

电子信息工程专业本科培养方案

Undergraduate Education Program for Specialty in Electronic Information Engineering

一、专业简介

I Program Introduction

专业名称: 电子信息工程

专业代码: 080701

学科门类: 工学

Specialty Name: Electronic Information Engineering

Specialty Code: 080701

Discipline category: Engineering

电子信息工程专业依托通信工程系, 2000 年开始本科招生, 其前身是 1996 年开始本科招生的洛阳工学院应用电子技术专业, 在河南省内本科一批招生, 并与通信工程专业一起按电子信息大类招生。本专业是校级特色专业, 所属学科信息与通信工程具有一级硕士学位授权点, 是河南省重点学科、省特聘教授设岗学科, 建设有河南省信息技术教学团队和河南科技大学通信技术校级教学团队, 拥有省部级、校级等专业实验室近二十个, 形成了一定的产学研合作与人才队伍优势, 已成为中原地区电子信息工程领域高级专门技术人才的培养基地。

本专业面向电子信息工程专业领域, 以“厚基础、宽口径、重实践、求创新、强素质”作为指导思想。培养学生既具有扎实的理论和专业知识, 又具有国际视野、符合行业发展需求、具有创新意识, 能从事电子工程设备和信息系统的研究、设计、制造、应用开发和技术管理等领域工作的电子信息工程专业高级工程技术人才。课程体系突出“电子信息系统为主、电子电路与信息处理并重”的专业特色, 形成了电子信息技术全覆盖、厚基础、宽口径、重实践的人才培养体系, 构建了通识教育课程和电子信息工程基础课程大平台, 将专业知识理论学习与工程实践并重, 强化电子信息工程实践能力的多方面训练, 注重创新性思维的开发, 全面提升学生的工程素养、工程实践与工程创新能力。

Relying on department of communication engineering, the specialty of electronic information Engineering enrolled college students from 2000. Its predecessor is the specialty of applied electronic technology in Luoyang Institute which enrolled college students from 1996. As the first batch in Henan Province, its undergraduate enrollment follows with the category of electronic information, which is the same with the specialty of communication engineering. It is the school-level specialty. The discipline it belongs to, e.g., information and communication engineering, has a master's degree authorization, is the key discipline in Henan Province, and is the province Professor. It has built the information technology team of Henan province and the communication technology team of Henan University of Science and Technology. It has nearly twenty provincial and university professional laboratories, formats cooperation and talent advantage, and has become a training base for the field of electronic information engineering in the Central Plains senior specialized technical personnel.

This is a specialty that orients to electronic information engineering, and takes "thick foundation, wide caliber, focus of practice, requirement of innovation and high quality" as the guiding ideology. It aims to develop the students' ability to has theoretical and professional knowledge, to has an international perspective, to meet the needs of the development of the industry, with innovative consciousness. Students in the field can work in the research, design, manufacture, application development and technical management of the electronic information engineering professional senior engineering and technical personnel. The curriculum system highlights the professional characteristics of the electronic information system, also attaches importance to electronic circuit and information processing, forms a culture system of electronic information technology, full coverage of

the thick foundation, wide caliber, practical talents. This curriculum constructs both the general education curriculum and electronic information engineering foundation course platform and the professional knowledge learning theory and engineering practice, strengthens various aspects of training in the practice of electronic and information engineering, focuses on the development of creative thinking, and enhances students' engineering quality, engineering practice and engineering innovation ability.

