的能力并进行实践。	通信系统综合设计、技术实习、毕业设计	课程平时考核；期末考核

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 能够认识到自我探索和终身学习的必要性和重要性。	思政社会实践、认知实习	课程平时考核；期末考核
	12.2 拥有健康的体质，能够养成主动学习习惯，运用科学的学习方法管理知识和处理信息，有不断学习和适应发展的能力。	体育、体质健康训练、科技文献检索	课程平时考核；期末考核

四、主干学科

信息与通信工程、电子科学与技术、计算机科学与技术

五、专业核心课程

电子电路基础、信号与系统基础、电磁场与电磁波、单片机原理、嵌入式系统、高频电子线路、数字信号处理、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、认知实习、电工电子实习、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：基本学制为四年，弹性学习年限为 3～8 年
2．授予学位：工学学士学位
3．本专业毕业最低学分要求：179学分

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	55.5	31.0%
		选修	8	4.5%
	学科专业类基础课	必修	19	10.6%
	专业核心课（必修）		21.5	12.0%
	拓展复合课（选修）		12	6.7%
	小计		116	64.8%
实践教学环节	必修		60	33.5%
合计			179	100.0%

Undergraduate Program in Communication Engineering

I. Training Objectives

This major aims to cultivate advanced applied talents in the field of information and communication，Students are required to have a good knowledge of humanities, mathematics and Natural Science，able to master the basic knowledge of information and Communication Engineering，And has a strong practical ability and a certain degree of internationalization of the field of vision，able to work in the field of scientific research, engineering application, management and education in information and communication engineering, or graduate students to continue their studies.

Specifically divided into the following four aspects:

1、Students having basic knowledge of information and communication engineering, engineering knowledge and natural science and mathematical knowledge,master the professional knowledge and skills in a professional direction.

2、In the field of related industries，Students able to use the professional knowledge and professional skills, find and research problems, and can design a reasonable solution.

3、In related professional work in this field,Students have a strong practical application ability of professional advantages, and has a certain international perspective, can effectively communicate and cooperate with science and technology.

4、Students have a good moral and humanistic quality, can continue to learn and develop actively serve the country and society, or to continue their studies, study at home and abroad, the discipline or related disciplines master's degree.

II. Graduation Requirements

There are 12 requirements in total for a qualified student in communication engineering:

1.To grasp the fundamental engineering knowledge: Students are courage to implement the fundamental knowledge in the fields of mathematics, natural science and basic and professional engineering to solve complex problems in communication engineering.

2. To obtain the project analysis ability: Based on their knowledge structure in communication engineering, such as mathematics, natural science and engineering, the students should recognize, express, and solve the specific project problem by means of checking related literatures to make an effective conclusion.

3. To present the industry solutions: Students are able to present design their solutions for complex problems in communications engineering and computer engineering. In which, the students should give a clear and neat description on structure of the whole system including each module in sub-systems and the working procedure. Furthermore, student should express their innovation idea in the design details and give a full consideration on the related factors including but not limited in the sight of the nation, health, safety, law, culture and environment.

4 To carry out the research: Students are able to carry out the research on the complex problems in communication or computer engineering based on scientific principles and engineering methods including software modeling, experiments designing, data analysis and interpretation. Reasonable and effective conclusions should be made from the comprehensive information.
5. To be familiar with modern tools: Students should select or develop a proper modern Engineering tools to solve the complicated project problems in communication or computer engineering . Students are not only trained to have proficient skill in simulation to predict the solution with the modern Engineering tools but also to have a deep understanding of the limitation of these tools.
6. To evaluate the technique influence: Students can carry on reasonable analysis based on the engineering background knowledge, and evaluate the communication engineering technique influence on society, healthy, safety, law ,culture, and the corresponding responsibilities.
7. To understand the environment and sustainable development: Students should have the ability to understand and evaluate the influence on the environment and the social sustainable development when performing the complicated electronic communications and software engineering practices.
8. To remember professional morals: Students should remember the corresponding social responsibilities, professional ethics and norms in the electronic communications and engineering practice.
9. To understand the relationship of the individual and the team: Students can undertake different roles as individuals, team members, or team leaders in teams with multidisciplinary background.
10. To communicate in an effect way: Students should have the ability to communicate effectively with the industry peers and the public communities on complex engineering problems, which including writing reports and design documents, making presentations, giving clear expressions or responses to orders. International vision is also required to communicate under cross-cultural situations.
11. To be expert in project management: Students should understand and master the software project engineering management principles and economic decision method, and apply them in multidisciplinary environment.
12. To devote to Lifelong learning: Students should realize the inportance of the independent learning and lifelong learning, and have the ability to learn constantly to catch up with the development.

