武汉理工大学信息工程学院

School of Information Engineering of
Wuhan University of Technology

本科专业培养方案

Undergraduate Program

（Grade 2013）

武汉理工大学教务处

Academic Affairs Office of Wuhan University of Technology

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电子信息工程专业本科培养方案
Undergraduate Program for Specialty in Electronic Information Technology

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具备现代电子技术理论、通晓电子系统设计原理与设计方法，具有较强的计算机、外语、相应工程技术应用能力以及在本专业领域跟踪新理论、新知识、新技术的能力，能在信息通信、电子技术、智能控制、计算机与网络等领域和行政部门从事各类电子设备和信息系统的科学研究、产品设计、工艺制造、应用开发和技术管理的复合型工程技术人才。

This major trains the students with the theory of modern electronic technology, with excellent ability on electronic system design principle and design method, with strong abilities on computer, foreign language and corresponding engineering technology application, with the abilities of tracking new theory, new knowledge and new technology. To make students become compound technical personnel to attend researching, product designing, process manufacturing, application development and technical management of variance electronic equipments and information system in the field of information communication, electronic technology, intelligent control, computer and network.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生主要学习电子信息工程方面的基本理论和基本知识，学习信息获取、信号处理、信号传输以及电子信息系统设计、应用开发等方面的专业知识，接受电子工程、信息工程、计算机辅助设计实践的基本训练，掌握电子设计、信息处理、应用开发和集成电子设备及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．身心健康，具有良好的工程职业道德、爱国敬业精神、丰富的人文科学素养和社会责任感，追求卓越；

2．具有从事电子信息工程领域科学研究、工程设计、技术服务等工作所需的数理知识和其他相关的自然科学知识；

3．具有良好的质量、环境、职业健康、安全和服务意识；

4．掌握信号与系统、电子技术、电磁场与电磁波、信息论、计算机基础等基本理论和基本知识；

5．掌握电子系统、信号处理、信息传输等基本分析、设计、开发、测试和应用的基本知识，具有集成电子设备及信息系统的基本能力，具有综合运用科学理论和工程技术分析解决工程问题的基本能力，具有较强的创新意识和对产品、技术与设备进行研究、开发、设计和技术改造或创新的初步能力；

6．熟悉信息产业的基本方针、政策和法规,了解企业管理的基本知识；

7．了解电子设备和信息系统的理论前沿、应用前景,发展动态和行业需求；

8．具有一定的科学研究和实际工作能力，具有一定的批判性思维能力；

9．具有较强的继续学习能力；

10．掌握文献检索、资料查询的基本方法，具备信息获取的能力；

11．具有良好的组织管理能力、较强的语言表达能力和交流沟通能力以及良好的团队意识和合作精神。

The students of the major mainly study the basic theory and knowledge on electronic and information engineering. Learn the specialized knowledge on information collection, signal processing, signal transmission, electronic information system design, application and development. Accept the basic practice on electronic engineering, information engineering, and computer aided design. Master the basic abilities on electronic design, signal processing, application and development and integrating of electronic equipments and

information system.

Graduates should acquire knowledge and abilities as follows:

1. To get healthy physical and mental, nice engineering ethics, patriotic and professional spirits, rich humanities accomplishment and social responsibility. To pursue excellence.

2. To possess the mathematical knowledge and other related knowledge of natural science needed for the work in electronic information engineering, engineering design, technical service.

3. To get consciousness of good quality, environment, occupational health, safety and service.

4.To master basic theory and basic knowledge of signal and system, electronic technology, electromagnetic fields and waves, information theory, fundamentals of computer.

5. To master the basic knowledge of analysis, design, development, testing and application in electronic systems, signal processing, information transmission, to possess the basic skills of integrated electronic equipment and information system, to have the basic analysis ability of comprehensively applying the scientific theory and engineering technology to solve engineering problems, to own a strong sense of innovation and the basic ability to innovate the products, technology and equipment research, development, design and technical.

6. To be familiar with the basic principles, policies and regulations of information industry, to understand the basic knowledge of enterprise management.

7. To understand the theoretical forefront, application prospect, development trends and industry demands of electronic equipment and information systems;

8. To possess certain scientific research and practical work ability, to possess the certain ability of critical thinking.

9. To possess a strong ability to learn continually.

10.To master the basic method to do document retrieval and material searching. To possess the ability of accessing to information.

11. To possess good management ability, strong language ability and communication skills and good sense of team spirit and cooperation.

三、主干学科

Ⅲ Major Disciplines

主干学科：信息与通信工程、电子科学与技术

Major Disciplines: Information and Communication Engineering, Electronic Science and Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：电路理论系列课程（电路分析基础、模拟电子技术基础、数字电子技术基础、高频电子线路）、计算机系列课程（大学计算机基础、计算机程序设计基础(C 语言)、微机原理与通信接口、单片机原理与应用）、信息传输与处理系列课程（信号与系统、数字信号处理、通信原理、信息理论与编码、电磁场与电磁波、现代检测技术、数字图像处理、自动控制原理）

Core Courses: Basic Circuit Theory Courses Series (Fundamentals of Circuit Analysis, Fundamentals of Analog Electronic Circuit, Fundamentals of Digital Electronic Circuit, High-Frequency Electronic Circuits , Computer Courses Series (Foundation of Computer, Fundamentals of Computer Program Design (C Language),Principles of Microcomputer and Communication Interface, Principles and Application of Single Chip Microcomputer) , Information Transmission and Procession Courses Series (Signal and System, Digital Signal Processing A, Communication Principles A, information Theory and Coding, Electromagnetic Fields and Wave B, Modern Sense Technique, Digital Image Processing, Automatic Control Theory).

专业特色课程：DSP 原理及应用、数字图像处理、数字语音处理、数据采集与智能仪器、FPGA 技术应用、监测控制系统应用、多核多线程技术

Characteristic Courses: Principle and Application of DSP, Digital Image Processing, Digital Voice Processing, Data Collection and Intelligent Instrumentation, FPGA Technique Application, Application of Monitoring Control System, Multicore Multithread Technology.

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	48	37.5	\	25.5	\	190
选修课 Elective Courses	9	\	15	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

1. 通识课程

考虑到学时均衡，建议“中国近代史纲要”和“毛泽东思想和中国特色社会主义理论体系概论”在第 1 学期修读，“思想道德修养与法律基础”和“马克思主义基本原理”在第 1 和第 2 学期各修一门。

1.Considering the balance of class hour, suggest to learn“Outline of Contemporary and Modern Chinese History” and“Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics”in the first semester. To learn “Morals, Ethics and Fundamentals of Law” and “Marxism Philosophy”in the first and second semester，each semester choose one course。

2. 学科大类课程

学科大类必修课程

顺序修读：“电路分析基础”、“模拟电子技术基础”、“数字电子技术基础”、“信号与系统”。

2.Basic Disciplinary Courses

Required Courses

Study Order: Fundamentals of Circuit Analysis, Fundamentals of Analog Electronic Circuit, Fundamentals of Digital Electronics, Signal and System

3. 专业课程

专业必修课程

先修课程“信号与系统”之后，顺序修读：“数字信号处理”、“数字图像处理”和“数字语音处理”。

先修课程“概率论与数理统计”和“高频电子线路”之后，顺序修读“通信原理”、“信息理论与编码”。

3.Specialized Courses

Required Courses

Study Order:

After taking the course of Signal and System，study Digital Signal Processing, Digital Image Processing , Digital Voice Processing.

After taking the courses of Probability and Mathematical Statistics and High-Frequency Electronic Circuits, study Communication Principles and Information Theory and Coding.

专业选修课程

先修课程“通信原理”之后，修读“光纤通信”、“计算机网络与通信”、“现代交换技术”、“无线通信”。

Elective Courses

After taking the course of Communication Principles, study Optical Fiber Communication, Computer Network and Communication, Modern Switching Technology and Wireless Communication. .

4. 实践教学

先修课程“单片机原理与应用”、“计算机程序设计基础（C 语言）”之后，修读“单片机应用实践”。

4. Practice

After taking the course of Principles and Application of Single Chip Microcomputer and Fundamentals of Computer Program Design (C Language), study Practice of Single Chip Microcomputer Application.