二、培养目标

II Program Objective

本专业按照“厚基础、宽口径、重实践、求创新、强素质”的人才培养指导思想，坚持贯彻落实党的教育方针，立德树人，围绕国家经济社会发展和电子信息产业的需求，立足中原、融入区域、面向全国，培养具有正确社会主义核心价值观、系统科学文化知识和技能、强健体魄和坚韧意志力、高尚情操和文明素质、吃苦耐劳品质，以及科学与人文精神、团队合作、责任担当、创新意识和工程实践能力，具备开阔国际视野，能够在电子信息、通信网络和系统、信号分析与处理等相关产业领域胜任电子和通信网络信息系统的产品开发、设计制造、集成测试、运行管理与维护等工作，解决电子信息领域复杂工程问题的应用研究型高级专门人才。

学生毕业后五年左右达到的具体目标如下：

目标 1：理解和把握电子信息、通信网络和系统、信号分析与处理等相关领域的产品开发、设计、制造、安装、调试的全过程，具备分析确定工程项目技术难点和关键环节的能力，掌握电子信息类产品设计开发的技术标准和生产规范。(工程能力)；

目标 2：能针对电子信息、通信网络和系统、信号分析与处理等相关领域的信息系统设计问题提出独立的技术见解，能够审查、选择为完成工程任务所需的技术、方法和工艺，具有跟踪前沿技术的发展，能恰当导入新技术、新工艺和新方法，开展设计、开发、检测和应用创新。(创新能力)；

目标 3：具有社会主义核心价值观和人文社会素养，理解并自觉遵守工程职业道德规范标准和行业基本公约，在开展电子信息工程领域项目设计和实施过程中，能全面考虑技术、经济、财政、环境、社会及其他相关因素，主动实施技术风险、经济风险和社会风险控制，自觉履行有关环境、健康、安全等社会责任。(社会素养和担当)；

目标 4：具备在多文化多学科团队中主动承担责任、进行有效沟通和协作的能力，具备工程项目技术管理能力，能够进行项目实施方案论证、计划管理、质量监控以及资源的有效配置。(团队合作及领导力)；

目标 5：具有强健体魄和坚韧意志力、高尚情操和文明素质、吃苦耐劳品质，能够以开阔的国际视野把握所从事工程领域的特点，理解技术发展趋势，明确个人和组织的发展目标，不断更新专业知识，增强社会实践能力，提升专业技能和思想政治水平，始终成为德智体美劳全面发展的社会主义事业合格建设者和可靠接班人。(终身学习和发展能力)。

In accordance with the guiding ideology of "thick foundation, wide caliber, practice oriented, innovation oriented and quality-oriented", the electronic information engineering specialty adheres to the party's education policy, builds morality and talents, and focuses on the needs of national economic and social development and electronic information industry. The major bases itself on the Central Plains, integrates into the region, faces the whole country, and cultivates professionals with correct socialist core values, systematic scientific and cultural knowledge and skills, strong physique and tenacious willpower, noble sentiment and civilized quality, and hardworking quality. They have the abilities of scientific and humanistic spirit, teamwork, responsibility, innovation consciousness and engineering practice. They have broad international vision and are competent for the production of electronic and communication network information system in the fields of electronic information, communication network and system, signal analysis and processing and other related industries. They are applied research-oriented senior professionals who can work in product development, design and manufacturing, integrated testing, operation management and maintenance, and solve complex engineering problems in the field of electronic information.

The specific goals reached by the students after five years of graduation are as follows:

Goal 1: Understanding and grasping the whole process of product development, design, manufacturing, installation and commissioning in the fields of electronic information, communication network and system, signal analysis and processing, having the ability to analyze and determine the technical difficulties and key

links of engineering projects, and mastering the technical standards and production specifications for the design and development of electronic information products. (engineering capability);

Goal 2: Having the ability of putting forward independent technical opinions on information system design problems in electronic information, communication network and system, signal analysis and processing and other related fields, reviewing and selecting technologies, methods and processes required to complete engineering tasks, having the ability to track the development of cutting-edge technologies, properly introduce new technologies, new processes and new methods, and carry out design, development, detection and application innovation New. (innovation capability);

Goal 3: Having the socialist core values and humanistic and social literacy, understanding and abiding by the standards of engineering professional ethics and the basic conventions of the industry consciously. Fully considering the technical, economic, financial, environmental, social and other related factors, actively implementing the control of technical risk, economic risk and social risk, and consciously fulfilling the social responsibilities related to environment, health and safety in the process of carrying out the project design and implementation in the field of electronic information engineering. (social literacy and responsibility);

