

## 通信工程专业培养方案

**专业名称及代码:** 通信工程 080604 (080703)

**专业培养目标:** 本专业培养具有良好的思想品德和心理素质和诚信职业道德,具备通信系统、通信技术等方面的知识和高级技能,能在通信及相关领域中从事科学研究、工艺设计及在国民经济各部门和国防工业中从事开发应用通信技术与设备的具有创新精神和实践能力的高级专门人才。

**专业培养要求:** 本专业学生在牢固掌握数理基础知识、外语和计算机技术的基础上,主要学习有线通信、无线通信及计算机通信等方面的基本理论、基本方法和基本技术,受到通信工程实践的基本训练,具备从事现代通信系统和网络的设计、开发、调试和工程应用的基本能力,同时也具备一定的电子系统硬件和软件的设计和开发能力。

**毕业生应获得以下几方面的知识和能力:**

1. 掌握通信领域内的基本知识和基本理论及相关通信技术;
2. 掌握信息的表示、获取、传输、处理及应用的理论与方法;
3. 重点掌握各种通信系统和计算机多媒体信息系统的分析与设计方法;
4. 熟悉各类通信系统及通信网的通信方式及系统体系结构,并了解有关的技术标准、规格、指标要求、通信协议等知识;
5. 掌握计算机的应用技术和软件开发技术;
6. 初步具备通信系统及通信网的系统设计、集成、调测、应用及其硬、软件设计与开发的能力;
7. 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。

**主干学科:** 信息与通信系统、计算机通信、信息技术与信息处理。

**核心课程:** 电路分析、模拟电路技术基础 A、通信电子线路、数字电路技术基础 A、信号与系统、通信原理、电磁场与电磁波、数据结构 B、现代交换原理、移动通信、计算机网络通信、光纤通信系统、接入网技术、数字信号处理 B、SDH 原理。

**主要专业实验:** 通信电子线路实验、通信原理实验、数字电路与逻辑设计实验、通信系统实验。

**主要实践性教学环节:** C 语言课程设计、电子技术实习、电路综合实习、专业综合实习、生产实习、毕业设计。

**修业年限:** 四年。

**授予学位:** 工学学士。

**相近专业:** 电子信息工程。

## Program for Communications Engineering

**Specialty and Code:** Communications Engineering 080604 ( 080703 )

**Education Objective:** Our program will foster students to possess sound ideology and mentality and integrity of professional ethics to master the knowledge and advanced skill of communications systems and communication technology. After graduation, students will be able to apply themselves to the communications field and correlative field as researchers, technic designers, manufacturers, businessmen and senior engineers who are creative and practical to develop and apply the communications technology and devices into all kinds of companies and national defense industry.

**Education Requirements:** Basically, students should master the knowledge of math, physics, English and computer technology. In addition, students mainly learn all kinds of communications system, basic theory and basic technology of communications, wireless communications and computer communications. At the meantime, students will receive the basic training of communications engineering practice. All the students will be able to pursue the jobs in design, development, testing of modern communications system as well as design and development of electronic system hardware and software.

### **Graduates Are Required:**

1. To master the basic knowledge and basic theory of all kinds of communications technology in communications field.
2. To master the expression, receiving, transmitting, and processing principle and method of information.
3. To mainly master the analysis and design method of all kinds of communications system and computer multimedia information network.
4. To be Familiar with all kinds of communications system, communications mode and system configuration. Master the correlative technology standard, communications protocol and specification.
5. To master the skills of computer application and software development.
6. To basically possess the capability of design, integration, testing and application of all kinds of communications system and communications network as well as design the hardware and software.
7. To master the basic method of index as well as possess the research and practical working capability.

**Major Disciplines:** Information and Communications System, Computer Communications, Information Technology and Information Processing.

**Main Courses:** Circuit Analysis, Analogic Circuit Technology, Signal and System, Communications Principle, Digital Electronics, Communications Electronic Circuit. Data Structure, Electromagnetic Waves, Modern Switch Principle, Mobile Communications, Computer Network Communications, Optic-fiber Communications System, Technologies of Access Network, Digital Signal Process, SDH, Statistical Signal Analysis and Processing, Communication Resource Management System, C++.

**Lab Experiments:** Communications Principle Experiment; Electronic Circuit Experiment; Digital Circuit and Logical Design Experiment; Communications System Experiment.

**Practical Work:** Computer Programming, Electronic Technology Practice, Electronic Systems Practice, Integrated Circuit Practice, Comprehensive Professional Training, Production Practice, Graduation Design (Thesis).