III. Realization Matrix of Graduation Requirements

Graduation Requirements	Indicators of Graduation Requirements	The Main Courses and Programs	Assessment
1.To grasp the fundamental engineering knowledge: be able to implement the mathematics, natural science and basic engineering knowledge to solve complex problems in communications and computer engineering .	1.1 Be able to use basics of mathematics, natural science	Advanced Mathematics、Linear Algebra 、Probability, Statistics and Random Processes、Functions of a Complex Variable and Integral Transformations、College Physics 、Natural science electives	Regular Assessment; Final Exam;
	1.2 Master the basic knowledge and theories of the computer system	Fundamentals of Programming(C Language) 、Fundamentals of Electronic Circuits、Digital Pulse Circuits、Information Theory and Coding、Fundamentals of Electromagnetics	
	1.3 Master the basic knowledge and method of communication engineering	Introduction to Communication Engineering、Fundamentals of Signals and Systems、Digital Signal Processing、Data Communication and Computer Networks	

2. To obtain the project analysis ability: be able to recognize, express, and solve the specific project problem by means of checking related literatures to make an effective conclusion.	2.1 Have the ability of calculation and abstract thinking for software system abstraction and modeling.	Fundamentals of Programming(C Language) 、Functions of a Complex Variable and Integral Transformations、Fundamentals of Signals and Systems、Communication Principles、Introduction to Communication Engineering	Regular Assessment; Final Exam;
	2.2 Using the Internet and other modern information technology methods to obtain information and professional literature to conduct study and analysis.	Retrieva of Science and Technology Literature、Extracurricular Teaching、Cognition Practice、Graduate Project (Thesis)	
3. To present the industry solutions: able to present design their solutions for complex problems in communications engineering and computer engineering. student should express their innovation idea in the design details and give a full consideration on the related factors including but not limited in the sight of the nation, health, safety, law, culture and environment.	3.1 To give reasonable design solutions to meet the requirements of specific complex software engineering problems, and also to balance the social, health, safety, legal, cultural and environmental factors.	Morality Cultivation and General knowledge of Law、Introduction to Communication Engineering、Communication and Career Quality 、Graduate Project (Thesis)	Regular Assessment Final Exam
	3.2 Have the attitude and consciousness of innovation, and can put forward new ideas and new solutions in the engineering practice.	Communication System Design and Simulation Practice、Extracurricular Teaching、Engineering Technique Practice、Graduate Project (Thesis)	
4. To carry out the research: be able to carry out the research on the complex problems in communication or computer engineering based on scientific principles and engineering methods including software modeling, experiments designing, data analysis and interpretation. Reasonable and effective conclusions should be made from the comprehensive information.	4.1 Master software process models, software design thinking and basic principles, method of software engineering, etc.	Communications signal processing based on MATALB、Information Theory and Coding	Regular Assessment Final Exam
5.To be familiar with modern tools: be able to select or develop a proper modern Engineering tools to solve the complicated project problems	5.1 To master the various tools and methods used in software design and development process.	Experiments in Fundamentals of Programming(C Language)、Experiment of Fundamentals of Electronic Circuits、Mono-Chip Computers Application System Design、Communication System Design and Simulation Practice	

