

全英文授课留学生通信工程专业本科培养计划

Undergraduate Program of International Students for Specialty in Telecommunication Engineering (English Instruction)

一、培养目标

I. Program Objective

针对留学生的教育背景和认知特点，充分利用我院的教育资源，培养具有电子信息领域系统理论基础，知识结构合理的科技人才。

本专业的毕业生将掌握信息科学领域内基础理论知识，获得从信息获取、传递、处理到应用等各方面的基本专业知识，掌握现代通信系统、通信网络的基本原理和技术，具有较强的参与设计、开发通信系统的工程实践能力。毕业生将具有较强的专业英语能力、良好的人文素质和创新精神，成为能在信息和通信技术产业的科研部门、高等院校从事通信系统与工程的设计、集成及开发等工作的研究型或应用型人才。

Based on the characteristics of overseas students and making full use of our educational resources, we design the program to bring up students mastering the basic theory of electronic and information fields, as well as reasonable knowledge framework.

The graduates in this program are required to develop the systems and technologies which drive the information age, from acquiring information, transmission, processing to applications. They are required to master the basic theories and skills in modern communication systems and communication networks. They are able to participate in the design and development of various communication and information systems. The graduates are equipped with strong professional English in telecommunication engineering, good personality and innovative initiatives. They are qualified to design, integrate and develop communication systems and technologies in information and communications industries, research institutes, universities and other related communities.

二、基本规格要求

II. Learning Outcomes

毕业生应获得以下几个方面的知识和能力：

1. 具有较好的人文艺术和社会科学素养，较强的社会责任感和良好的职业道德，良好的语言表达能力和人际交流能力；
2. 具有较扎实的数学和其他自然科学知识，具有通信工程学知识的应用能力；
3. 具有制订实验方案、进行实验、分析和解释数据的能力；
4. 具有设计一个通信系统、一个通信部件或一个通信过程的能力；
5. 具有对通信工程问题进行系统表达、建立模型、分析求解和论证的能力；
6. 具有在通信工程实践中运用各种技术、技能和现代工程工具的能力；
7. 具有创新意识和从事科学研究的初步能力，具有团队合作精神，在多学科工作集体中发挥作用的能力；
8. 能正确认识工程对于客观世界和社会的影响，了解与本专业相关的法律法规，熟悉环境保护和可持续发展等方面的方针和政策；
9. 具有国际视野、终生教育的意识和继续学习的能力；

10. 能熟练阅读本专业英文资料，具有良好的听说能力和跨文化的交流与合作能力；

Students are expected to acquire the following knowledge or skills:

1. A knowledge of liberal arts and social sciences, an understanding of social, professional and ethical responsibility, and an ability to communicate effectively in oral, written and visual forms.

2. An ability to apply knowledge of mathematics, science, and engineering with the specialty in telecommunications.

3. An ability to design and conduct experiments, analyze and interpret data, and report findings.

4. An ability to design a communication system, component, or process to meet specifications.

5. An ability to identify, formulate, analyze and solve telecommunication engineering problems.

6. An ability to use the techniques, skills, and modern engineering tools necessary for telecommunication engineering practice.

7. Innovative thinking, team spirit, a preliminary ability to conduct scientific research, and an ability to function in multi-disciplinary teams.

8. An understanding about the impact of engineering solutions in a global and societal context, a knowledge of laws and regulations relevant to engineering, environmental protection and sustainable development.

9. International vision, a recognition of the need for lifelong learning, and an ability to engage lifelong learning to remain effective in a climate of continually emerging technologies.

10. An ability to read English references and conduct inter-cultural communication and cooperation.

三、培养特色

III. Program Highlights

本专业将以无线通信、通信网络、智能电路系统等信息系统的设计与应用为方向，着重培养学生在电子技术、通信系统等方面的理论基础，培养学生参与多种通信系统的设计与开发的工程实践和创新能力。修完本专业课程后，学生也可选择攻读电子科学、通信工程、计算机科学、自动化、光电信息等领域的研究生。

This program focuses on the design and applications of information systems in communication networks and intelligent circuit systems. Students are required to construct solid and broad theoretical background in electronics and communications, and they are enhanced with the hands-on engineering experiences and innovative initiatives in the design and development of multiple information systems. Upon graduation, graduates may choose to continue their study at the postgraduate level in electronic science, telecommunication engineering, computer science, automation, optical-electronic and related areas.