**Duration:** Four years.

**Degree Granted:** Bachelor of Engineering.

**Related Specialties:** Electrical Information Engineering.

通信工程专业课程教学计划表  
Course Descriptions of Communications Engineering

课程类别 Classification	课程编号 Code	课程名称 Course Name	学分 Cr	学时 Hrs	学时分类 Class Hours		学期学分分配 Semester Credits							
					讲课 Lec	实验 Lab.	一	二	三	四	五	六	七	八
							1st	2nd	3rd	4th	5th	6th	7th	8th
通识教育课 Liberal Education Courses	必修 Compulsory	11706200 马克思主义基本原理 Principles of Marxism	3	48	48			3						
		11706500 毛泽东思想和中国特色社会主义理论体系概论 Mao Tse-tung Thought and Introduction to the Theoretical System of Socialism with Chinese Characteristics	4	64	64				4					
		11711800 中国近现代史纲要 The Essentials of Modern Chinese History	2	32	32					2				
		120002*0 思想道德修养与法律基础 Morality Education & Fundamentals of Law	3	48	48		1.5	1.5						
		113027*0 体育 Physical Education	6	96	96		1.5	1.5	1.5	1.5				
		109005*0 大学英语 College English	12	192	192		2.5	2.5	3.5	3.5				
		11904100 计算机高级语言程序设计(C) Computer High-level Language(C)	3.5	56	40	16		3.5						
		20714100 电子信息学科导论 Introduction to Electrical information Science	1.5	24	24		1.5							
		14300100 军事理论 Military Theory	2	32	32		2							
	选修 Elective	TX35000Z 自然科学类 Natural Science	2	32										
		TX35000G 工程技术类 Engineering	2	32										
		TX35000S 社会科学类 Social Science	2	32										
		TX35000R 人文与艺术类 Humanities & Arts	2	32										
		TX35000J 经济管理类 Economy & Management	2	32										
		其它类 Other Courses	2	32										
		小计 Sum	49	784	576	16	9	12	9	7	0	0	0	0
学科基础课 Disciplinary Fundamental Courses	20714200 工程制图 Engineer drawing		2.5	40	36	4	2.5							
	21208803 线性代数 C Linear Algebra C		2.5	40	40		2.5							
	212028*1 高等数学 A Advanced Mathematics A		12.5	200	200		5.5	7						
	212093*0 大学物理 C College Physics C		7	112	112			3.5	3.5					
	212092*2 物理实验 B Physics Experiments B		3.5	56		56		2	1.5					

课程类别 Classi- fication	课程 编号 Code	课程名称 Course Name	学 分 Crs	学 时 Hrs	学时分类 Class Hours		学期学分分配 Semester Credits							
					讲 课 Lec	实 验 Lab.	一	二	三	四	五	六	七	八
							1st	2nd	3rd	4th	5th	6th	7th	8th
	20702700	电路分析 Theory of Circuitry	4.5	72	64	8		4.5						
	21201901	复变函数与积分变换 A Complex Function and the Integral Transformation A	3.5	56	56				3.5					
	20708801	模拟电路技术基础 A Introductory Analog Electronics A	4	64	54	10			4					
	20710701	数字电路技术基础 A Digital Electronics A	4	64	50	14				4				
	21202400	概率统计与随机过程 Probability Statistics and Stochastic Processes	3.5	56	56					3.5				
	21109700	信号与系统 Signal and System	3.5	56	48	8				3.5				
	20701901	单片机原理及应用 A Single Chip Computer and Application A	3.5	56	46	10				3.5				
	小计 Sum		54.5	872	762	110	10.5	17	12.5	14.5	0	0	0	0
专业主干课 Main Specialty Courses	20715800	电磁场与电磁波 Electromagnetic Waves	3	48	48				3					
	21908202	数据结构 B Data Structure B	2.5	40	32	8			2.5					
	21900200	C++语言程序设计 C++ Language program design	2	32	24	8				2				
	20715602	通信电子线路 B Communication Electro circuit B	2.5	40	32	8				2.5				
	20711002	数字信号处理 B Digital Signal Processing B	3	48	36	12					3			
	21108401	通信原理 A Communication Principle A	4	64	52	12					4			
	21105700	计算机网络通信 Computer Networks	3	48	40	8					3			
	21108600	通信资源管理系统基础 Communication Resource Management System	2	32	32						2			
	20720600	光纤通信系统 Optical Fiber Communication Systems	3	48	40	8						3		
	21105900	接入网技术 Technologies of Access Network	2.5	40	32	8						2.5		
	20721900	现代交换原理 Modern Switch Principle	2.5	40	32	8						2.5		
	20722000	移动通信 Mobile Communications	3	48	40	8						3		
	20722100	SDH 原理 The Principle & Technology of SDH	3	48	40	8						3		
	小计 Sum		36	576	480	96	0	0	5.5	4.5	12	14		

