信息类数理提高班本科培养计划

Bachelor degree of Engineering (BEng) in Information Science for Advanced Class in Mathematics and Physics

一、培养目标

Ⅰ. Program Objectives

提高班是我校“因材施教”培养信息科学领域拔尖人才的基地。提高班的培养目标是，培养具有良好心理素质、数理基础扎实、富有开拓创新精神、能从事基础和应用研究的优秀人才。

本计划参照电子信息工程专业的培养目标制定，如学生选择信息大类其他专业，可参考本计划的后面的说明，按照选定专业的培养计划进行。

The Advanced Class in mathematics and physics for information science serves as the college education reform base to produce top-tier talents in information sciences following the personalized education principle in our university. This program is designed to cultivate fully-developed researchers, who are committed to conduct fundamental and applied research, with outstanding psychological stability, consolidated backgrounds in both mathematics and physics, and strong innovative initiatives.

This program is designed at large following the BEng program in Electronic and Information Engineering. If a student selects another major in information disciplines, this student is required to take courses following the program of her/his selected major (see appendix).

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．具有扎实的数理基础，具有扎实的专业英语语言能力；

2．掌握文献检索和撰写科技论文的方法，了解信息学科的发展动态和理论前沿；

3．理解信息科学的基本理论和方法，具有研究理论问题的能力

4．掌握通信与信息系统的构成原理与技术，具有参与设计和开发的实践能力；

5．具有较好的人文社科知识和人文素质；

6．具有较强的团队合作和科技创新精神。

Students are expected to acquire the following knowledge or skills:

1. Consolidated background in both mathematics and physics and strong professional English capabilities;

2. Skills in searching literatures and writing technical report, and familiar with the development trends in the information discipline and research frontiers;

3. Understanding of basic theories and methods in information science, and research capabilities of theoretical problems;

4．Mastering principles and technologies in communication systems, communication networks and participating in the design and development of information systems;

5．Sound knowledge in humanities-and-art and good personality;

6．Cooperative attitude as a team player and strong innovative initiatives.

三、培养特色

Ⅲ. Program Highlights

强调拔尖研究型人才的良好思想品德和心理素质训练，强调数理基础与专业能力的结合，强调厚积薄发的长线培养模式；加强学生在大学数学与物理方面的理论基础，在电子电路、信号处理等方向的专业基础知识；培养学生在通信系统与网络、信息处理与应用系统等方面的工程实践和创新能力；培养能从事跨专业乃至跨学科综合研究和高层次技术开发的优秀人才。

The program focuses on training top-tier researchers with outstanding morality and psychological stability, excellent integration of solid mathematics-physics background and professional capability. This program is designed following the long-term training pattern and focuses on constructing a solid foundation and sustainable career development. In particular, the students are strengthened with a solid theoretical foundation in mathematics and physics, and professional knowledge and skills in electronic circuits and signal processing. The students are also enhanced with the hands-on engineering experiences and innovative initiatives in the design and development of communication systems and networks, information processing systems. Upon graduation, graduates are able to conduct outstanding multi-disciplinary or even interdisciplinary research, and technology development with impact.

四、主干学科

Ⅱ. Academic Discipline

信息与通信工程

Information and Communication Engineering

五、学制与学位

Ⅲ. Program Length and Degree

学制：四年制

Program Length: Four years

授予学位：工学学士

Degrees Conferred: Bachelor of Engineering

六、学时与学分

Ⅳ. 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：158.8 学分

Minimum Curriculum Credits (including courses and practicum): 158.8Credits

完成学业课外学分要求：5

Extracurricular Credits: 5

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（%）
素质教育通识课程		必修	576/32	23.15
		选修	280/17.5	11.25
学科基础课程	学科大类基础课程	必修	952/54.8	38.27
	学科专业基础课程	必修	376/22.5	15.11
专业课程	公共专业选修课程	选修	64/4	2.57
	专业方向课程	选修	240/15	9.65
合计			2488/145.8	100