in communication or computer engineering. Students are not only trained to have proficient skill in simulation to predict the solution with the modern Engineering tools but also to have a deep understanding of the limitation of these tools.	5.2 To master a variety of development tools and technical resources and method features, making analysis, comparison and choices for specific software engineering problem.	Communication System Design and Simulation Practice、Extracurricular Teaching、Engineering Technique Practice、Graduate Project (Thesis)	Regular Assessment Final Exam
6.To evaluate the technique influence: Be able to carry on reasonable analysis based on the engineering background knowledge, and evaluate the communication engineering technique influence on society, healthy, safety, law ,culture, and the corresponding responsibilities	6.1 Master the relationships between people, network, computer, and the society, so as to understand the influence of communications engineering practices upon society, health, safety, legal and cultural issues.	Morality Cultivation and General knowledge of Law、Introduction to Communication Engineering、Data Communication and Computer Networks、Communication and Career Quality	Regular Assessment Final Exam
	6.2 Understand and apply the software engineering industry standards, international standards and laws and regulations to evaluate the communications engineering practice and its effects on the problems of social, health, safety, legal and culture, as well as taking corresponding responsibilities.	Morality Cultivation and General knowledge of Law、Communication and Career Quality 、Situation and Policy	
7. To understand the environment and sustainable development: Be able to have the ability to understand and evaluate the influence on the environment and the social sustainable development when performing the complicated electronic communications and software engineering practices.	7.1 Understand the principles, policies and laws of environmental protection and social sustainable development involved during communications engineering practices.	Morality Cultivation and General knowledge of Law、Introduction to Communication Engineering、Data Communication and Computer Networks、Situation and Policy	Regular Assessment Final Exam
	7.2 To Know and evaluate the impact of communications engineering practice on environment and social sustainable development.	Introduction to Communication Engineering、Career planning and guidance for college students、Communication and Career Quality 、Situation and Policy、Engineering Technique Practice、Graduate Project (Thesis)	
8. To remember professional morals: Students should remember the corresponding social responsibilities, professional ethics and norms in the electronic communications and engineering practice.	8.1 Correct outlook on world, life and values should be established, as well as good accomplishment in the humanities and social sciences, and social responsibility.	The Essentials of Modern and Contemporary History of China、Morality Cultivation and General knowledge of Law、Introduction to Fundamental Principles of Marxism 、Introduction to Mao Zedong's Thought and Theoretical System of Socialism with Chinese Characteristics	Regular Assessment Final Exam

9. To understand the relationship of the individual and the team: Be able to undertake different roles as individuals, team members, or team leaders in teams with multidisciplinary background.	9.1 Able to understand the meaning of the team under multidisciplinary background, understand the role and their responsibility in software project team.	communication system integrate design、Ideological Social Practice 、Military Theory and Training 、Extracurricular Teaching	Regular Assessment Final Exam
	9.2 Able to organize, communicate, coordinate in the process of communications engineering projects. Able to undertake related roles when implementation projects.	Application and Design of Electronic Technology、communication system integrate design、Engineering Technique Practice、Graduate Project (Thesis)	
10.To communicate in an effect way: Be able to have the ability to communicate effectively with the industry peers and the public communities on complex engineering problems, which including writing reports and design documents, making presentations, giving clear expressions or responses to orders. International vision is also required to communicate under cross-cultural situations.	10.1 Have good language expression and writing abilities to conduct effective technical exchange and communication.	The experiment reports、curriculum design reports、curriculum design defense, classroom discussion、Technology Practice、Graduate Project	Regular Assessment Final Exam
	10.2 Have international vision, master a foreign language, can understand and follow the latest development trend of software engineering, and have inter-	College English、Bilingual courses	
	10.3 Can writing technical documents and communication in accordance with the industry standards and international standards.	Business courses、Bilingual courses	
11. To be expert in project management: To understand and master the software project engineering management principles and economic decision method, and apply them in multidisciplinary environment.	11.1 Able to understand and master the principles of the communications engineering project management and economic decision method.	Elective course in Management and Economics、Communication System Design and Simulation Practice、communication system integrate design、	Regular Assessment Final Exam
	11.2 Can choose the appropriate project management methods and economic decision method in a multidisciplinary environment according to the characters of complex communications project.	Communication System Design and Simulation Practice、Engineering Technique Practice、Graduate Project (Thesis)	
	11.3 Be able to select the appropriate communications project management tools, engineering model, have the ability of project management.	Communication System Design and Simulation Practice、Engineering Technique Practice、Graduate Project (Thesis) Practice、Graduate Project	
12. To devote to Lifelong learning: To realize the inportance of the lifelong	12.1 Understand the importance and necessity of lifelong learning and self exploration	Ideological Social Practice、Cognition Practice	Regular Assessment

learning, and have the ability to learn constantly to follow the change	12.2 Have a healthy body, and an active learning habit, use scientific method to manage knowledge and process information; Have the ability of constant learning to adapt the development.	Physical Education、fitness training、science and technology literature retrieval	Final Exam

IV. Major Disciplines

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

V. Core Courses

Principles of Electrical Circuits, Low Frequency Electronic Circuits, Digital Pulse Circuits, Fundamentals of Signals and Systems, Electromagnetic Field and Waves, Principles of Microprocessor and Its Applications, High Frequency Electronic Circuits, Digital Signal Processing, Communication Principles etc.