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1-4		
		4210001110	体育 1 Physical EducationⅠ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design (C Language)	3	48		12			1		
		1050001110	心理健康教育 Mental Health Education	1	16					1-2		
		小 计 Subtotal		35	736		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4110100110	专业导论 Introduction to Materials Physics	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2	高等数学 A 上	
		4050229110	线性代数 Linear Algebra	2.5	40					1		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		
		4050021110	大学物理 A 上 Physics AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics AⅡ	3.5	56					3		
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3		
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4		
		4110016110	电路分析基础 B 上 Fundamentals of Circuit Analysis BⅠ	3	48					2	高等数学 A 下	
		4110017110	电路分析基础 B 下 Fundamentals of Circuit Analysis BⅡ	3	48					3	电路分析基础 B 上	
		4100028110	电路分析基础实验上 Experiments of Circuit AnalysisⅠ	0.5	16	16				2	电路分析基础 B 上	
		4100029110	电路分析基础实验下 Experiments of Circuit AnalysisⅡ	0.5	16	16				3	电路分析基础 B 上	
		4110048110	模拟电子技术基础 A Fundamentals of Analog Electronic Circuit A	4	64					3	电路分析基础 B 下	
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronic Circuit	0.5	16	16				3	模拟电子技术基础 A	

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		4110066110	数字电子技术基础 A Fundamentals of Digital Electronic Circuit A	4	64					4	模拟电子技术基础 A	
		4110068110	数字电子技术基础实验 Experiments of Digital Electronic Circuit	0.5	16	16				4	数字电子技术基础 A	
		4110093110	信号与系统 A Signal and System A	4	64	8				4	复变函数与积分变换	
		4050469130	复变函数与积分变换 Complex Function and Integral Transform	2.5	40					3	高等数学 A 下	
		小 计 Subtotal		48	832	136						
专业课程 Specialized Courses	必修课 Required Courses	4110062110	数据结构与算法 C Data Structure And Algorithm	2.5	40		8			4	计算机程序设计基础(C 语言)	
		4110028110	高频电子线路 A High-frequency Electronic Circuits A	3.5	56					4	模拟电子技术基础 A	
		4110029110	高频电子线路 A 实验 Experiments of High- frequency Electronic Circuit A	0.5	16	16				4	高频电子线路 A	
		4110247110	微机原理与通信接口 Principles of Microcomputer and Communication	3	48					4	数字电子技术基础 A	
		4110232110	微机原理与通信接口实验 Experiments of Principles of Microcomputer and Communication	0.5		16				4	微机原理与通信接口	
		4110071110	数字信号处理 A Digital Signal Processing A	4	64	10				5	信号与系统 A	
		4110077110	通信原理 A Communication Principles A	3.5	56					5	信号与系统 A 高频电子线路 A	
		4110078110	通信原理 A 实验 Experiments of Communication Principles A	0.5	16	16				5	通信原理 A	
		4110244130	电磁场与电磁波 Electromagnetic Fields and Wave	2.5	40					5	电路分析基础 B 下	
		4110189120	现代检测技术 Modern Sense Technique	3	48	8				5	模拟电子技术基础 A	
		4110165120	电子设计 EDA Electronic Design Automation	2	32	16				5	数字电子技术基础 A	
		4110010110	单片机原理与应用 Principles and Application of Single Chip Microcomputer	3	48	8				5	数字电子技术基础 A 计算机程序设计基础(C 语言)	
		4110096110	信息理论与编码 Information Theory and Coding	3	48	8				6	概率论与数理统计 B	
		4110070110	数字图像处理 B Digital Image Processing B	2	32	6				6	数字信号处理 A	
		4110074110	数字语音处理 B Digital Voice Processing B	2	32	8				6	数字信号处理 A	
		4110001110	DSP 原理及应用 Principle and Application of DSP	2	32	8				7	单片机原理与应用	
		小 计 Subtotal		37.5	624	120	8					

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
	选修课 Elective Courses	4110005110	VB 程序设计 VB Programming	2	32	8				5	计算机程序设计基础(C 语言)	
		4110065110	数字电视原理 Digital Television Principle	2	32					6	高频电子线路 A	
		4110003110	FPGA 技术应用 FPGA Technique Application	2	32	32				6	电子设计 EDA	
		4110043110	计算机网络与通信 B Computer Networks and Communication B	2	32	8				6	通信原理 A	
		4110060110	数据采集与智能仪器 Data Collection and Intelligent Instrumentation	2	32	8				6	单片机原理与应用	
		4110055110	嵌入式微处理器系统 C Embedded Microprocessor System C	2	32	8				6	单片机原理与应用	
		4110044110	监测控制系统应用 Application of Monitoring Control System	2	32	32				6	单片机原理与应用	
		4110037110	光纤通信 C Optical Fiber Communication C	2	32	8				7	通信原理 A	
		4110006110	VC 程序设计 B VC Programming B	2	32	8				5	计算机程序设计基础(C 语言)	
		4110063110	数据库与信息系统 Data Base and Information Systems	2	32	8				6	计算机程序设计基础(C 语言)	
		4110025110	多媒体通信技术 Multimedia Communication Technology	2	32	8				7	数字图像处理 B 数字语音处理 B	
		4110095110	信息安全技术 Information Security Technology	2	32					7	计算机程序设计基础(C 语言)	
		4110052110	模式识别 B Pattern Recognition B	2	32		8			7	概率论与数理统计 B	
		4110186120	无线通信 Wireless Communication	2	32					7	通信原理 A 单片机原理与应	
		4110166120	多核多线程技术 Multicore Multithread Technology	2	32	8				7	计算机程序设计基础(C 语言)	
		4110090110	现代交换技术 B Stored Program Control Switching Technology B	2	32	8				7	通信原理 A	
		4110237130	虚拟现实技术 Virtual Reality Technology	2.5	40		16			7		
		4100065110	自动控制原理 C Automatic Control Theory C	2.5	40	8				7	信号与系统 A	
		小 计 Subtotal		37	592	152	24					
		修读说明：要求至少选修 15 学分。 NOTE：Minimum subtotal credits: 15.										
个性课程 Personalized Course	选修课 Elective Courses	4110245130	移动设备应用开发技术 Mobile Device Application Development Technology	2	32	8				6	C 语言程序设计	
		4110246130	QT 程序设计 QT Program Design	2	32	8				6	C 语言程序设计	
		4110247130	智能信息处理 Intelligent Information Processing	2.5	40	8				7	高等数学	
		小 计 Subtotal		6.5	104	16						

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
		修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice in Electrical Engineering & Electronics A	2	2	3	
4110128110	模拟电子技术基础课程设计 Course Design on Fundamentals of Analog Electronics Circuit	1	1	3	
4110129110	数字电子技术基础课程设计 Course Design on Fundamentals of Digital Electronic Circuit	1	1	4	
4110209120	专业基础实践 Practice of Specialty foundation	1	1	5	
4110215130	单片机应用实践 Practice of Single Chip Microcomputer Application	1	1	5	
4110234130	信号分析与处理课程设计 Course Design On Signal Analysis And Processing	1	1	5	
4110130110	数字通信系统课程设计 Course Design On Digital Communication System	1	1	5	
4110107110	PROTEL 应用课程设计 Courses Design on Protel Application	1	1	6（分散）	
4110210120	专业综合实践 Practice of Specialty Synthesis	1	1	6	
4110114110	毕业实习 Practice of Specialty	3	3	7	
4110198120	毕业设计（论文） Graduation Design (Thesis)	17	11	8	
小 计 Subtotal		32	25.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

电子科学与技术专业本科培养方案
Undergraduate Program for Specialty in Electronic Science and Technology

一、业务培养目标

I Educational Objectives

本专业培养具有良好的思想品德与人文素养，具备电子科学与技术专业扎实的自然科学基础的人才。该专业人才具有专业知识、较强的实验技能、工程实践能力和良好的外语能力。该专业人才具有创新意识以及跟踪掌握本专业新理论、新知识、新技术的能力，并具备对本学科全球发展动态的敏感性。这些人才能够在微电子、光电子、电路与系统等方面从事研究、开发、制造及管理工作的专门人才。

This major trains the specialized talents with good morality, humanity accomplishment, solid natural science foundation of Electronic Science and Technology. The talents have major knowledge, strong experiment skill, engineering practice capacity, and stronger ability of foreign language, and acquire sensitiveness of the global developing trend in this major. The talents have innovative consciousness, and tracking new knowledge, new technology in the field. The Specialized personnel can engage in research, development, manufacture, administration of microelectronics, optoelectronics, circuits and systems fields.

二、业务培养要求

II Educational Requirement

本专业学生要求在物理学、工程数学、电子学等方面掌握扎实的基础理论；他们将在微电子器件、光电子器件、电路与系统等方面接受设计、制造及测试技术的基本训练；学生应掌握文献资料检索的基本方法，具有较强的本专业领域实验技能与工程实践能力，初步具有研究、开发新系统和新技术的能力。

毕业生应获得以下几方面的知识和能力：

1．具有较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，树立终身学习理论；

2．掌握物理学、工程数学、电子学、信息技术的基本理论和基本知识；

3．掌握微电子器件、光电子器件、电路及系统的设计方法及测试技术；

4．具有固体电子技术、微电子技术、光电子技术和信息处理技术等方面的基本实验能力；

5．了解电子科学与技术领域的科技发展动态及产业发展状况，熟悉国家电子信息产业政策及国内外有关知识产权的法律法规，掌握文献检索及运用现代信息技术获取相关信息的基本方法；

6．能归纳、整理、分析实验结果，具备撰写论文和参与学术交流的基本能力，具有初步的科学研究能力和一定的批判性思维能力；

7．具备较强的创新意识，初步具有产品设计与开发、技术改造与创新的工程实践能力。

The students are required to master a solid foundation of physics，engineering mathematics，electronics and etc. They accept basic training of design, manufacture and measuring and testing technique in microelectronic device，photoelectron device, circuit and system. The students should master basic approaches to literature retrieval. They should get the specialized abilities on strong experiment skill and engineering practice capacity, and preliminary abilities on studying and developing of new system and new technology.

The graduates should be given the following knowledge and capabilities:

1.A good accomplishment of humanities and social science, a good sense of responsibility and vocational morality, and set up the concept of life-long education.