Course Type		Required/ Elective	Hrs/Crs	Percentage (%)
Essential-qualities-oriented Education General Courses		Required	576/32	23.15
		Elective	280/17.5	11.25
Discipline-related Courses	General	Required	952/54.8	38.27
	Basic Subdisciplinary	Required	376/22.5	15.11
Major-specific Courses	Common Elective Courses	Elective	64/4	2.57
	Elective Major Courses	Elective	240/15	9.65
Total			2488/145.8	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（%）
军事训练	必修	2/1	7.7
电工实习	必修	2/1	7.7
生产实习（社会实践）	必修	2/1	7.7
软件课程设计	必修	2/1	7.7
硬件课程设计	必修	2/1	7.7
毕业设计	必修	16/8	61.5
合计		26/13	100

Internship & Practical Training	Course Nature	Weeks/Credits	Percentage (%)
Military Training(two weeks)	Required	2/1	7.7
Electrical Engineering Practice	Required	2/1	7.7
Engineering Internship (Social Practice)	Required	2/1	7.7
Course Project of Software	Required	2/1	7.7
Course Project of Hardware	Required	2/1	7.7
Undergraduate Thesis	Required	16/8	61.5
Total		26/13	100

3. 课外学分

Extracurricular Credits

序号	课外活动名称	课外活动和社会实践的要求		课外学分
1	社会实践活动	提交社会调查报告，通过答辩者		2
		个人被校团委或团省委评为社会实践活动积极分子者，集体被校团委或团省委评为优秀社会实践队者		2
2	英语及计算机考试	全国大学英语六级考试	考试成绩达到学校要求者	2
		全国计算机等级考试	获二级以上证书者	2
		全国计算机软件资格、水平考试	获程序员证书者	2
			获高级程序员证书者	3
			获系统分析员证书者	4
3	竞赛	校级	获一等奖者	3
			获二等奖者	2
			获三等奖者	1
		省级	获一等奖者	4
			获二等奖者	3
			获三等奖者	2
3	竞赛	全国	获一等奖者	6
			获二等奖者	4
			获三等奖者	3
4	论文	在全国性刊物发表论文	每篇论文	2~3
5	科研	视参与科研项目时间与科研能力	每项	1~3
6	实验	视创新情况	每项	1~3

注：参加校体育运动会获第一名、第二名者与校级一等奖等同，获第三名至第五名者与校级二等奖等同，获第六至第八名者与校级三等奖等同。

No.	Extracurricular Activities and Social Practice	Requirements		Extracurricular Credits
1	Community Engagement	Submitting a report and passing the oral defense		2
		Individuals awarded “Active Participant” / Teams awarded “Excellent Performance” by HUST or Hubei Youth League Committee		2
2	Examinations in English and Computer	CET-6	Students whose Band-6 exam scores passed university requirements	2
		National Computer Rank Examination	Holder of the Certificate of Band-2 or higher	2
		National Computer Software Qualification Test	Programmer	2
			Senior Programmer	3
			System Analyst	4
3	Competitions	University Level	First Prize	3
			Second Prize	2
			Third Prize	1
		Provincial Level	First Prize	4
			Second Prize	3
			Third Prize	2
		National Level	First Prize	6
			Second Prize	4
			Third Prize	3
4	Academic Papers	Published in national-level journals	Each paper	2~3
5	Research Programs	Contribution and research capability	Each program	1~3
6	Experiments	Innovation capacity	Each experiment	1~3

Note: In HUST Sports Meets, number 1~2 is equivalent to the first prize winner of the university-level games; number 3~5 is equivalent to the second prize winner of the university-level games; and number 6~8 is equivalent to the third prize winner of the university-level games when the extracurricular credits are calculated.