Goal 4: Having the ability to actively take responsibility, effectively communicate and cooperate in a multi-cultural and multi-disciplinary team, having the ability of engineering project technology management, and being able to demonstrate the project implementation scheme, plan management, quality monitoring and effective allocation of resources. (teamwork and leadership);

Goal 5: Having the qualities of strong physique, tenacious willpower, noble sentiment, civilized quality and hardworking, enabling to grasp the characteristics of the engineering field with a broad international vision, understand the development trend of technology, clarify the development goals of individuals and organizations, constantly update professional knowledge, enhancing social practice ability, and improve professional skills and ideological and political level; having become a moral, intellectual, physical and aesthetic worker qualified builders and reliable successors of the all-round development of the socialist cause. (lifelong learning and capacity development).

三、毕业要求

III Graduation Requirements

本专业毕业生应系统地掌握坚实的理论和专业知识，具有较强的分析问题和解决问题的能力，能够适应社会发展的需要，具有在电子信息领域从事技术开发、管理、维护、教学和科学研究工作的能力。毕业要求具体体现在以下几个方面。

- 1. 工程知识：**能够将数学、自然科学、工程基础和电子信息工程专业知识，用于解决电子信息工程应用领域的复杂工程问题；
- 2. 问题分析：**能够应用数学、自然科学和工程科学的基本原理，识别、表达，并通过文献研究分析电子信息工程应用领域的复杂工程问题，以获得有效结论；
- 3. 设计/开发解决方案：**能够针对电子信息工程应用领域的复杂工程问题设计解决方案，设计开发满足特定需求的软硬件应用系统、组件和产品，并能够在设计开发环节中体现创新意识，考虑经济、健康、安全、法律、伦理、环境及文化等因素；
- 4. 研究：**能够基于电子信息工程的科学原理并采用科学方法，对电子信息工程应用领域的复杂工程问题进行研究，包括设计实验、分析与解释数据，并通过信息综合得到合理有效的结论；
- 5. 使用现代工具：**能够针对电子信息工程应用领域的复杂问题，开发、选择与使用恰当的平台、技术、资源、现代工程工具和信息技术工具，包括对复杂工程问题的预测与模拟，并能够理解其局限性；
- 6. 工程与社会：**能够基于工程相关背景知识进行合理分析，评价电子信息工程专业工程实践和复杂工程问题解决方案对社会、健康、安全、法律及文化的影响，并理解应承担的责任；
- 7. 环境和可持续发展：**能够理解和评价针对复杂电子信息工程问题的实践活动，对环境、社会可持续发展的影响；
- 8. 职业规范：**具有人文社会科学素养、公民道德水平和社会责任感，能够在电子信息工程实践中理解并遵守工程职业道德和规范，履行责任；
- 9. 个人和团队：**具有强健的体格和良好的综合素质，能够在多学科背景下的团队中承担个体、团队成员及负责人的角色；

10. 沟通: 具有沟通的能力、方法和技巧, 能够就电子信息工程应用领域的复杂工程问题与业界同行及社会公众进行有效沟通和交流, 包括撰写报告和设计文稿、陈述发言、清晰表达和答辩能力, 并具备一定的国际视野, 能够在跨文化背景下进行沟通和交流;

11. 项目管理: 具有一定的项目管理知识和能力, 理解并掌握电子信息工程管理原理与经济决策方法, 并能在多学科环境中应用;

12. 终身学习: 具有自主学习和终身学习的意识, 有不断学习和适应发展的能力, 能够通过自主学习适应经济社会创新发展的需要。

The specialty graduates can systematically grasp firm theory and professional knowledge, and they must have the abilities of analyzing and dealing with problems to fit in with the needs of the society. They can be engaged in developing, managing, maintaining, teaching and investigating work in electronic information science and technology fields. The following represents these concretely.