2.Master basic theory and knowledge of physics, engineering mathematics, electronics, information technology.

3.Master the design method , testing technique of microelectronic device，photoelectron device, circuit and system.

4.Have the basic experiment ability in solid state electronic technology, microelectronic technology, photoelectron technology, physical electronic technology , information processing technology and etc.

5.Know the technology development trend and industry development situation in the Electronic Science and Technology field, grasp the policies of national electronic information industry as well as laws and regulations about intellectual property rights at home and abroad, master the basic approaches to searching literature and acquiring related information with modern information technology.

6.Summarize, arrange and analyze the experiment results, have the capacity of composing paper and participating academic exchange, have the preliminary ability in scientific research as well as in certain critical thinking .

7.Have the strong innovative consciousness, a preliminary command of engineering practice in product design and development, technology transformation and innovation.

三、主干学科

Ⅲ Major Disciplines

主干学科：电子科学与技术

Major Disciplines: Electronic Science and Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业基础核心知识领域：电路原理、模拟电子技术基础、数字电子技术基础、信号与系统、电磁场与电磁波、固态电子学物理基础（包括量子力学、固体物理、半导体物理等内容）。

Core Courses: Principles of Circuit, Analog Electronic Circuit, Digital Electronic Circuit, Signal and System, Electromagnetic Fields and Waves, Physical Fundamentals of Solid State Electronic(Including Quantum Mechanics, Solid State Physics , Semiconductor Physics and etc.)

专业特色课程：量子力学、电磁场与电磁波 B、固体物理 A、半导体物理、光电子技术、物理光学

Characteristic Courses: Quantum Mechanics, Electromagnetic Fields and Waves A, Solid State Physics A, Semiconductor Physics, Photo-electronics Technology, Physical Optics

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	48	38	\	24	\	190
选修课 Elective Courses	9	\	16	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

理论课程体系由通识课程、学科大类课程和专业课程三部分构成。其中通识课程 44 学分，学科大类课程 50 学分，专业课程不少于 55 学分，集中实践教学环节 21 学分。

为体现本专业的专业方向，专业课程分为：微电子类、光电子类和电子系统设计类。

The theoretical course system consists of general education courses, basic disciplinary courses and major courses. There are 44 credits for general education courses, 50 credits for basic disciplinary courses, 55 credits for major courses and 21 credits for practice.

In order to distinguish the orientations, major courses are divided into four types, namely, courses of microelectronics, courses of photoelectronics and courses of electronic system design.

修课顺序（修课顺序如图 1 所示，应遵从“从上至下”）

图 1 修读顺序

The order of Course Studies (The order of Course Studies as show in fig 1, you must study courses from the top to the bottom)

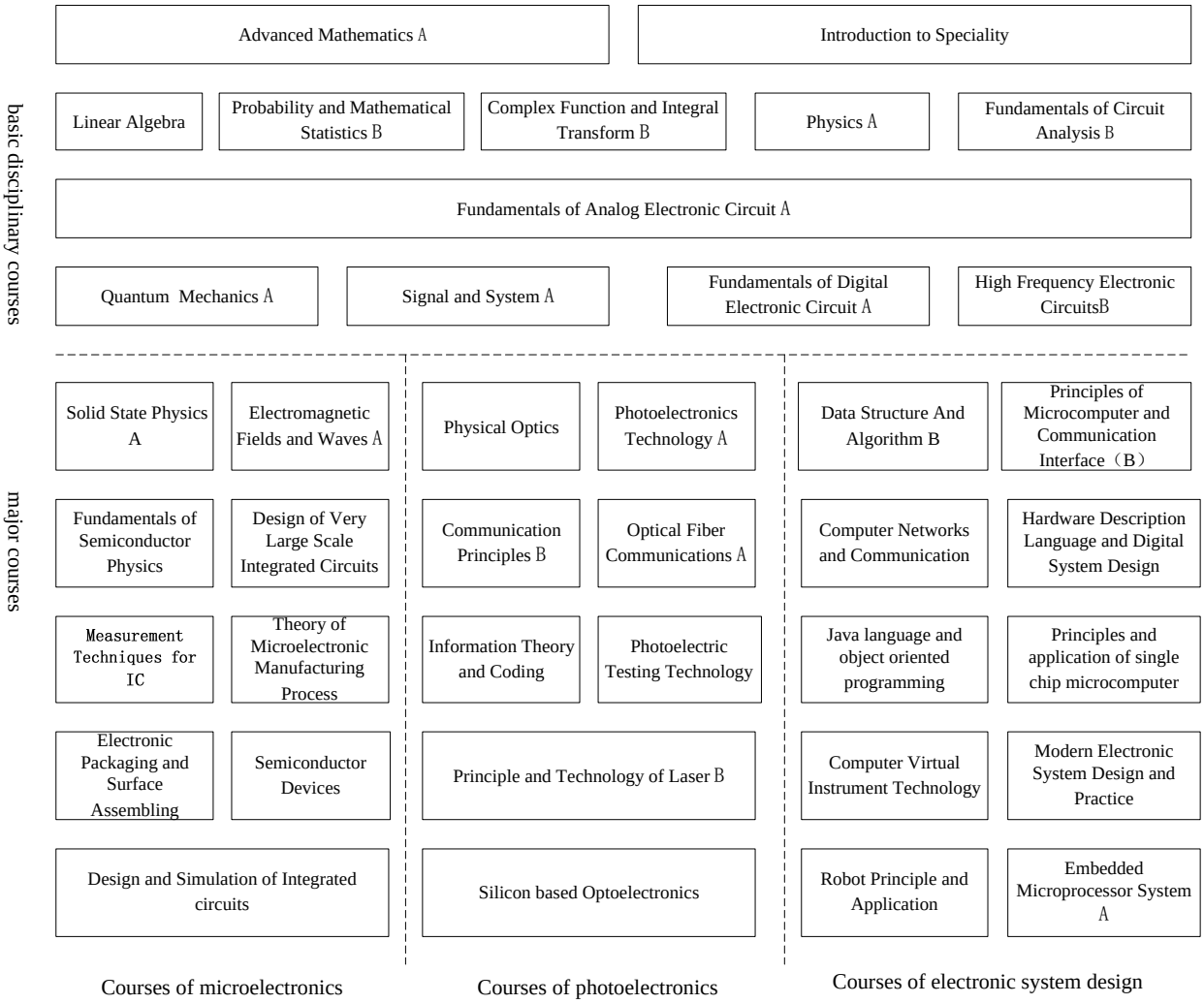

Fig 1 The order of Course Studies

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		2-4		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design (C Language)	3	48		12			1		
		1050001110	心理健康教育 Mental Health Education	1	16					1		
		小 计 Subtotal		35	736		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4110145110	专业导论 Introduction to Specialty	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2	高等数学 A 上	
		4050229110	线性代数 Linear Algebra	2.5	40					1	高等数学 A 下	
		4050469130	复变函数与积分变换 Complex Function and Integral Transform B	2.5	40					3	高等数学 A 下	
		4050021110	电路分析基础 B 下 Physics AⅠ	3.5	56					2	高等数学 A 上	
		4050022110	电路分析基础 B 下 Physics AⅡ	3.5	56					3	大学物理 A 上	
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3	高等数学 A 下	
		4110016110	电路分析基础 B 下 Fundamentals of Circuit Analysis B Ⅰ	3	48					2	高等数学 A 上	
		4110017110	电路分析基础 B 下 Fundamentals of Circuit Analysis BⅡ	3	48					3	电路分析基础 B 上	
		4100028110	电路分析基础 B 上 Experiments of Circuit AnalysisⅠ	0.5	16	16				2	电路分析基础 B 上	
		4100029110	电路分析基础实验下 Experiments of Circuit AnalysisⅡ	0.5	16	16				3	电路分析基础 B 下	
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3	电路分析基础 B 下	
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4	电路分析基础 B 下	
		4110048110	电路分析基础 B 下 Fundamentals of Analog Electronic Circuit A	4	64					3	电路分析基础 B 下	
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronic Circuit	0.5	16	16				3	电路分析基础 B 下	
		4110066110	电路分析基础 B 下 Fundamentals of Digital Electronic Circuit A	4	64					4	电路分析基础 B 下	
		4110068110	数字电子技术基础实验 Experiments of Digital Electronic Circuit	0.5	16	16				4	电路分析基础 B 下	
		4110093110	信号与系统 A Signal and System A	4	64	8				4	电路分析基础 B 下	
		小 计 Subtotal		48	832	136						
专业课程 Specialized Courses	必修课 Required Courses	4110047110	量子力学 A Quantum Mechanics A	4	64					4	复变函数与积分变换	
		4110184120	微机原理与通信接口 Principles of Microcomputer and Communication Interface	2.5	40					4	电路分析基础 B 下	
		4110011110	电磁场与电磁波 A Electromagnetic Fields and Waves A	3	48					5	复变函数与积分变换	
		4110034110	光电子技术 Photo-electronics Technology	3.5	56	12				5	电路分析基础 B 下	