七、主要课程

Ⅶ. Main Courses

电路理论 Circuit Theory、模拟电路与数字系统(一、二、三)Analog Circuit and Digital System(I、II、III)、信号与线性系统 Signal and Linear System、数字信号处理 Digital Signal Processing、通信原理 Principles of Communications、通信电子线路 Electronic Circuits of Communications、基础信息论 Fundamentals of Information Theory、电磁场与电磁波 Electromagnetic Field and Wave、数据结构 Data Structure。

八、主要实践教学环节（含专业实验）

Ⅷ. Practicum Module (experiments included)

电子线路设计·测试·实验 Electronic Circuit Design, Test and Experiments、模拟电路与数字系统（三）实验 Experiments of Analog Circuit and Digital System(III)、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：电子信息工程

School (Department): School of Electronic Information and Communications　　Major: Electronics and Information 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	
素质教育通识课程 Essential-qualities-oriented Education General Courses	必修 required	0301901	思想道德修养与法律基础 Morals & Ethics & Fundamentals of Laws	48	3			1
	必修 required	0100721	中国近现代史纲要 Survey of Modern Chinese History	32	2			2
	必修 required	0100732	马克思主义基本原理 Basic Theory of Marxism	48	3			3
	必修 required	0100321	毛泽东思想和中国特色社会主义理论体系概论 General Introduction to Mao Zedong's Thoughts and Socialim Theory for China	64	4			4
	必修 required	0100741	形势与政策 Contemporary Affairs and Policies	32	2			5-7
	必修 required	1100011	军事理论 Military Theory	16	1			7
	必修 required	0510071	中国语文 Chinese	32	2			1
	必修 required	0500015	综合英语（一） College English （Ⅰ）	56	3.5			1
	必修 required	0500017	综合英语（二） College English （Ⅱ）	56	3.5			2
	必修 required	0400111	大学体育（一） Physical Education (I)	32	1			1
	必修 required	0400121	大学体育（二） Physical Education (II)	32	1			2
	必修 required	0400131	大学体育（三） Physical Education (III)	32	1			3
	必修 required	0400141	大学体育（四） Physical Education (IV)	32	1			4
	必修 required	0844071	计算机与程序设计基础（C++） Fundamental of Computer Programming (C++)	64	4		32	1
	选　修 Elective	0706461	科学计算引论 Introduction to Scientific Computing	56	3.5		16	3
	选　修 Elective	0804101	数学建模 Mathematical Modeling	40	2.5			4
	选　修 Elective	0102112	批判性思维 Critical Thinking	24	1.5			3
			人文社科类选修课程 Elective courses in Humanities and Social Science	160	10			
	必修 required	070001b	微积分一（上） Calculus (I)	96	6			1