四、主干学科

IV. Main Disciplines

信息与通信工程

Information and Communication Engineering

五、学制与学位

V. Program Length and Degree

学制：四年制

Length of Schooling: Four years

授予学位：工学学士

Degrees Conferred: Bachelor of Engineer

六、学时与学分

VI. Credits Hours and Units

完成学业最低课内学分（含课程体系与集中性实践教学环节）要求：149.5 学分

Minimum Credits of the curriculum (Comprising course system and intensified internship practical training):149.5 credits

1. 课程体系学时与学分

Course Credits Hours and Units

课程类别		课程性质	学时/学分	占课程体系学分比例 (%)
通识教育基础课程		必修	744/45	32.3
学科基础课程	学科大类基础课程	必修	680/39	29.5
	学科(专业)基础课程	必修	344/20	14.9
专业课程	专业核心课程	必修	232/14.5	10.1
	专业方向课程	选修	304/19	13.2
合计			2304/137.5	100

Course Type		Required /Elective	Hrs/Crs	Percentage (%)
Basic Courses in General Education		Required	744/45	32.3
Basic Courses in Discipline	Basic Courses in General Discipline	Required	680/39	29.5
	Basic Major Courses in Discipline	Required	344/20	14.9
Courses in Major	Common Major Core Courses	Required	232/14.5	10.1
	Elective Major Courses	Elective	304/19	13.2
Total			2304/137.5	100

2. 集中性实践教学环节周数与学分

Practicum Credits

实践教学环节名称	课程性质	周数/学分	占实践教学环节学分比例 (%)
电工实习	必修	2/1	8.3
生产实习(社会实践)	必修	2/1	8.3
软件课程设计	必修	2/1	8.3
硬件课程设计	必修	2/1	8.3
毕业设计(论文)	必修	16/8	66.7
合计		24/12	100

Course Title	Required /Elective	Weeks/Credits	Percentage (%)
Electrical Engineering Practice	Required	2/1	8.3
Engineering Internship (Social Practice)	Required	2/1	8.3
Course Project of Software	Required	2/1	8.3
Course Project of Hardware	Required	2/1	8.3
Undergraduate Thesis	Required	16/8	67.7
Total		24/12	100

3. 按照学期统计学分

Credits for different semesters

华中科技大学 2016 级本科专业培养计划

	第一学期	第二学期	第三学期	第四学期	第五学期	第六学期	第七学期	第八学期
课程学时/学分	424/26.5	464/27.5	288/16.5	352/20	280/16	240/15	256/16	
实践学时/学分	0	0	2w/1	0	2w/1	4w/2	0	16w/8
总学时/学分	424/26.5	464/27.5	288+2w/17.5	352/20	280+2w/17	240+4w/17	256/16	16w/8

七、主要课程

VII. Main Courses

电路理论 Circuit Theory、数据结构 Data Structure、信号与线性系统 Signal and Linear Systems、模拟电子技术 Analog Electronics、数字电路与逻辑设计 Digital Circuit and Logic Design、微机原理 Principles of Microcomputer、通信电子线路 Electronic Circuits of Communications、通信原理 Principles of Communications、信息论基础 Fundamentals of Information、数字信号处理 Digital Signal Processing、随机过程 Stochastic Process、电磁场与电磁波 Electromagnetic Field and Wave

八、主要实践教学环节（含专业实验）

VIII. Main Practical Training Items (Including experiments)

电子线路设计·测试·实验 Electronic Circuitry Design, Test and Experiments、微机原理实验 Experiment of Microcomputer Principle、软件课程设计 Course Project of Software 硬件课程设计 Course Project of Hardware