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
		4110032110	固体物理 A Solid State Physics A	4	64					5	量子力学 A	
		4110086110	物理光学 Physical Optics	4	64	16				5	电路分析基础 B 下	
		4110193120	硬件描述语言与数字系统设计 Hardware Description Language and Digital System Design	2.5	40	16				5	电路分析基础 B 下	
		4110010110	单片机原理与应用 Principles and Application of Single Chip Microcomputer	3	48	8				5	电路分析基础 B 下	
		4110030110	高频电子线路 B High Frequency Electronic Circuits B	3.5	56	8				5	电路分析基础 B 下	
		4110008110	半导体物理基础 Fundamentals of Semiconductor Physics	3	48	8				6	固体物理 A	
		4110009110	超大规模集成电路设计 Design of Very Large Scale Integrated Circuits	2.5	40	16				6	半导体物理基础	
		4110083110	微电子工艺原理 Theory of Microelectronic Manufacturing	2.5	40					6	半导体物理基础	
		小 计 Subtotal		38	608	84						
	选修课 Elective Courses	4110033110	光电测试技术 Photoelectric Testing Technology	2.5	40	10				6	光电子技术	
		4110042110	计算机网络与通信 A Computer Networks and Communication A	2.5	40	8				6	通信原理 B	
		4110096110	信息理论与编码 Information Theory and Coding	3	48	8				6		
		4110079110	通信原理 B Communication Principles B	3.5	56	8				6	数字电子技术基础实验	
		4110035110	光纤通信 A Optical Fiber Communications A	3.5	56	12				6	通信原理 B	
		4110062110	数据结构与算法 C Data Structure and Algorithm B	2.5	40	6				6	计算机程序设计基础(C 语言)	
		4110039110	激光原理与技术 B Principle and Technology of Laser B	2.5	40	8				7	电路分析基础 B 下	
		4110053110	嵌入式微处理器系统 A Embedded Microprocessor System A	3.0	48	12				7	单片机原理与应用	
		4110007110	半导体器件 Semiconductor Devices	2.5	40	6				7	半导体物理基础	
		4110020110	电子封装与表面组装技术 Electronic Packaging and Surface Assembling	2	32					7	微电子工艺原理	
		4110040110	集成电路测试技术 Measurement Techniques for IC	2.5	40	8				7	超大规模集成电路设计	
		4110248130	现代电子系统设计与制作 Modern Electronic System Design and Practice	2	32	32				7	电路分析基础 B 下	
		4050492130	网络机器人原理及应用 Robot Principle and Application	2	32	16				7	电路分析基础 B 下	
		4110172120	计算机虚拟仪器技术 Computer Virtual Instrument Technology	2	32	16				7	电路分析基础 B 下	
		4110219130	硅基光电子学 Silicon based Optoelectronics	2	32					7	光电子技术 半导体物理基础	

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
		4110212130	Java 语言与面向对象程序设计 Java language and object oriented programming	2	32	8				7	计算机程序设计基础(C 语言) 数据结构与算法	
		4110220130	集成电路设计与仿真 Design and Simulation of Integrated circuits	2	32	16				7	半导体物理基础	
		小 计 Subtotal		42	672	174						
		修读说明：要求至少选修 16 学分。 Note: Minimum subtotal credits16.										
个性课程 Personalized Course	选修课 Elective Courses	4110071110	数字信号处理 A Digital Signal Processing A	4	64	10				5		
		4110185120	无线传感网技术 Technology of Wireless Sensor Network	2.5	40	8				6		
		4120239130	数据库应用 Database Application	2.5	40					6		
		4110166120	多核多线程技术 Multi-core and Multi Thread Technology	2	32	8				7		
		4120044110	可视化编程 Visual Programming	2.5	40	10				5		
		4120092110	网页设计 A Webpage Design A	2.5	40		12			5		
		4100124120	自动控制原理 A Principle of Automatic Control A	5	80	8		8		5		
		小 计 Subtotal		21	336	44	12	8				
		修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice in Electrical Engineering & Electronics A	2	2	3	
4110128110	模拟电子技术基础课程设计 Course Design on Analogous Electronic Circuit	1	1	3	
4110129110	数字电子技术基础课程设计 Course Design on Digital Electronic Circuit	1	1	4	
4110243130	MATLAB 应用专项实践 MATLAB Application and Practice	0.5	0.5	5（分散）	
4110239130	硬件描述语言与数字系统课程设计 Course Design of Hardware Description Language and Digital System	1	1	5	
4110213130	单片机应用课程设计 Course Design of Microcomputer Application	1	1	6（分散）	
4110125110	光电子应用课程设计 Course Design of Opto-electric Application	1	1	7	
4110126110	集成电路课程设计 Course Design of Integrated Circuits	1	1	7	
4110140110	专业实习 Practice of Specialty	3	3	7	
4110199120	毕业设计（论文） Graduation Thesis	17	11	8	
小　　计　Subtotal		32	24		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

通信工程专业本科培养方案
Undergraduate Program for Specialty in Communication Engineering

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具备通信基础理论和专业知识，系统掌握现代通信技术，能在信息通信领域从事科学研究、工程设计、设备制造、网络运营、技术管理的工程科技人才。

This program aims at training engineering and technical talents with solid foundation for professional knowledge of communication technology, System to master the modern communication technologies, who are capable of jobs in the research, design, manufacturing，network operation and technical management in the field of communication.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生在学习大学数学、大学物理、人文学科及外语的基础上，主要学习通信理论和通信技术等方面的基础知识，接受通信工程领域软件硬件开发、系统与网络的设计与应用、科学研究和工程实践方面的基本训练，具备能在信息通信领域从事专业技术工作的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 具有工程职业道德、爱国敬业精神、人文科学素养和社会责任感；
2. 具有从事通信工程领域科学研究、工程设计、技术服务等工作所需的数理知识和其他相关的自然科学知识；
3. 掌握通信工程领域的基础理论和基本知识；
4. 系统掌握通信系统和通信网络的分析与设计方法；
5. 具有设计、开发、调测、应用通信系统和通信网的基本能力；
6. 掌握运用现代信息技术手段进行文献检索和资料查询的基本方法；
7. 了解通信与信息行业的相关政策及法规；
8. 了解信息通信领域的前沿技术和发展动态；
9. 具有一定的组织管理能力、较强的表达能力和人际交往能力以及良好的团队意识和合作精神；
10. 具有一定的国际视野和跨文化环境下交流、竞争与合作的初步能力。

After the courses of mathematics, physics, liberal arts and foreign language, students in communication engineering major are scheduled to further study the basic knowledge on communication theory and technology, to receive the training courses on development of software and hardware, design and application of systems and networks, scientific study and engineering practices, so that acquire the professional skills in information and communication industry.

The graduates are required to obtain the follow skills and capabilities:

1. Comply with professional ethics, patriotism，devotion, cultural scientific literacy and social responsibility.
2. Know well about mathematics and nature science related to communication research, engineering design and technology service
3. Master the basic theory and knowledge in communication field.
4. Master the analysis and design method of communication systems and networks.
5. Be able to design, develop, debug and make use of communication systems and networks.
6. Master the methods of literature retrieval and information query using modern information technology.

7. Be aware of the policies and regulations in communication and information industry.

8. Be acquainted with frontier technologies and development trends in information and communication field.

9. Organization management ability, excellent presentation skills, interpersonal skills as well as good sense of team spirit and cooperation

10. Own the international perspective and the capability on cross-cultural communication, competitiveness and cooperation.

三、主干学科

Ⅲ Major Disciplines

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。

Major Disciplines: Information and Communication Engineering, Electronic science and technology ，Computer Science and Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：信号与系统、电路分析基础、数字电子技术基础、模拟电子技术基础、单片计算机原理与通信接口、通信原理。

Core Courses: Signal and System, Fundamentals of Circuit Analysis, Fundamentals of digital electronic technique，Fundamentals of Analog Electronic Technology, Single chip computer principle and Communication Interface，Communication Principles

专业特色课程：信号与系统、单片计算机原理与通信接口、嵌入式系统及其应用。

Characteristic Courses: Signal and System, Single chip computer principle and Communication Interface，Embedded system and application .

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 / 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	48	37.5	\	26.5	\	190
选修课 Elective Courses	9	0	14	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

本专业课程中涉及电系列课程、计算机系列课程、信息处理系列课程和通信系统及其应用技术系列课程等，学生在选修课程时应注意所选课程的衔接性和系列性。

There are electric series course, computer series courses, Information processing series courses,

communications system series course and Application technology series courses in the professional courses. When you choice the elective courses, Please attention to the Cohesion sex and seriation about them.