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 Discipline-related General Courses	必修 required	070001c	微积分一（下） Calculus (II)	96	6			2
	必修 required	0700048	大学物理（一） Physics (I)	64	4			2
	必修 required	0700049	大学物理（二） Physics (II)	64	4			3
	必修 required	0706891	物理实验（一） Physics Experiments (I)	32	1	32		2
	必修 required	0706901	物理实验（二） Physics Experiments (II)	24	0.8	24		3
	必修 required	0700054	线性代数 Linear Algebra	40	2.5			2
	必修 required	0700071	复变函数与积分变换 Complex Functions and Integral Transforms	40	2.5			3
	必修 required	0705941	概率论与数理统计 Probability and Mathematics Statistics	40	2.5			3
	必修 required	0700081	数理方程与特殊函数（一） Mathematical Equations and Functions	40	2.5			4
	必修 required	0800441	信息技术导论 Introduction to Information Technologies	24	1.5			1、3、5
	必修 required	0800128	电路理论（三） Circuit Theory (III)	56	3.5			2
	必修 required	0803054	电路测试实验 Circuit Measurement Experiments	32	1	32		3
	必修 required	0800156	信号与线性系统（二） Signal and Linear System (II)	64	4	16		4
	必修 required	0844082	模拟电路与数字系统（一） Analog Circuit and Digital System(I)	48	3			3
	必修 required	0844091	模拟电路与数字系统（二） Analog Circuit and Digital System(II)	48	3			3
	必修 required	0844101	模拟电路与数字系统（三） Analog Circuit and Digital System(III)	48	3			4
	必修 required	0815812	电子线路设计·测试·实验（一） Electronic Circuitry Design, Test and Experiments (I)	32	1	32		3
	必修 required	0815822	电子线路设计·测试·实验（二） Electronic Circuitry Design, Test and Experiments (II)	32	1	32		4
	必修 required	0800144	计算机网络 Computer Networks	32	2			5
	必修 required	0800413	数据结构 Data Structure	48	3		12	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	
学科专业基础课程 Basic Subdisciplinary Courses	必修 required	0803071	通信电子线路 Electronic Circuits of Communications	48	3	8		5
	必修 required	0816093	随机信号分析 Stochastic Process	32	2	8		4
	必修 required	0844111	模拟电路与数字系统（三）实验 Experiment of Analog Circuit and Digital System(III)	32	1	32		4
	必修 required	0800252	电磁场与电磁波 Electromagnetic Field and Wave	40	2.5			5
	必修 required	0800161	数字信号处理 Digital Signal Processing	48	3	8		5
	必修 required	0832901	基础信息论 Fundamentals of Information Theory	24	1.5			4
	必修 required	0800432	通信原理 Principles of Communications	56	3.5	8		5
	必修 required	0803083	微波技术基础 Fundamentals of Microwave Engineering	48	3	8		6
专业方向课程 Major-specific Electives			专业方向选修公共课程 Elective Major Courses					
	选修 elective	0809891	Java 语言程序设计 JAVA Programming	32	2		16	5
	选修 elective	0844181	数据库及应用实践 Database Systems	56	3.5	24		6
	选修 elective	0808041	操作系统 Operating System	48	3		8	6
	选修 elective	0810651	微电子器件与 IC 设计 Electronic Device Basics and IC Design	56	3.5			6
	选修 elective	0821351	ARM 处理器及应用 ARM Processor and Applications	48	3	32		6
	选修 elective	0821361	Altera 可编程片上系统及应用 Altera SOPC and Applications	48	3	32		6
	选修 elective	0821371	Xilinx FPGA 及应用 Xilinx FPGA and Applications	48	3	32		6
	选修 elective	0821381	MSP430 单片机及应用 MSP430 Microcontroller and Applications	48	3	32		6
	选修 elective	0821391	Freescale 单片机及应用 Freescale Microcontroller and Applications	48	3	32		6
	选修 elective	0821401	8051 系列单片机原理及应用 8051 Microcontroller Principles and Applications	48	3	32		6
	选修 elective	0803151	DSP 处理器及应用 Digital Signal Processors and their Applications	48	3	32		6
	选修 elective	0821411	嵌入式 Linux 软件设计 Embedded Linux Software Design	48	3	32		6

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	
专业方向课程 Major-specific Electives	选修 elective	0809961	虚拟仪器技术及应用 Virtual Instrumentation and Applications	32	2			6
	选修 elective	0803231	传感器技术及应用 Sensor Technology and Applications	32	2			6
	选修 elective	0833061	小波分析与应用 Wavelet Analysis and Applications	32	2	8		6
	选修 elective	0800243	数字图像处理 Digital Image Processing	48	3	8		5
	选修 elective	0700972	医学图像处理 Medical Image Processing	32	2	8		7
	选修 elective	0840381	应用密码学 Applied Cryptography	32	2			7
	选修 elective	0844121	数据通信网络技术 Data Communication Networking Technologies	32	2			6
	选修 elective	089924	计算机网络安全 Security of Computer Networks	32	2			7
	选修 elective	0821341	软件无线电 Software radio	32	2			6
	选修 elective	0844131	绿色通信 Green Communications	32	2			6
	选修 elective	0844141	物联网 Internet of Things	32	2			6
	选修 elective	0830041	光纤通信基础 Fundamentals of Fiber-optic Communications	32	2			7
	选修 elective	0840262	移动互联网 Mobile Internet	32	2			7
	选修 elective	0833151	无线传感器网络 Wireless Sensor Networks	32	2			7
	选修 elective	0844151	天线与电波传播 Antenna and Radio Wave Propagation	32	2			5
	选修 elective	0844161	微波射频电路 Microwave Device and Circuits	32	2			6
			专业方向选修课程组 Elective Major Courses					
			多媒体信息处理方向 Multimedia information processing					
	选修 elective	0800243	数字图像处理 Digital Image Processing	48	3	8		6
	选修 elective	0802363	多媒体技术基础 Introduction to Multimedia Technology	40	2.5	8		6
	选修 elective	0844731	数字语音处理 Digital Audio Processing	32	2	8		6