九、教学进程计划表

IX. Course Schedule

院(系): 电子信息与通信学院

专业: 通信工程

School (Department): School of Electronic Information and Communications

Major: Telecommunication Engineering

课程类别 course type	课程性质 required/ elective	课程代码 course code	课程名称 course name	学时 hrs	学分 crs	其中 Including		设置学期 semester
						实验 exp.	上机 operation	
通识教育基础课程 Basic Courses in General Education	必修 required	0700017	微积分(六) Calculus(6)	96	6			1
	必修 required	0700018	微积分(七) Calculus(7)	96	6			2
	必修 required	0700037	大学物理(六) Physics(6)	96	6			1
	必修 required	070004a	物理实验 Physical Experiments (I)	48	1.5	48		2
	必修 required	0800172	大学计算机基础 Fundamentals of Computer Technology	56	3.5		24	1
	必修 required	0700051	线性代数 Linear Algebra(I)	56	3.5			1
	必修 required	0700071	复变函数与积分变换 Complex Functions and Integral Transforms	56	3.5			2
	必修 required	0700063	概率论与数理统计 Probability and Mathematics Statistics	56	3.5			3
	必修 required	0508961	初级汉语 Junior Chinese	120	7.5			1
	必修 required	0508962	中国概况 Introduction of China	64	4			2

续表

课程类别 course type	课程性质 required/ elective	课程代码 course code	课程名称 course name	学时 hrs	学分 crs	其中 Including		设置学期 semester
						实验 exp.	上机 operation	
学科大类基础课程 Basic Courses in General Discipline	必修 required	0801663	工程制图（一） Engineering Graphics	40	2.5			2
	必修 required	0800441	信息技术导论 Introduction to Information Technologies	48	3			3
	必修 required	0810013	C 语言程序设计	64	4		24	2
	必修 required	0800113	电路理论（二） Circuit Theory(2)	96	6			2
	必修 required	0803055	电路测试实验（二） Circuit Measurement Experiments	48	1.5	48		3
	必修 required	0800774	数字电路与逻辑设计 Digital Circuit and Logic Design	64	4			3
	必修 required	0800121	模拟电子技术（一） Analog Electronics	64	4			4
	必修 required	0800151	信号与线性系统	72	4.5		8	3
	必修 required	0827002	电子线路设计·测试·实验 Electronic Circuitry Design, Test and Experiments	64	2	64		4
	必修 required	0800301	微机原理 Principles of Microcomputer	64	4			4
	必修 required	0811162	计算机网络 Computer Networks	56	3.5		16	6
学科专业基础课程 Basic Major Courses in Discipline	必修 required	0800412	数据结构 Data Structure	56	3.5		12	4
	必修 required	0700034	随机信号分析 Stochastic Process	64	4	8		4
	必修 required	0800795	微机原理实验 Experiment of Microcomputer Principle	48	1.5	48		5
	必修 required	0803072	通信电子线路 Electronic Circuits of Communications	72	4.5	8		5
	必修 required	0800251	电磁场与电磁波 Electromagnetic Field and Wave	56	3.5			5
	必修 required	0808041	操作系统 Operation Systems	48	3		8	5
专业核心课程 Common Major Core Courses	必修 required	0800164	数字信号处理（二） Digital Signal Processing(II)	56	3.5			5
	必修 required	0800431	通信原理 Principles of Communications	72	4.5	8		6
	必修 required	0801619	微波技术基础 Basics of Microwave Technologies	64	4	8		6
	必修 required	0800511	信息论基础 Fundamentals of Information Theory	40	2.5			4

续表

课程类别 course type	课程性质 required/ elective	课程代码 course code	课程名称 course name	学时 hrs	学分 crs	其中 Including		设置学期 semester
						实验 exp.	上机 operation	
Elective Major Courses 专业方向课程	选修 elective	0803152	DSP 处理器及应用 (二) Digital Signal Processors and their Applications	48	3			7
	选修 elective	0809122	Java 语言程序设计 Java Programming	48	3			7
	选修 elective	0803265	现代通信系统 Modern Communication Systems	48	3			7
	选修 elective	0800503	高级程序设计 Advanced Programming Design	48	3		16	6
	选修 elective	0812622	Matlab 及系统仿真 Matlab and System Simulations	48	3		8	7
	选修 elective	0844193	专业课程设计 Capstone Course Project	64	4			7
Practical Training Items 实践环节	必修 required	1300032	电工实习 Electrical Engineering Practice	2w	1			3
	必修 required	1302341	生产实习 Engineering Internship	2w	1			6
	必修 required	1300402	硬件课程设计 Course Project of Hardware	2w	1			5
	必修 required	1300292	软件课程设计 Course Project of Software	2w	1			6
	必修 required	1300046	毕业设计 Undergraduate Thesis	16w	8			8