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		1050001110	心理健康教育 Mental Health Education	1	16					1		
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			1		
		小 计 Subtotal		35	736		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4110143110	专业导论 Introduction to Materials Physics	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2		
		4050229110	线性代数 Linear Algebra	2.5	40					1		
		4050469130	复变函数与积分变换 Complex Function and Integral Transform	2.5	40					3		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					4		
		4050021110	大学物理 A 上 Physics AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics AⅡ	3.5	56					3		
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3		
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4		
		4110016110	电路分析基础 B 上 Fundamentals of Circuit Analysis BⅠ	3	48	0				2	高等数学 A 上	
		4110017110	电路分析基础 B 下 Fundamentals of Circuit Analysis BⅡ	3	48	0				3	电路分析基础 B 上	
		4100028110	电路分析基础实验上 Experiments of Circuit AnalysisⅠ	0.5	16	16				2	电路分析基础 B 上	
		4100029110	电路分析基础实验下 Experiments of Circuit AnalysisⅡ	0.5	16	16				3	电路分析基础 B 下	
		4110048110	模拟电子技术基础 A Fundamentals of Analog Electronic Circuit A	4	64	0				3	电路分析基础 B 上	
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronics Circuit	0.5	16	16				3	模拟电子技术基础 A	
		4110066110	数字电子技术基础 A Fundamentals of Digital Electronic Circuit	4	64	0				4	模拟电子技术基础 A	
		4110068110	数字电子技术基础实验 Experiments of Digital Electronics Circuit	0.5	16	16				4	数字电子技术基础 A	
		4110093110	信号与系统 A Signal and System A	4	64	8				4	电路分析基础 B 下	
		小 计 Subtotal		48	832	136						

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
专业课程 Specialized Courses	必修课 Required Courses	4110062110	数据结构与算法 C Data Structure and Algorithm	2.5	40		6			3		
		4110028110	高频电子线路 A High- frequency Electronic Circuit A	3.5	56					4		
		4110029110	高频电子线路 A 实验 Experiments of High- frequency Electronic	0.5	16	16				4		
		4110163120	单片计算机原理与通信接口 Single Chip Computer Principle and Communication Interface	4	64	8				5		
		4110011110	电磁场与电磁波 A Electromagnet Field and Electromagnetic Wave A	3	48					5		
		4110077110	通信原理 A Communication Principles A	3.5	56					5		
		4110078110	通信原理 A 实验 Experiments of Communication Principles	0.5	16	16				5		
		4110089110	现代交换技术 A Modern Switching Technology A	2.5	40	12				5		
		4110223130	嵌入式系统及其应用 Embedded system and Application	3	48	8				6		
		4110071110	数字信号处理 A Digital Signal Processing A	4	64	10				6		
		4110036110	光纤通信 B Optic Fiber Communication B	2.5	40	12				6		
		4110096110	信息理论与编码 Information Theory and Coding	3	48	8				6		
		4110098110	移动通信 A Mobile Communication A	2.5	40	8				6		
		4110042110	计算机网络与通信 A Computer Network and Communication A	2.5	40	8				7		
		小 计 Subtotal		37.5	616	106	6					
	选修课 Elective Courses	4110218130	电子设计原理与应用 Principle and Application of Electronic Design	2	32					4		
		4110027110	高级程序设计 A Advanced Computer Program Design A	3	48	8				5		
		4110004110	FPGA 原理及应用 Principal and Application of FPGA	3	48	16				5		
		4110063110	数据库与信息系统 Database and Information System	2	32	8				6		
		4110231130	微波技术与天线 Microwave Technology and Antenna Theory	3	48	8				6		
		4110092110	现代通信网络 Modern Communication Network	2.5	40	0				6		
		4110157120	DSP 原理及应用 Principle and Application of DSP	2.5	40	8				6		
		4110224130	软件工程 Software Engineering	2	32					6		
		4110080110	图像处理与通信 Image Processing and Communication	3	48	8				7		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
		4110095110	信息安全技术 Information Security Technology	2	32					7		
		4110025110	多媒体通信技术 Multimedia Communication Technology	2	32	8				7		
		4110046110	宽带无线通信 Wide-band Wireless Communications	2.5	40					7		
		4110064110	数字电视技术 Digital Television Technology	2	32					7		
		4110187120	物联网与通信技术 The Internet of Things and Communication Technology	2.5	40	8				7		
		4110182120	网络仿真技术 Network Simulation Technology	2	32					7		
		4110221130	模式识别与机器学习 Pattern Recognition & Machine Learning	2	32					7		
		4110245130	数据采集技术 Data Collection Technology	2	32	8				7		
		4110222130	嵌入式 Linux 系统原理及应用 The Principle and Application of Embedded Linux System	3	48		16			7		
		4110240130	语音信号处理 Speech Signal Processing	2.5	40	8				7		
		小 计 Subtotal		45.5	728	88	16					
		修读说明：要求至少选修 14 学分。 NOTE：Minimum subtotal credits: 14										
个性课程 Personalized Course	选修课 Elective Courses	4110245130	移动设备应用开发技术 Mobile Device Application Development Technology	2	32	8				6	C 语言程序设计	
		4110185120	无线传感网技术 Technology of Wireless Sensor Network	2.5	40	8				6		
		4110166120	多核多线程技术 Multi-core and Multi Thread Technology	2	32	8				7		
		小 计 Subtotal		6.5	104	24						
		修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice in Electrical Engineering & Electronics A	2	2	3	
4110128110	模拟电子技术基础课程设计 Course Design on Fundamentals of Analog Electronics Circuit	1	1	3	
4110129110	数字电子技术基础课程设计 Course Design on Fundamentals of Digital Electronic Circuit	1	1	4	
4050242130	Matlab 原理与应用（分散进行） Matlab Application and Practice	1	1	5	
4110214130	单片机应用设计（分散进行） Microcomputer application practice	2	2	5	
4110236130	信息处理课群综合应用设计（分散进行） Course Design on Comprehensive Specialty	2	2	6	
4110229130	通信系统课群综合应用设计（分散进行） Comprehensive Training and Design on Communication System	2	2	7	
4110131110	专业实习（期初） Specialty practice	3	3	7	
4110197120	毕业设计（论文） Graduation Thesis	17	11	8	
小　　计　Subtotal		34	26.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

信息工程专业本科培养方案

Undergraduate Program for Specialty in Information Engineering

一、业务培养目标

Ⅰ Educational Objectives

本专业是电气信息类宽口径专业，培养具有信息的获取、传递、处理及利用等方面知识，能在信息产业等国民经济部门以及国防部门从事电子信息系统的研究、设计、集成及制造等方面工作的信息工程学科高级工程技术人才。

With a broad caliber, this specialty attaches electric and information. The program is committed to training students to become talented professionals with a strong background in information engineering. Equipped with knowledge on acquiring transmitting, processing and exploiting of information, our graduates will be quite qualified for jobs in the related branches of the national economy and national defense as well as the information industry, being engaged in researching, designing, integrating and manufacturing of the electrical information systems.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生主要学习信息科学与技术的基本理论和基本知识，受到信息系统的分析与设计等方面的基本训练，具有设计、开发、集成及应用信息系统等方面的基本能力。

毕业生应获得以下几方面的知识和能力：

1.系统掌握信息科学与技术的基本理论和基本知识；

2.系统掌握信息的获取、传递及处理等方面的知识和技能；

3.具有电子与信息系统的分析、设计、开发、集成及应用等方面的基本能力；

4.掌握文献检索、资料查询的基本方法，具有一定的科学研究和实际工作能力；

5.了解信息科学与技术的发展动态、信息产业的方针、政策和法规；

6.具有较强的英语综合应用能力，特别是听说能力，在工作和社会交往中能用英语进行口头和书面的信息交流，能熟练地进行外文阅读，有一定的科技外语写作能力。

Students in this specialty are required to study the basic theory and knowledge of information science and technology, accept the fundamental training on the analysis and design of information system, then get the basic probability to design, develop, integrate and application the information system.

The students awarded their bachelor degree of Information Engineering have the capacities and knowledge as follows.

1.To grasp systematically the basic theory and knowledge of information science and technology.

2.To grasp systematically the knowledge and skill on obtaining, transmitting and processing of information.

3.To have the basic ability of analyzing, designing, developing, integrating and applying on electronics and information systems.

4.To master the basic method of information retrieval in addition to some specific hands-on experience of scientific research.

5.To understand the current developing trends in information science and technology as well as the policies and regulations of the information industry.

6.To possess strong English synthesis application ability especially of speaking and listening which means both oral and written communications in work or social contacts, smooth reading and skilled scientific paper writing.

三、主干学科

Ⅲ Major Disciplines

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

Major Disciplines：Information and Communication Engineering, Electronics Science and Technology, Computer Sciences and Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：电路分析基础、信号与系统 A、模拟电子技术基础、数字电子技术基础、微机原理与通信接口、信息理论与编码、感测技术、通信原理 A、数字信号处理 A、数字图像处理、计算机网络与通信。

Core Courses: Fundamentals of Circuit Analysis, Signal and System A, Fundamentals of Analog Electronic Circuit A, Fundamentals of Digital Technology, Principles of Microcomputer and Communication Interface, Information Theory and Coding, Sensor and Detection Technology, Communication Principles A, Digital Signal Processing A, Digital Image Processing, Computer Networks and Communication

专业特色课程：单片机及嵌入式系统原理、虚拟仪器、电子线路设计与制作、无线传感网技术、数字图像处理。

Characteristic Courses: Principle of MCU and Embeded System, Virtual instrument, Electronic Circuit Design and Practice, Computer Networks and Communication, Wireless Sensing Network Technology, Digital image processing.