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	
专业方向课程 Major-specific Electives	选修 elective	0844171	视频处理与通信 Video Processing and Communications	40	2.5	8		7
	选修 elective		专业课程设计（多选） Major Course Project(Multiple options)	80	5			7
			大数据处理方向(Big data processing)					
	选修 elective	0800243	数字图像处理 Digital Image Processing	48	3	8		6
	选修 elective	0844181	数据库及应用实践 Database Systems	56	3.5	24		6
	选修 elective	0806493	数据挖掘 Data Mining	48	3	8		6
	选修 elective	0833101	网络信息安全 Security of Networks and Information	32	2	8		6
	选修 elective		专业课程设计（多选） Major Course Project(Multiple options)	56	3.5			7
			网络应用方向 network application					
	选修 elective	0809891	Java 语言程序设计 JAVA Programming	32	2		16	5
	选修 elective	0835881	TCP/IP 网络编程 TCP/IP Network Programming	32	2			7
	选修 elective	1202912	电子商务概论 Fundamentals of E-Commerce	32	2			6
	选修 elective	0809924	计算机网络安全 Security of Computer Networks	32	2			7
	选修 elective	0844201	计算机网络实验 Computer Network Labs	32	2	32		5
	选修 elective	0844211	互联网应用系统设计与实验 Internet application systems: Design and Experiments	80	5	16		7
			智能电路系统方向 Intelligent circuit system					
	选修 elective	0800243	数字图像处理 Digital Image Processing	48	3	8		6
	选修 elective	0844221	机电控制技术 Electromechanical control technology	64	4	32		6
	选修 elective	0844231	智能硬件系统设计 Intelligent hardware system design	64	4	48		7
	选修 elective	0844241	智能机器人设计 Intelligent robot design	64	4			7
			数字信号处理方向 Digital signal processing					

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	
专业方向课程 Major-specific Electives	选修 elective	0803151	DSP 处理器及应用 Digital Signal Processors and their Applications	48	3	32		6
	选修 elective	0844511	数字信号系统设计与实现 Digital Signal Systems: Design and Implementation	96	6			6
	选修 elective	0844261	数字信号处理平台高级程序设计 Advanced program design for digital signal processing platform	32	2	16		7
	选修 elective	0844271	现代数字信号处理 Advanced digital signal processing	32	2			7
	选修 elective	0842331	阵列信号处理 Array signal processing	32	2			7
			机器学习与搜索方向 Machine learning and Searching					
	选修 elective	0800243	数字图像处理 Digital Image Processing	48	3	8		6
	选修 elective	0806493	数据挖掘 Data Mining	48	3	8		6
	选修 elective	0844521	机器学习导论 Introduction to machine learning	32	2			6
	选修 elective	0844281	多媒体搜索技术 Multimedia search technology	48	3	16		7
	选修 elective	0844291	计算机视觉理论与实践 Theory and Practice of Computer vision	64	4			7
			健康医疗信息处理方向 Health care information processing					
	选修 elective	0701544	普通生物学 General Biology	48	3			5
	选修 elective	0844181	数据库及应用实践 Database Systems	56	3.5	24		6
	选修 elective	0844521	机器学习导论 Introduction to machine learning	32	2			6
	选修 elective	0844311	基因组信息工程 Genome information engineering	48	3			7
	选修 elective	0844321	转化数据医学 Transformed data medicine	56	3.5			7
			通信网络方向 Communication networks					
	选修 elective	0844201	计算机网络实验 Computer Network Labs	32	2	32		5
	选修 elective	0844721	无线通信基础 Fundamentals of Wireless Communications	32	2			6
	选修 elective	0844121	数据通信网络技术 Data Communication Networking Technologies	32	2			6