VI. Main Internship and Practice

Military Theory and Training, Social Practice, Experiments for Electrical and Electronic Circuits, Curriculum Design, Cognition Practice, Electrical and Electronic Practice, Engineering Technique Practice, Graduation Project (thesis)

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

1．Length 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：179points.

VIII．Credits Structure and Ratio：

The curriculum Provision and Study Type			Credits	Credits Ratios
Theory Teaching	General Education Courses	Required	55.5	31.0%
		Optional	8	4.5%
	Discipline & Specialty	Required	19	10.6%
	Specialty Core Courses （Required）		21.5	12.0%
	Expand and Recombination Courses （Optional）		12	6.7%
	Subtotal		116	64.8%
Practice Teaching	Required		60	33.5%
Total			179	100.0%

课程设置与学时安排（表一）

专业名称：通信工程

课程类别	课程性质		课程代码	课程名称	学分	总学时	课内教学					考试学期	各学期周学时分配								备注
							理论学时	实验实践学时	习题学时	研讨学时	课外学时		第一学年		第二学年		第三学年		第四学年		
													长1	长2	长3	长4	长5	长6	长7	长8	
													16周	16周	16周	16周	16周	16周	16周	16周	
通识教育课程	思政类	必修	2615A101	中国近现代史纲要 The Essentials of Modern and Contemporary History of China	3	48	32	16				1	3								
			2615A079	思想道德修养与法律基础 Morality Cultivation and General Knowledge of 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		4				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				3			3						
			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	大学英语2-3 College English 2-3	6	96	80		8	8	96	1-2	3	3							实施分级教学
			5214A002 5214A003	大学英语3-4 College English 3-4	6	96	80		8	8	96	1-2	3	3							
			5214A004 5201A005	工程师英语1-2 Engineer English 1-2	4	64	44		10	10	64	3-4			2	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							
			1012A108 1012A109	大学物理A1-A2 College Physics B1-B2	6	96	73		20	14	96	2-3		4	2						
			1011A116	复变函数与积分变换 Functions of a Complex Variable and Integral	2	32	32					3			2						
			1011A107	线性代数B Linear Algebra B	2	32	24		4	4	32	2		2							
			1011A115	概率统计与随机过程 Probability, Statistics and Random Processes	3.5	56	40		8	8	56	3			3.5						
	创新创业类	必修	3717A039	创业基础 Entrepreneurial Fundamental	2	32	26			6	16			2							
	文化素质类	必修	5115A087	大学语文 College Chinese	2	32	10	6	4	12			2								

	健康教育与就业指导	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			
			2717A122	大学生心理健康教育 Mental Health Education for College Students	1	16	8		4	4		1	1								
	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课程群至少选修2个学分	2	32	32					2		2							建议数学建模、物理与人类文明、环境与健康等
				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					2-4		2	2	2					建议选经济管理、法律及艺术等方面课程
	通识教育课程小计				67.5	1160	785	42	244	100	650		17	26	18.5	9	0	2	0	0	
学科专业基础课		必修	0223A001	通信工程专业导论 Introduction to Communication Engineering	0.5	8	8				8	1	3								1-3周
			0223A002	电子电路基础 Fundamentals of Electronic Circuits	6	96	96				96	3			6						
			0223A003	程序设计基础（C语言） Fundamentals of Programming(C Language)	3	48	48				48	1	3								
			0223A004	脉冲与数字电路 Digital Pulse Circuits	3	48	48				48	4				3					
			0223A005	信息论与编码 Information Theory and Coding	2.5	40	32	8	0	0	40	5					2.5				
			0223A006	基于MATALB的通信信号处理 Communications Signal Processing Based on MATALB	2.5	40	32	8	0	0	40	6						2.5			
			0223A007	电磁场与电磁波基础 Fundamentals of Electromagnetics	3	48	40	8		0	48	5					3				
	学科基础课小计				20.5	328	304	24	0	0	328		6	0	6	3	5.5	2.5	0	0	
专业核		必修	0233A001	信号与系统基础 Fundamentals of Signals and Systems	3	48	48				48	4				3					
			0233A002	单片机原理 Principles of Microprocessor and Its Applications	3	48	48				48	5					3				
			0233A003	数据通信与计算机网络 Data Communication and Computer Networks	3	48	30	16	0	2	48	4				3					
			0233A004	嵌入式系统 Embedded Systems	3	48	30	16	0	2	48	6						3			