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 / 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	48	40.5	\	22.5	\	190
选修课 Elective Courses	9		15	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

1.本专业重要的学科大类基础课程和专业基础课程共有 10 门，学生在修读时应加以重点关注。

这 10 门课程是：电路分析基础、模拟电子技术基础、数字电子技术基础、信号与系统、微机原理与接口技术、数字信号处理、通信原理、单片机及嵌入式系统原理、信息理论与编码、感测技术。

2.为体现本专业的专业方向，本专业课程包括了以下三个课群：

1）网络感测课群

主要组成课程：感测技术、单片机及嵌入式系统原理、虚拟仪器、现场总线技术、电子线路设计与制作、电子线路 EDA

2）网络通信课群

主要组成课程：通信原理、计算机网络与通信、交换技术、无线传感网技术、光纤通信、多媒体通信技术、网络工程技术。

3）信息处理课群

主要组成课程：数字信号处理、信息理论与编码、数字图像处理、数字语音处理、数据结构与算法、数据库与信息系统。

1.Students must work hard on 10 core disciplines courses and specialty courses.

Courses: Fundamentals of Circuit Analysis, Fundamentals of Analog Electronic Circuit, Fundamentals of Digital Electronic Circuit, Signal and System, Principles of Microcomputer and Communication Interface, Digital Signal Processing, Communication Principles, Principle of MCU and Embeded System, Information Theory and Coding, Sensor and Detection Technology.

2.According to the concentration fields of the specialty, courses are arranged into three groups.

1）Sensing and detecting based on network courses

Core Courses: Sensor and Detection Technology, Principle of MCU and Embeded System,Virtual Instruments, Field Bus Technology, Electronic Circuit Design and Practice, Electronic Design Automation of Electronic Circuit.

2）Network and communication courses

Core Courses: Communication Principles, Computer Networks and Communication, Switching Technology, Wireless Sensing Network Technology, Fundamentals of Communication Network Technology, Optical Fiber Communications, Multimedia Communications Technology, Technology of Network Engineering.

3）Information processing courses

Core Courses: Digital Signal Processing, Information Theory and Coding, Digital Image Processing, Digital Speech Processing, Data Structure and Algorithm, Database and Information Systems.

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		1050001110	心理健康教育 Mental Health Education	1	16					2		
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			1		
		小 计 Subtotal		35	736		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4110100110	专业导论 Introduction to Specialty	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2	高等数学 A 上	
		4050229110	线性代数 Linear Algebra	2.5	40					1		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		
		4050021110	大学物理 A 上 Physics AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics AⅡ	3.5	56					3		
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3		
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4		
		4110016110	电路分析基础 B 上 Fundamentals of Circuit Analysis BⅠ	3	48					2	高等数学 A 上	
		4110017110	电路分析基础 B 下 Fundamentals of Circuit Analysis BⅡ	3	48					3	电路分析基础 B 上	
		4100028110	电路分析基础实验上 Experiments of Circuit AnalysisⅠ	0.5	16	16				2	电路分析基础 B 上	
		4100029110	电路分析基础实验下 Experiments of Circuit AnalysisⅡ	0.5	16	16				3	电路分析基础 B 下	
		4110048110	模拟电子技术基础 A Fundamentals of Analog Electronic Circuit A	4	64					3	电路分析基础 B 上	
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronics Circuit	0.5	16	16				3	模拟电子技术基础 A	
		4110066110	数字电子技术基础 A Fundamentals of Digital Electronic CircuitA	4	64					4	模拟电子技术基础 A	
		4110068110	数字电子技术基础实验 Experiments of Digital Electronics Circuit	0.5	16	16				4	数字电子技术基础 A	
		4110093110	信号与系统 A Signal and System A	4	64	8				4	电路分析基础 B 下	
		4050469130	复变函数与积分变换 Complex Function and Integral Transform B	2.5	40					3		
		小 计 Subtotal		48	832	136	8					

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
专业课程 Specialized Courses	必修课 Required Courses	4110062110	数据结构与算法 C Data Structure and Algorithm C	2.5	40		8			4		
		4110063110	数据库与信息系统 Database and Information Systems	2	32	8				4	数据结构与算法 C	
		4110030110	高频电子线路 B High-frequency Electronic Circuits B	3.5	56	8				4	模拟电子技术基础 A	
		4110026110	感测技术 Sensor and Detection Technology	3	48	8				4	模拟电子技术基础 A	
		4110024110	电子线路设计与制作 Electronic Circuit Design and Practice	1	32	32				4	高频电子线路 B 感测技术	
		4110161120	单片机及嵌入式系统原理 Principle of MCU and Embeded System	4	64	12				5	数字电子技术基础 A	
		4110162120	单片机系统设计与调试 Design and Debug of MCU based System	1	32	32				5	单片机及嵌入式系统原理	
		4110077110	通信原理 A Communication Principles	3.5	56					5	信号与系统 A	
		4110078110	通信原理 A 实验 Experiments of Communication Principles	0.5	16	16				5		
		4110071110	数字信号处理 A Digital Signal Processing	4	64	10				5	信号与系统 A	
		4110170120	计算机网络与通信 Computer Networks and Communication	2.5	40					5	大学计算机基础	
		4110243130	组网技术实训 Training of Networking Technology	1	32	32				5		
		4110247130	微机原理与通信接口 Principles of Microcomputer and Communication Interface	3	48					6	单片机及嵌入式系统原理	
		4110232130	微机原理与通信接口实验 Experiments of Microcomputer and Communication Interface	0.5	16	16				6		
		4110069110	数字图像处理 A Digital Image Processing	2.5	40	8				6	信号与系统 A	
		4110096110	信息理论与编码 Information Theory and Coding	3	48	8				6	概率论与数理统计 B 通信原理 A	
		4110190120	信号处理应用综合训练 Siginal Processing Integrated Application Trainning	1	32	32				6		
		4110173120	可靠性设计 Reliability Design	2	32					7		
		小 计 Subtotal		40.5	728	190	8					
	选修课 Elective Courses	4110023110	电子线路 EDA(B) Electronic Design Automation of Electronic Circuit	2	32	10				5	数字电子技术基础 A	
		4110228130	通信系统仿真实训 Communication Systems Simulation Training	1	32	32				5		
		4110075110	随机信号分析 Random Signal Analysis	2	32					5	概率论与数理统计 B	
		4110175120	模式识别应用 Application of Pattern Recognition	2	32					5		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		4110158120	FPGA 系统设计与调试 Design and Debug of FPGA based System	1	32	32				6		
		4110081110	网络工程技术 Technology of Network Engineering	2.5	40	8				6	计算机网络与通信	
		4110073110	数字语音处理 A Digital Speech Processing A	2.5	40	8				6	数字信号处理 A	
		4110156120	C++程序设计 The C++ Programming	2.5	40		8			6	数据结构与算法 C	
		4110185120	无线传感网技术 Wireless Sensing Network Technology	2.5	40	8				6	通信原理 A	
		4110097110	虚拟仪器 Virtual Instruments	2.5	40	8				6	感测技术	
		4110045110	交换技术 Switching Technology	2.5	40	8				7	通信原理 A	
		4110087110	现场总线技术 Field Bus Technology	2	32					7	计算机网络与通信	
		4110059110	实时操作系统 Real-time Operating System	2	32					7		
		4110038110	光纤通信 D Optical Fiber Communications	2	32					7	通信原理 A	
		4110025110	多媒体通信技术 Multimedia Communications Technology	2	32	8				7	数字信号处理 A	
		4110167120	多核系统与编程技术 Multicore System and Programming Technologies	2	32		4			7	微机原理与通信接口 C++程序设计	
		4110227130	算法设计与分析 Design and Analysis of Algorithms	2	32					7		
		4110225130	实验方法设计 Experimental Design Methodology	2	32					7		
		4110211130	Android 软件设计 Android Software Design	2	32					7		
		小 计 Subtotal		39	656	122	12					
		修读说明：要求至少选修 15 学分。 NOTE：Minimum subtotal credits: 15										
个性课程 Personalized Course	选修课 Elective Courses	4110159120	Java 语言程序设计 B Java Language Program Design	3	48		10			4		
		4110034110	光电子技术 Optoelectronic Technology	3.5	56	12				5		
		4110185120	无线传感网技术 Technology of Wireless Sensor Network	2.5	40	8				6		
		小 计 Subtotal		9	144	20	10					
		修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice in Electrical Engineering & Electronics A	2	2	3	
4110128110	模拟电子技术基础课程设计 Course Design on Fundamentals of Analog Electronics Circuit	1	1	3	
4110129110	数字电子技术基础课程设计 Course Design on Fundamentals of Digital Electronic Circuit	1	1	4	
4110246130	数据库应用系统开发 Development of Database Application System	1	1	4	
4110205120	数据传输网络实训 Practical Training of Network Data Transmission	2	2	7	
4110114110	毕业实习 Practice of Specialty	3	3	7	
4110196120	毕业设计（论文） Graduation Thesis	17	11	8	
小　　计　Subtotal		30	22.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

通信工程专业本科（试点班）培养方案
Undergraduate Program for Specialty in Communication Engineering（Experimental Class）

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具备通信基础理论和专业知识，系统掌握现代通信技术，能在信息通信领域从事科学研究、工程设计、设备制造、网络运营、技术管理的工程科技人才。

This program aims at training engineering and technical talents with solid foundation for professional knowledge of communication technology, System to master the modern communication technologies, who are capable of jobs in the research, design, manufacturing，network operation and technical management in the field of communication.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生在学习大学数学、大学物理、人文学科及外语的基础上，主要学习通信理论和通信技术等方面的基础知识，接受通信工程领域软件硬件开发、系统与网络的设计与应用、科学研究和工程实践方面的基本训练，具备能在信息通信领域从事专业技术工作的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 具有工程职业道德、爱国敬业精神、人文科学素养和社会责任感；
2. 具有从事通信工程领域科学研究、工程设计、技术服务等工作所需的数理知识和其他相关的自然科学知识；
3. 掌握通信工程领域的基础理论和基本知识；
4. 系统掌握通信系统和通信网络的分析与设计方法；
5. 具有设计、开发、调测、应用通信系统和通信网的基本能力；
6. 掌握运用现代信息技术手段进行文献检索和资料查询的基本方法；
7. 了解通信与信息行业的相关政策及法规；
8. 了解信息通信领域的前沿技术和发展动态；
9. 具有一定的组织管理能力、较强的表达能力和人际交往能力以及良好的团队意识和合作精神；
10. 具有一定的国际视野和跨文化环境下交流、竞争与合作的初步能力。

After the courses of mathematics, physics, liberal arts and foreign language, students in communication engineering major are scheduled to further study the basic knowledge on communication theory and technology, to receive the training courses on development of software and hardware, design and application of systems and networks, scientific study and engineering practices, so that acquire the professional skills in information and communication industry.