1. Engineering knowledge: Be able to apply mathematics, natural sciences, engineering and electronic information expertise to solve the electronic information engineering applications in the field of complex engineering problems.

2. Problem analysis: Be able to apply the basic principles of mathematics, natural sciences and engineering science to identify and express, and analysis of complex engineering problems in electronic information engineering applications through the literature research in order to obtain effective conclusions.

3. Design/development solutions: Design solutions for complex engineering problems in electronic information engineering applications, design and develop electronic information application systems as well as software and hardware, components and products that meet specific needs, and reflect innovation in design and development taking into account economic, security, legal, ethical, environmental and cultural factors.

4. Research: Based on the principles of electronic information engineering, be able to use scientific methods to study the complex engineering problems in electronic information engineering applications, including design experiments, analysis and interpretation of data. and acquire reasonable and effective conclusions through information synthesis.

5. Use modern tools: Be able to develop, select and use appropriate platforms, technologies, resources, modern engineering tools and information technology tools for complex problems in electronic information engineering applications, including predictions and simulations of complex engineering problems and the ability to understand its limitations

6. Engineering and Society: Be able to conduct rational analysis based on engineering-related background knowledge, evaluate the impact of electronic information engineering and technology engineering practice and complex engineering problem solutions on society, health, safety, law and culture, and understand the responsibilities that should be borne.

7. Environment and sustainable development: Be able to understand and evaluate the practical activities of complex electronic information engineering problems, and the impact on the environment, social sustainable development.

8. Professional norms: Process humanities and social sciences, civic moral standards and social responsibility. And fulfill their responsibilities in electronic information engineering practice to understand and comply with engineering ethics and norms.

9. Individuals and teams: Process a strong physique and good overall quality, be able to assume the individual, team members and the role of the person in charge in a multi-disciplinary background of the team.

10. Communication: Process the ability, method and skill to communicate, to communicate with the industry peers and the public on complex engineering issues in electronic information engineering applications, including writing reports and designing manuscripts, statements, clarity and defense. And have a certain international perspective, to communicate and exchange under cross cultural background.

11. Project management: Process a certain degree of project management knowledge and ability to understand and master the principles of electronic information engineering management and economic decision-making methods, and can be applied in a multi-disciplinary environment.

12. Lifelong learning: Process a certain degree of independent learning and lifelong learning awareness, have the ability to continue and independent learning as well as the ability to learn to adapt the development of economic and social innovation.

四、主干学科及核心课程

IV Main Discipline & Core Courses

主干学科: 电子科学与技术、信息与通信工程、计算机科学与技术

核心课程: 电路 B、线性电子线路、数字电路与逻辑设计、信号与系统 A、通信电路与系统、C 语言程序设计 B、微机原理与接口技术 C、单片机原理及应用 B、数字信号处理 A、微控制器接口技术 A、通信原理、电磁场与电磁波、随机信号分析、传感器与检测技术

Main Discipline: Electronics Science and Technology, Information and Communication Engineering, Computer Science and Technology

Core Courses: Circuit B, Linear Electronic Circuits, Digital Circuits and Logic Design, Signals and Systems A, Communication Circuits and Systems, C Language Programming B, Principles and Interface of Microcomputer C, Theories and Applications of Single Chip Microcomputer B, Digital Signal Processing A, Microcontroller Interface Technology A, Communication Principles, Electromagnetic Fields and Electromagnetic Waves, Random Signal Analysis, Sensor and Detecting Technology