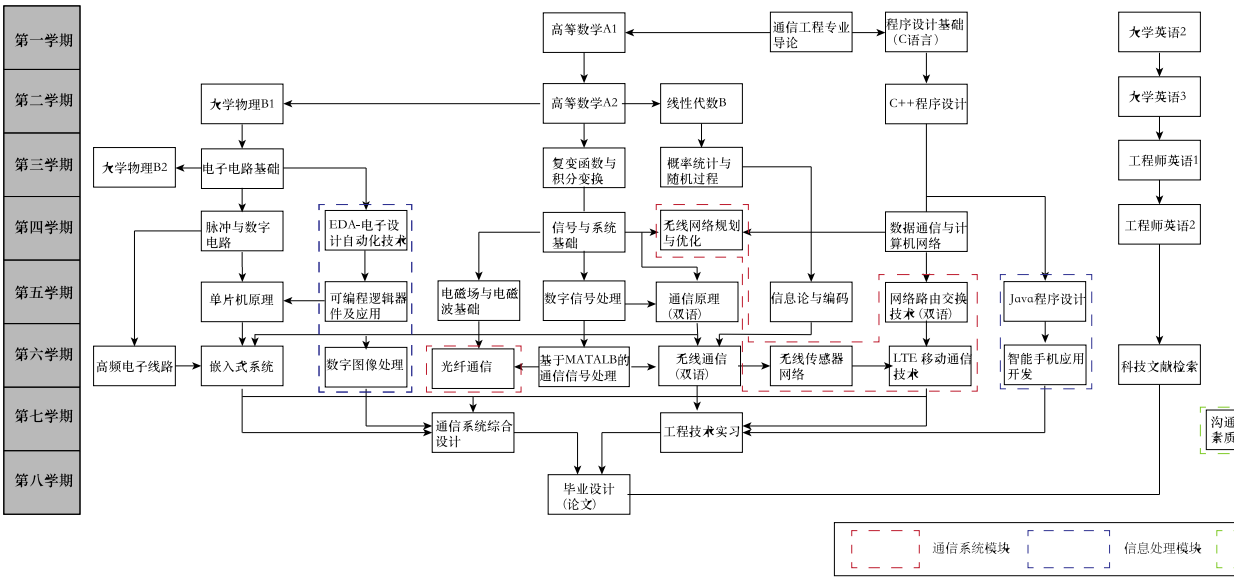
心课		0233A005	高频电子线路 High Frequency Electronic Circuits	3	48	48				48	6						3			
		0233A006	数字信号处理 Digital Signal Processing	3	48	46	0	0	2	48	5					3				
		0233A007	通信原理 Communication Principles	3	48	48				48	5					3				双语
		0233A008	无线通信 Wireless Communication	3	48	38	8	0	2	48	6						3			双语
	专业层次小计			24	384	336	40	0	8	384		0	0	0	6	9	9	0	0	
拓展复合课	专业拓展（按模块选修）	模块（通信系统模块）	0243B001	网络路由交换技术 Network Routing and Switching Technology	3	48	30	16	0	2	48	5					3				企业课程、双语
			0243B002	无线传感器网络 Wireless Sensor Networks	3	48	30	16	0	2	48	6						3			
			0243B003	LTE 移动通信技术 LTE Mobile Commmunication Techniques	3	48	30	16	0	2	48	6						3			企业课程
			0243B004	无线网络规划与优化 Wireless Network Planning and Optimization	3	48	30	16	0	2	48	4				3					
			0243B005	光纤通信 Optical Fiber Communication	3	48	46	0	0	2	48	6						3			
		小计			15	240	166	64	0	10	240										
		至少选修学分			9	144	90	48	0	6	240										
		模块（信息处理模块）	0243B006	数字图像处理Digital Image Processing	3	48	30	16	0	2	48	6						3			
			0243B007	EDA-电子设计自动化技术 Electronic Design Automation	3	48	30	16	0	2	48	4				3					
			0243B008	智能手机应用开发 Development of Intelligent Mobile Phone Application	3	48	30	16	0	2	48	6						3			
			0243B009	可编程逻辑器件及应用 Programmable Logic Device	3	48	30	16	0	2	48	5					3				
			0243B010	Java程序设计 Java	3	48	30	16	0	2	48	5					3				
		小计			15	240	150	80	0	10	240										
		至少选修学分			9	144	90	48	0	6	240										
	专业拓展至少选修学分				9	144	90	48	0	6	240										
	专业		0243B011	C++程序设计 C++ Programming	3	48	32	16				2		3							
			0243B012	电子测量技术 Electronic Measurement Technology	3	48	32	16				4				3					
			0243B013	数据结构 Data Structure	3	48	32	16				5					3				