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	
专业方向课程 Major-specific Electives	选修 elective	0844301	无线局域网 Wireless Local Area Network	32	2			6
	选修 elective	0833151	无线传感器网络 Wireless Sensor Networks	32	2			6
	选修 elective	0844371	网络系统设计和实验 Network Systems: Design and Experiments	80	5	16		7
			移动通信方向 Mobile communications					
	选修 elective	0844721	无线通信基础 Fundamentals of Wireless Communications	32	2			6
	选修 elective	0810302	软件无线电 Software radio	32	2			6
	选修 elective	0844381	移动通信协议 Mobile Communication Protocols	40	3	16		7
	选修 elective	0844391	移动通信网络 Mobile Communication Networks	32	2			7
	选修 elective	0844401	通信编码理论 Communication Coding Theory	32	2			7
	选修 elective	0833101	移动通信系统设计和实验 Mobile Communication Systems: Design and Experiments	64	4			7
			未来通信方向 Future communications					
	选修 elective	0844721	无线通信基础 Fundamentals of Wireless Communications	32	2			6
	选修 elective	0844401	通信编码理论 Communication Coding Theory	32	2			7
	选修 elective	0844411	多载波通信理论与技术 Theories and Technologies in Multi-carrier Communications	48	3			7
	选修 elective	0844421	多天线通信理论与技术 Theories and Technologies in Multi-antenna Communications	48	3			7
	选修 elective	0844431	无线通信系统设计和实验 Wireless Communication Systems: Design and Experiments	80	5	16		7
			空间通信方向 Space communications					
	选修 elective	0844721	无线通信基础 Fundamentals of Wireless Communications	32	2			6
	选修 elective	0803151	卫星通信原理 Principles of Satellite Communications	40	3	16		6
	选修 elective	0844441	定位与导航技术 Location and Navigation Technologies	40	3	16		7

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专业方向课程 Major-specific Electives	选修 elective	0844451	卫星通信系统 Satellite Communication Systems	32	2			7
	选修 elective	0844461	空间通信系统设计和实验 Space Communication Systems: Design and Experiments	80	5	16		7
			射频与无线技术 RF & Wireless Technology					
	选修 elective	0844331	计算电磁学 Computational electromagnetic	32	2			6
	选修 elective	0803231	微波无源电路与网络 Microwave network	32	2			5
	选修 elective	0844161	微波射频电路 Microwave Device and Circuits	32	2			6
	选修 elective	0803172	天线与电波传播 Antenna and Radio Wave Propagation	32	2			5
	选修 elective	0809961	电磁兼容与信号完整性 Electromagnetic compatibility and signal integrity	32	2			6
	选修 elective	0844341	微波电路计算机辅助分析与设计 Microwave Circuit CAE and CAD	32	2			6
	选修 elective	0821341	软件无线电 Software radio	32	2			6
	选修 elective	0840361	现代无线技术（讲座） Selective Topics on Modern Information Processing	16	1			7
	选修 elective	1325026	专业课程设计 Major Course Project	4w	2			7
			遥感探测与成像技术 Remote Sensing，Detection and Imaging Technology					
	选修 elective	0844331	计算电磁学 Computational electromagnetic	32	2			6
	选修 elective	0844351	雷达与信息对抗 Radar and Information Antagonism	32	2			5
	选修 elective	0844161	微波射频电路 Microwave Device and Circuits	32	2			6
	选修 elective	0803172	天线与电波传播 Antenna and Radio Wave Propagation	32	2			5
	选修 elective	0809961	电磁兼容与信号完整性 Electromagnetic compatibility and signal integrity	32	2			6
	选修 elective	0800234	遥感技术及应用 Microwave remote sensing	32	2			6
	选修 elective	0844361	阵列信号处理与智能天线 Array Signal Processing and Smart Antenna	32	2			6
	选修 elective	0840361	现代无线技术（讲座） Selective Topics on Modern Information Processing	16	1			7

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	选修 elective		专业课程设计 Major Course Project	4w	2			7
实践环节 Practical training items	必修 required	1300012	军事训练 Military Training	2w	1.0			1
	必修 required	1300032	电工实习 Electrical Engineering Practice	2w	1.0			4
	必修 required	1300083	生产实习 Engineering Internship	2w	1.0			6
	必修 required	1300402	软件课程设计 Course Project of Software	2w	1.0			5
	必修 required	1300292	硬件课程设计 Course Project of Hardware	2w	1.0			6
	必修 required	1300046	毕业设计（论文） Undergraduate Thesis	16w	8.0			8