五、学制及学位

V Program Duration and Academic Degrees

学制: 4 年

学习年限: 3-6 年

授予学位: 工学学士学位

Program Duration: Four Years

Period of schooling: 3-6 Years

Degree Granted: Bachelor of Engineering

六、最低毕业学分要求

VI Minimum Required Credits

课程平台、模块及类型 Education courses、module and category		学分 Credit	占总学分比例(%) Proportion of credit(%)	
通识教育课程平台 General education courses		课堂教学 coursework	41	23%
		实验和课程实践 Experiments & practicum	6	3%
基础教育课程平台 Basic education courses	基础课程 Basic disciplinary courses	课堂教学 coursework	61.5	34.2%
		实验和课程实践 Experiments & practicum	5.5	3%
专业教育课程平台 Specialized courses	工程应用能力培养模块 Engineering application capacity training module	课堂教学 coursework	11	6.1%
		实验和课程实践 Experiments & practicum	1	0.6%
	应用类/学术类选修模块 Application/academic elective module	课堂教学 coursework	10	5.6%
		实验和课程实践 Experiments & practicum	2	1.1%

实践教育 环节平台 practicum	专业基础实践 Basic practicum	5	2.8%
	专业综合实践 Professional practicum	28	15.6%
	素质教育实践 Quality education practicum	9	5%
合 计 Total		180(100%)	

七、课程设置及教学

VII Curriculum

(一) 通识教育课程平台

(一) General education courses

课程模块 Classification	模块性质 Category	课程名称 Course name	学分 credit	学时分配 Time distribution				考试考查 Exam type	建议修读学期 Suggested term	开课单位 course-offering faculty
				总学时 Total hrs	课堂学时 Class hours	理论 theory	实验 experiments			
思想 政治 Ideology and Politic	必修 Compulsory courses	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48	40		8	考查	1	马院
		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	6	96	64		32	考试	5	马院
		马克思主义基本原理 Marxism Philosophy	3	48	40		8	考试	1	马院
		中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32	24		8	考查	3	马院
思想 政治 Ideology and Politic	必修 Compulsory courses	形势与政策(1) Situation and Policy(1)	0.5	32	16		16	考查	1 和 2	马院
		形势与政策(2) Situation and Policy(2)	0.5	32	16		16	考查	3 和 4	马院
		形势与政策(3) Situation and Policy(3)	0.5	32	16		16	考查	5 和 6	马院
		形势与政策(4) Situation and Policy(4)	0.5	32	16		16	考查	7 和 8	马院
外 语 Foreign Language		大学英语 B(1) College English B(1)	3	48	48			考试	1	外语
		大学英语 B(2) College English B(2)	4	64	48		16	考查	2	外语
		大学英语 B(3) College English B(3)	3	48	40		8	考查	3	外语
		大学英语 B(4) College English B(4)	2	32	32			考试	4	外语
体 育 Physical Education		体育(1) Physical Education(1)	1	36	32		4	考查	1	体育
		体育(2) Physical Education(2)	1	36	32		4	考查	2	体育
		体育(3) Physical Education(3)	1	36	32		4	考查	3	体育
		体育(4) Physical Education(4)	1	36	32		4	考查	4	体育

课程模块 Classification	模块性质 Category	课程名称 Course name	学分 credit	学时分配 Time distribution				考试考查 Exam type	建议修读学期 Suggested term	开课单位 course-offering faculty
				总学时 Totals	Class hours	理论 theory	实验 experiments			
信息技术 Information Technology		大学计算机基础 A Foundation of Computer A	1	32	16	16		考查	1	信工
国防教育 National Defense Education		军事理论 Military Theory	2	32	32			考查	2	体育
小 计 Subtotal			35	760	576	16	168			
素质教育 Quality Education	选修 Elective courses	人文社科类 Humanity and social science	4	要求全体学生至少取得 12 学分，每类课程至少选修 2 学分。 课程设置见附件 所有学生必修心理健康类、创新创业类、就业指导类、艺术教育类课程每类必须至少 2 学分，必修人文社科类或自然科学类课程必须至少 4 学分。 All the students are required to achieve at least two credits of mental health, innovation, career guidance or art courses. The minimum of four credits are required in the courses of arts or natural science.						
		自然科学类 Nature Science Courses								
		艺术教育类 Arts Courses	2							
		就业指导类 Career Guidance Courses	2							
		创新创业类 Innovation Courses	2							
		心理健康类 Mental Health Courses	2							
合 计 Total			47							