拓展复合层次	复合（跨专业选修）	18313164	科技文献检索 Scientific Documents Retrieval	1	16	8	8				6						1			
		0243B015	数据库原理及应用 Principles and Application of Database	3	48	30	16		2	48	4				3					
		0241B039	多媒体技术 Multimedia Technology	3	48	40	8			48								3		
		小计		16	256	174	80	0	2	96										
		专业复合至少选修学分		8	128	96	32													
	专业拓展复合至少选修学分合计			17	272	186	80	0	6	240			3		5	5	4			
理论教学学分学时合计				129	2144	1611	186	244	114	1602		23	29	24.5	23	19.5	17.5	0		

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	按学期分配（周或周学时）												备注
					第一学年			第二学年			第三学年			第四学年				
					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	1												
13461013		军事理论及训练 Military Theory and Training	3	3	3												
31463007		思政社会实践 Ideological Social Practice	2	2						2							
31467084		大学生职业发展与就业指导实践 Practice of Career Planning and Guidance for College	1	22				22									
13461015		体质健康训练 Health Training	0.5	16								2					
0267A101	基础实验	程序设计基础（C语言）实验 Experiments in Fundamentals of Programming(C Language)	0.5	16	2												
1012A022		大学物理实验B Experiment of College Physics Level B	1	33		3											
0263A102		电子电路基础实验 Experiment of Fundamentals of Electronic Circuits	1	32				4									
0263A103		数字电子技术实验 Experiments for Digital Circuits	0.5	16					2								
0263A104		通信原理实验A Experiments of Communication Principles A	0.5	16							1						
0263A105		高频电子线路实验 Experiments for High Frequency Electronic Circuits	0.5	16								2					
0263A106		单片机原理实验 Expriments for Principles of Microprocessor and Its Applications	0.5	16							2						
0253A401	专项设计	电子技术课程设计 Application and Design of Electronic Technology	2	2						2							
0253A402		单片机应用系统设计 Mono-Chip Computers Application System Design	2	2							2						
0253A403		通信系统设计与仿真实践 Communication System Design and Simulation Practice	2	2									2				

0253A404		通信系统综合设计 Communication System Integrate Design	2	2										2		
3752A019	专业实践	电工电子实习A Electrics and electronic practice A	2	64					64							
0253A101		认识实习 Cognition Practice	1	1						1						
0257A301		工程技术实习 Engineering Technique Practice	8	8										8		
0257A501		毕业设计(论文) Graduate Project (Thesis)	16	16											16	
31462009	创新实践	第二课堂 Extracurricular Teaching	3			3										
合计			50													


第一学期
第二学期
第三学期
第四学期
第五学期
第六学期
第七学期
第八学期
高等数学A1
通信工程专业导论
程序设计基础（C语言）
大学英语2
大学物理B1
高等数学A2
线性代数B
C++程序设计
大学英语3
大学物理B2
电子电路基础
复变函数与积分变换
概率统计与随机过程
工程师英语1
脉冲与数字电路
EDA-电子设计自动化技术
信号与系统基础
无线网络规划与优化
数据通信与计算机网络
工程师英语2
单片机原理
可编程逻辑器件及应用
电磁场与电磁波基础
数字信号处理
通信原理（双语）
信息论与编码
网络路由交换技术（双语）
Java程序设计
高频电子线路
嵌入式系统
数字图像处理
光纤通信
基于MATALB的通信信号处理
无线通信（双语）
无线传感器网络
LTE 移动通信技术
智能手机应用开发
科技文献检索
通信系统综合设计
工程技术实习
沟通素质
毕业设计（论文）
通信系统模块
信息处理模块

自然科学拓展及工程技术拓展群以及之外的课程选修

通与职业
质

跨学科专业类