课程类别 Classi- fication	课程 编号 Code	课程名称 Course Name	学分 Crs	学时 Hrs	学时分类 Class Hours		学期学分分配 Semester Credits							
							一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					讲课 Lec	实验 Lab.								
专业选修课 Specialty Elective Courses		具体见专业选修课列表	15	240										
合计 Sub-total			154.5	2472	1818	222	19.5	29	27	26	12	14	0	0
实践环节 Practical Work	40000100	劳动教育 Labor Education	1	1 周			1							
	44300200	军事训练 Military Training	2	2 周			2							
	40707404	金工实习 D Metalworking Practice D	1.5	1 周			1.5							
	41904300	计算机高级语言课程设计(C) Course Design for High-level Computer Language (C)	2	1.5 周				2						
	40703700	电子技术实习 Electronic Technology Practice	3	2 周					3					
	40713900	电路综合实习(通信) Integrated Circuit Practice	6	4 周						6				
	41111800	专业综合实习 Comprehensive Professional Training	4.5	3 周								4.5		
	40710300	生产实习 Production Practice	6	4 周									6	
	40713600	毕业设计 Design for Graduation	24	16 周										24
	小计 Sum		50	34.5 周	0	0	4.5	2	3	6	0	4.5	6	24
自主学习 Autonomous Learning	ZZ09Y	大学英语(自主学习) College English(Autonomous Learning)	3											
	ZZ35S	社会调查 Social Investigation	2											
		其它(学科竞赛、发明创造、科研 报告) Others(Contest, Invention Innova- tion and Research Presentation)	3											
	小计 Sum		8											
总计 Total			212.5	2472 +34.5 周	1818	222	24	31	30	32	12	18.5	6	24
专业选修课列表 Specialty Elective Courses	21100200	EDA 技术 Electronic Design Automation	2	32	12	20				2				
	21108700	统计信号分析与处理 Statistical Signal Analysis and Processing	2	32	16	16					2			
	21104300	多媒体通信 Multimedia Communications	2	32	16	16					2			
	21915300	信息论与编码 B Information Theory and Coding B	2	32	28	4					2			
	21106400	嵌入式系统 The Embedded System	2	32	12	20					2			

课程类别 Classi- fication	课程 编号 Code	课程名称 Course Name	学 分 Crs	学 时 Hrs	学时分类 Class Hours		学期学分分配 Semester Credits							
					讲课 Lec	实验 Lab.	一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
	21104000	电信信令系统 Telecommunication Signaling System	1.5	24	12	12						1.5		
	21909602	数字图象处理 B Digital Image Processing B	2	32	16	16						2		
	21900900	LINUX 操作系统基础 Linux Operating System	2	32	32							2		
	20716103	DSP 技术及应用 C Digital Signal Process Technology C	2	32	16	16						2		
	21100800	NGN Next Generation Networks	2	32	32							2		
	21915500	模式识别 B Pattern Recognition B	2	32	16	16						2		
	21108300	通信系统仿真与实践 Communications System Simulation and Practice	2	32	20	12						2		
	20500100	GPS 技术与应用 GPS Technology Application And Development	1	16	16								1	
	21109500	现代通信新技术 Modern Communications New Technology	1	16	16								1	
	21905500	计算机网络安全 Computer Network Security	2	32	24	8							2	
	21106300	扩频通信技术 Spread Spectrum Communication Technology	2	32	32								2	
	21101100	TCP/IP Transfer Control Protocol/Internet Protocol	1.5	24	24								1.5	
	21109000	微波通信与卫星通信 Microwave Communications and Satellite Communications	2	32	32								2	
	21108900	网络集成技术 Network Integration Technology	2	32	32								2	
	21101000	SOPC 实践 SOPC Practice	2	32	16	16							2	
	21900602	Java 语言程序设计 B Java Language B	2	32	24	8							2	
	21111700	语音信号处理 Speech Signal Processing	2	32	16	16							2	

注：通识教育选修课和自主学习学分未纳入具体学期。

通信工程专业课程分类统计

	通识教育课程 Liberal Education Courses		学科基础课 Disciplinary Fundamental Courses	专业主干课 Main Specialty Courses	专业选修课 Specialty Elective Courses	实践环节 Practical Work	自主学习 Autonomous Learning	学时总计 Total Hours	学分总计 Total Credits
	必修	选修							
学时/ 学分	592/37	192/12	872/54.5	576/36	240/15	34.5 周/50	8	2472+ 34.5 周	212.5
学分所占比例	23.06%		25.65%	16.94%	7.06%	23.53%	3.76%		100%