(二) 基础教育课程平台

(二) Basic education courses

课程模块 Classification	模块性质 Category	课程名称 Course Name	学分 credit	学时分配 Time distribution				考试考查 Exam type	建议修读学期 Suggested term	开课单位 course-offering faculty
				总学时 Totals	Class hours	理论 theory	实验 experiments			
学科基础课程 Basic disciplinary courses	必修 compulsory	高等数学 A (1) Higher Mathematics A(1)	5	80	80			考试	1	数统
		工程图学 C Engineering Graphics C	3.5	56	56			考查	1	机电
		高等数学 A (2) Higher Mathematics A(2)	5.5	88	88			考试	2	数统
		大学物理 A(1) College Physics A(1)	3.5	56	56			考试	2	物理
		大学物理 A(2) College Physics A(2)	3.5	56	56			考试	3	物理
		实验物理 A(1) Experimental Physics A(1)	0.5	16		16		考查	2	物理
		实验物理 A(2) Experimental Physics A(2)	1	32		32		考查	3	物理

课程模块 Classification	模块性质 Category	课程名称 Course Name	学分 credit	学时分配 Time distribution				课程实践 practicum	考试考查 Exam type	建议修读学期 Suggested term	开课单位 course-offering faculty
				总学时 Totals	Class hours	理论 theory	实验 experiments				
专业基础课程 Basic academic courses	必修 compulsory	C 语言程序设计 B C Language Programming B	2.5	56	32	24		考查	1	信工	
		电路 B Circuit B	4.5	80	64	16		考试	2	电气	
		线性代数 A Linear Algebra A	3	48	48			考试	3	数统	
		复变函数与积分变换 Functions of Complex Variables and Integral	2.5	40	40			考试	3	数统	
		线性电子线路 Linear Electronic Circuits	4	64	64			考试	3	信工	
		数字电路与逻辑设计 Digital Circuits and Logic Design	3.5	56	56			考试	3	信工	
		电子技术实验 Electronics Technology Experiment	0.5	28		28		考查	3	电气	
		概率与数理统计 B Probability and Mathematical Statistics B	3.5	56	56			考试	4	数统	
	选修 elective	信号与系统 A Signals and Systems A	4.5	80	64	16		考试	4	信工	
		电磁场与电磁波 Electromagnetic Fields and Electromagnetic Waves	3	48	40	8		考试	4	信工	
		通信电路与系统 Communication Circuits and Systems	4.5	80	64	16		考试	4	信工	
		微机原理与接口技术 C Principles and Interface of Microcomputer C	2	40	24	16		考查	4	信工	
		单片机原理及应用 B Theories and Applications of Single Chip Microcomputer B	2	40	24	16		考查	4	信工	
		通信原理 Communication Principles	4.5	80	64	16		考试	5	信工	
小 计 Subtotal		67	1180	976	204						

(三) 专业教育课程平台

(三) Specialized courses

课程模块 Classification	模块性质 Category	课程名称 Course Name	学分 credit	学时分配 Time distribution				课程实践 practicum	考试考查 Exam type	建议修读学期 Suggested term	开课单位 course-offering faculty
				总学时 Totals	Class hours	理论 theory	实验 experiments				
Engineering application capacity	选修 elective	数字信号处理 A Digital Signal Processing A	3	56	40	16		考试	5	信工	
		微控制器接口技术 A Microcontroller Interface Technology	3	56	40	16		考查	5	信工	