The graduates are required to obtain the follow skills and capabilities:

1. Comply with professional ethics, patriotism，devotion, cultural scientific literacy and social responsibility.
2. Know well about mathematics and nature science related to communication research, engineering design and technology service
3. Master the basic theory and knowledge in communication field.
4. Master the analysis and design method of communication systems and networks.
5. Be able to design, develop, debug and make use of communication systems and networks.
6. Master the methods of literature retrieval and information query using modern information technology.
7. Be aware of the policies and regulations in communication and information industry.
8. Be acquainted with frontier technologies and development trends in information and communication

field.

9. Organization management ability, excellent presentation skills, interpersonal skills as well as good sense of team spirit and cooperation

10. Own the international perspective and the capability on cross-cultural communication, competitiveness and cooperation.

三、主干学科

Ⅲ Major Disciplines

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。

Major Disciplines: Information and Communication Engineering, Electronic science and technology ， Computer Science and Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：信号与系统、电路分析基础、数字电子技术基础、模拟电子技术基础、单片计算机原理与通信接口、通信原理。

Core Courses: Signal and System, Fundamentals of Circuit Analysis, Fundamentals of digital electronic technique， Fundamentals of Analog Electronic Technology, Single chip computer principle and Communication Interface，Communication Principles

专业特色课程：信号与系统、单片计算机原理与通信接口、嵌入式系统及其应用。

Characteristic Courses: Signal and System, Single chip computer principle and Communication Interface，Embedded system and application .

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 / 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	50.5	35	\	28.5	\	190
选修课 Elective Courses	9	\	22	\	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

本专业课程中涉及电系列课程、计算机系列课程、信息处理系列课程和通信系统及其应用技术系列课程等，学生在选修课程时应注意所选课程的衔接性和系列性。

There are electric series course, computer series courses, Information processing series courses, communications system series course and Application technology series courses in the professional courses. When you choice the elective courses, Please attention to the Cohesion sex and seriation about

them.

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		1050001110	心理健康教育 Mental Health Education	1	16					1		
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			1		
		小 计 Subtotal		35	736		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extracur	建议修读学期 Suggested Term		
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4110144110	专业导论 Introduction to Materials Physics	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2		
		4050229110	线性代数 Linear Algebra	2.5	40					2		
		4110062110	数据结构与算法 C Data Structure and Algorithm	2.5	40		8			2		
		4050469130	复变函数与积分变换 Complex Function and Integral Transform B	2.5	40					3		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					4		
		4050021110	大学物理 A 上 Physics AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics AⅡ	3.5	56					3		
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3		
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4		
		4110016110	电路分析基础 B 上 Fundamentals of Circuit Analysis AⅠ	3	48	0				1		
		4110017110	电路分析基础 B 下 Fundamentals of Circuit Analysis AⅡ	3	48	0				2		
		4100028110	电路分析基础实验上 Experiments of Circuit AnalysisⅠ	0.5	16	16				1		
		4100029110	电路分析基础实验下 Experiments of Circuit AnalysisⅡ	0.5	16	16				2		
		4110048110	模拟电子技术基础 A Fundamentals of Analog Electronic Circuit A	4	64	0				2		
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronics Circuit	0.5	16	16				2		
		4110066110	数字电子技术基础 A Fundamentals of Digital Electronic Circuit A	4	64	0				3		
		4110068110	数字电子技术基础实验 Experiments of Digital Electronics Circuit	0.5	16	16				3		
		4110093110	信号与系统 A Signal and System A	4	64	8				3		
		小 计 Subtotal		50.5	872	136	8					
专业课程 Specialized Courses	必修课 Required Courses	4110028110	高频电子线路 A High- frequency Electronic Circuit A	3.5	56	0				4		
		4110029110	高频电子线路 A 实验 Experiments of High- frequency Electronic Circuit A	0.5	16	16				4		
		4110163120	单片计算机原理与通信接口 Single Chip Computer Principle and Communication Interface	4	64	8				4		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
		4110011110	电磁场与电磁波 A Electromagnet Field and Electromagnetic Wave A	3	48					5		
		4110077110	通信原理 A Communication Principles A	3.5	56					5		
		4110078110	通信原理 A 实验 Experiments of Communication Principles A	0.5	16	16				5		
		4110089110	现代交换技术 A Modern Switching Technology A	2.5	40	12				5		
		4110223130	嵌入式系统及其应用 Embedded system and Application	3	48	8				5		
		4110071110	数字信号处理 A Digital Signal Processing A	4	64	10				6		
		4110036110	光纤通信 B Optic Fiber Communication B	2.5	40	12				6		
		4110096110	信息理论与编码 Information Theory and Coding	3	48	8				6		
		4110098110	移动通信 A Mobile Communication A	2.5	40	8				6		
		4110042110	计算机网络与通信 A Computer network and communication A	2.5	40	8				7		
		小 计 Subtotal		35	576	106						
	选修课 Elective Courses	4110218130	电子设计原理与应用 Principle and application of electronic design	2	32					4		
		4110027110	高级程序设计 A Advanced Computer Program Design A	3	48	8				5		
		4110004110	FPGA 原理及应用 Principal and Application of FPGA	3	48	16				5		
		4110063110	数据库与信息系统 Database and Information System	2	32	8				6		
		4110231130	微波技术与天线 Microwave Technology and Antenna Theory	3	48	8				6		
		4110092110	现代通信网络 Modern Communication Network	2.5	40					6		
		4110157120	DSP 原理及应用 Principle and Application of DSP	2.5	40	8				6		
		4110224130	软件工程 Software Engineering	2	32					6		
		4110080110	图像处理与通信 Image Processing and Communication	3	48	8				7		
		4110095110	信息安全技术 Information Security Technology	2	32					7		
		4110025110	多媒体通信技术 Multimedia Communication Technology	2	32	8				7		
		4110046110	宽带无线通信 Wide-band Wireless Communications	2.5	40					7		
		4110064110	数字电视技术 Digital Television Technology	2	32					7		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
		4110187120	物联网与通信技术 The Internet of Things and Communication Technology	2.5	40	8				7		
		4110182120	网络仿真技术 Network Simulation Technology	2	32					7		
		4110221130	模式识别与机器学习 Pattern Recognition & Machine Learning	2	32					7		
		4110245130	数据采集技术 Data collection technology	2	32	8				7		
		4110222130	嵌入式 Linux 系统原理及应用 The principle and application of embedded Linux system	3	48		16			7		
		4110240130	语音信号处理 Speech signal processing	2.5	40	8				7		
		小 计 Subtotal		45.5	728	88	16					
		修读说明：要求至少选修 22 学分。 NOTE：Minimum subtotal credits: 22										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice in Electrical Engineering & Electronics A	2	2	3	
4050242130	Matlab 原理与应用（分散进行） Matlab Application and Practice	1	1	4	
4110238130	学科基础课群综合应用设计（分散进行） Courses Design on Basic Courses of Disciplines	2	2	4	
4110214130	单片机应用设计（分散进行） Microcomputer application practice	2	2	5	
4110195120	PROTEL 应用实践（分散进行） Courses Design on Protel Application	2	2	5	
4110236130	信息处理课群综合应用设计（分散进行） Course Design on Comprehensive Specialty	2	2	6	
4110229130	通信系统课群综合应用设计（分散进行） Comprehensive Training and Design on Communication System	2	2	7	
4110139110	专业实习（期初） Specialty practice	3	3	7	
4110197120	毕业论文 Graduation Thesis	17	11	8	
小 计 Subtotal		36	28.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

通信工程专业（卓越工程师班）本科培养方案
Undergraduate Program for Specialty in Communication Engineering (Excellent Engineer Class)

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具备通信基础理论和专业知识，系统掌握现代通信技术，能在信息通信领域从事科学研究、工程设计、设备制造、网络运营、技术管理的工程科技人才。

This program aims at training engineering and technical talents with solid foundation for professional knowledge of communication technology, System to master the modern communication technologies, who are capable of jobs in the research, design, manufacturing，network operation and technical management in the field of communication.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生在学习大学数学、大学物理、人文学科及外语的基础上，主要学习通信理论和通信技术等方面的基础知识，接受通信工程领域软件硬件开发、系统与网络的设计与应用、科学研究和工程实践方面的基本训练，具备能在信息通信领域从事专业技术工作的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 具有工程职业道德、爱国敬业精神、人文科学素养和社会责任感；
2. 具有从事通信工程领域科学研究、工程设计、技术服务等工作所需的数理知识和其他相关的自然科学知识；
3. 掌握通信工程领域的基础理论和基本知识；
4. 系统掌握通信系统和通信网络的分析与设计方法；
5. 具有设计、开发、调测、应用通信系统和通信网的基本能力；
6. 掌握运用现代信息技术手段进行文献检索和资料查询的基本方法；
7. 了解通信与信息行业的相关政策及法规；
8. 了解信息通信领域的前沿技术和发展动态；
9. 具有一定的组织管理能力、较强的表达能力和人际交往能力以及良好的团队意识和合作精神；
10. 具有一定的国际视野和跨文化环境下交流、竞争与合作的初步能力。

After the courses of mathematics, physics, liberal arts and foreign language, students in communication engineering major are scheduled to further study the basic knowledge on communication theory and technology, to receive the training courses on development of software and hardware, design and application of systems and networks, scientific study and engineering practices, so that acquire the professional skills in information and communication industry.

The graduates are required to obtain the follow skills and capabilities:

1. Comply with professional ethics, patriotism，devotion, cultural scientific literacy and social responsibility.
2. Know well about mathematics and nature science related to communication research, engineering design and technology service
3. Master the basic theory and knowledge in communication field.
4. Master the analysis and design method of communication systems and networks.
5. Be able to design, develop, debug and make use of communication systems and networks.
6. Master the methods of literature retrieval and information query using modern information technology.

7. Be aware of the policies and regulations in communication and information industry.

8. Be acquainted with frontier technologies and development trends in information and communication field.

9. Organization management ability, excellent presentation skills, interpersonal skills as well as good sense of team spirit and cooperation

10. Own the international perspective and the capability on cross-cultural communication, competitiveness and cooperation.

三、主干学科

Ⅲ Major Disciplines

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。

Major Disciplines: Information and Communication Engineering, Electronic science and technology ，Computer Science and Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：信号与系统、电路分析基础、数字电子技术基础、模拟电子技术基础、单片计算机原理与通信接口、通信原理。

Core Courses: Signal and System, Fundamentals of Circuit Analysis, Fundamentals of digital electronic technique，Fundamentals of Analog Electronic Technology, Single chip computer principle and Communication Interface，Communication Principles

专业特色课程：信号与系统、单片计算机原理与通信接口、嵌入式系统及其应用。

Characteristic Courses: Signal and System, Single chip computer principle and Communication Interface，Embedded system and application .

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 / 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	50.5	35	\	33.5	\	190
选修课 Elective Courses	9	0	17	\	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

本专业课程中涉及电系列课程、计算机系列课程、信息处理系列课程和通信系统及其应用技术系列课程等，学生在选修课程时应注意所选课程的衔接性和系列性。

There are electric series course, computer series courses, Information processing series courses, communications system series course and Application technology series courses in the professional courses. When you choice the elective courses, please attention to the Cohesion sex and seriation about them.

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		1050001110	心理健康教育 Mental Health Education	1	16					1		
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			1		
		小 计 Subtotal		35	736		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4110144110	专业导论 Introduction to Materials Physics	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2		
		4050229110	线性代数 Linear Algebra	2.5	40					2		
		4110062110	数据结构与算法 C Data Structure and Algorithm	2.5	40		8			2		
		4050052110	复变函数与积分变换 Complex Function and Integral Transform	2.5	40					3		
		4050469130	概率论与数理统计 Probability and Mathematics Statistic B	3	48					4		
		4050021110	大学物理 A 上 Physics AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics AⅡ	3.5	56					3		
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3		
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4		
		4110016110	电路分析基础 B 上 Fundamentals of Circuit Analysis BⅠ	3	48					1		
		4110017110	电路分析基础 B 下 Fundamentals of Circuit Analysis BⅡ	3	48					2		
		4100028110	电路分析基础实验上 Experiments of Circuit AnalysisⅠ	0.5	16	16				1		
		4100029110	电路分析基础实验下 Experiments of Circuit AnalysisⅡ	0.5	16	16				2		
		4110048110	模拟电子技术基础 A Fundamentals of Analog Electronic Circuit A	4	64					2		
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronics Circuit	0.5	16	16				2		
		4110066110	数字电子技术基础 A Fundamentals of Digital Electronic Circuit A	4	64					3		
		4110068110	数字电子技术基础实验 Experiments of Digital Electronics Circuit	0.5	16	16				3		
		4110093110	信号与系统 A Signal and System A	4	64	8				3		
		小 计 Subtotal		50.5	872	136	8					

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
专业课程 Specialized Courses	必修课 Required Courses	4110028110	高频电子线路 A High- frequency Electronic Circuit A	3.5	56					4		
		4110029110	高频电子线路 A 实验 Experiments of High- frequency Electronic	0.5	16	16				4		
		4110163120	单片计算机原理与通信接口 Single Chip Computer Principle and Communication Interface	4	64	8				4		
		4110011110	电磁场与电磁波 A Electromagnet Field and Electromagnetic Wave A	3	48					5		
		4110077110	通信原理 A Communication Principles A	3.5	56					5		
		4110078110	通信原理 A 实验 Experiments of Communication Principles A	0.5	16	16				5		
		4110089110	现代交换技术 A Modern Switching Technology A	2.5	40	12				5		
		4110223130	嵌入式系统及其应用 Embedded system and Application	3	48	8				5		
		4110071110	数字信号处理 A Digital Signal Processing A	4	64	10				6		
		4110036110	光纤通信 B Optic Fiber Communication B	2.5	40	12				6		
		4110096110	信息理论与编码 Information Theory and Coding	3	48	8				6		
		4110098110	移动通信 A Mobile Communication A	2.5	40	8				6		
		4110042110	计算机网络与通信 A Computer network and communication A	2.5	40	8				6		
		小 计 Subtotal		35	576	106						
	选修课 Elective Courses	4110218130	电子设计原理与应用 Principle and application of electronic design	2	32					4		
		4110027110	高级程序设计 A Advanced Computer Program Design A	3	48	8				5		
		4110004110	FPGA 原理及应用 Principal and Application of FPGA	3	48	16				5		
		4110063110	数据库与信息系统 Database and Information System	2	32	8				5		
		4110231110	微波技术与天线 Microwave Technology and Antenna Theory	3	48	8				6		
		4110092110	现代通信网络 Modern Communication Network	2.5	40					6		
		4110157120	DSP 原理及应用 Principle and Application of DSP	2.5	40	8				6		
		4110080110	图像处理与通信 Image Processing and Communication	3	48	8				6		
		4110095110	信息安全技术 Information Security Technology	2	32					6		
		4110025110	多媒体通信技术 Multimedia Communication Technology	2	32	8				6		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
		4110046110	宽带无线通信 Wide-band Wireless Communications	2.5	40					6		
		4110064110	数字电视技术 Digital Television Technology	2	32					6		
		4110187120	物联网与通信技术 The Internet of Things and Communication Technology	2.5	40	8				6		
		411018210	网络仿真技术 Network Simulation Technology	2	32					6		
		4110221130	模式识别与机器学习 Pattern Recognition & Machine Learning	2	32					6		
		4110245130	数据采集技术 Data collection technology	2	32	8				7		
		4110222130	嵌入式 Linux 系统原理及应用 The principle and application of embedded Linux system	3	48		16			6		
		4110224130	软件工程 Software Engineering	2	32					6		
		4110240130	语音信号处理 Speech signal processing	2.5	40	8				7		
		小 计 Subtotal		45.5	728	88	16					
		修读说明：要求至少选修 17 学分。 NOTE：Minimum subtotal credits: 17										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice in Electrical Engineering & Electronics A	2	2	3	
4050242130	Matlab 原理与应用 Matlab Application and Practice	1	1	4（分散）	
4110238130	学科基础课群综合应用设计 Courses Design on Basic Courses of Disciplines	2	2	4（分散）	
4110214130	单片机应用设计 Microcomputer application practice	2	2	5（分散）	
4110229130	通信系统课群综合应用 Comprehensive Training and Design on Communication System	2	2	7（企业）	
4110236130	信息处理课群综合应用 Course Design on Comprehensive Specialty	2	2	7（企业）	
4110195120	PROTEL 应用实践 Courses Design on Protel Application	2	2	7（企业）	
4110230130	通信新技术的应用研究 Applied research of the Communication new technology	2	2	7（企业）	

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
4110245130	企业管理与企业文化 Corporate Management and Corporate Culture	1	1	7（企业）	
4110237130	电子产品生产工艺 Electronic product manufacturing process	2	2	7（企业）	
4110139110	专业实习 Mpecialty practice	3	3	7（企业）	
4110197120	毕业论文 Graduation Thesis	17	11	8（企业）	
小　　计　Subtotal		41	33.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.