课程模块 Classification	模块性质 Category	课程名称 Course Name	学分 credit	学时分配 Time distribution				考试/考查 Exam type	建议修读学期 Suggested term	开课单位 course-offering faculty
				总学时 Total hrs	理论 Class hours	实验 experiments	课程实践 practicum			
		信息论基础 Information Theory Basis	2	32	32			考试	5	信工
		随机信号分析 Random Signal Analysis	2	32	32			考试	6	信工
		计算机通信网 Computer Network	2	32	32			考查	6	信工
		小 计 Subtotal	12	208	176	32				
学术类 选修模块 Academic elective module	选修 elective course	高级专门英语 Advanced Special English	2	32	32			考查	5	外语
		信号检测与控制技术 Signal Detection and Control Technology	2	32	32			考查	6	信工
		通信信号处理技术 Communication Signal Processing Technology	2	40	24	16		考查	6	信工
		射频电路理论与设计 Theory and Design of RF Circuits	2	32	32			考查	6	信工
		微波技术基础 Essentials of Microwave Technology	2	32	32			考试	6	信工
		数字图像处理 Digital Image Processing	2	32	24	8		考查	6	信工
		自动控制理论基础 Theory of Automatic Control	2	32	32			考查	6	信工
		专业前沿技术 Specialty Frontier Technologies	2	32	32			考查	6	信工
		数字语音信号处理 Digital Voice Signal Processing	2	32	32			考查	7	信工
		小 计 Subtotal	18	296	272	24				
应用类 选修模块 Application elective module	选修 elective course	传感器与检测技术 Sensor and Detecting Technology	2	40	24	16		考查	5	信工
		嵌入式系统开发与设计 Development and Design of Embedded System	2	40	24	16		考查	5	信工
		虚拟仪器技术 Virtual Instrument Technology	2	40	24	16		考查	5	信工
		科技应用英语 Scientific and Technological Application English	2	32	32			考查	5	外语
		电源技术 Power Technology	2	40	24	16		考查	6	信工
		DSP 原理与通信应用 Principles and Applications of DSP	2	40	24	16		考查	6	信工
		可编程逻辑器件应用技术 Programmable Logic Device Application Technology	2	40	24	16		考查	6	信工
		无线传感器网络基础 Wireless sensor network foundation	2	40	24	16		考查	6	信工
		小 计 Subtotal	16	312	200	112				

备注：学生必须修完工程应用能力培养模块全部课程；学术类和应用类选修模块不要求修完某一模块，也可跨学科

或专业修读课程，总和不少于12学分，科技应用英语和高级专门英语不能同时选。

Note: All courses in the education module of engineering application ability must be studied. The optional modules of academic courses or application's are not required to study completely. Students could select courses cross-disciplinary or cross-specialty and the total credit is no less than 12. Scientific applicable english and advanced special's can't be selected synchronously.

(四) 实践教育环节平台

(四) Practicum

实践模块 Classification	模块性质 Category	实践环节名称 Practicum Name	实践环节性质 Type	学 分 Credit	周 数 Weeks	建议 学期 Suggested Term	开课单位 Course-offering Faculty
专业 基础 实践 Basic Practicum	必修 compulsory	C 语言课程设计 Course Design for C Language Programming	课程设计	1	1	2	信工
		工程实训 D Engineering Training D	实训	2	2	2	工训
		认识实习 Cognition Practice	实习	1	1	2	信工
		电工电子实训 Electrical and Electronic Training	实训	1	1	3	工训
		小计 Subtotal		5			
专业 综合 实践 Professional Practicum	必修 compulsory	信息处理综合课程设计 Information Processing Comprehensive Course Design	课程设计	2	2	5	信工
		电子系统综合课程设计 Electronic System Comprehensive Course Design	课程设计	2	2	4	信工
		通信系统综合课程设计 Communication system Comprehensive Course Design	课程设计	2	2	5	信工
		专业综合课程设计 Specialty Comprehensive Course Design	课程设计	3	3	6	企业
		生产实习 Production Practice	实习	4	4	7	企业
		毕业设计(论文) Graduation Design	毕业设计(论文)	15	15	8	信工
		小计 Subtotal		28			
素质 教育 实践 Quality Education Practicum	必修 compulsory	新生入学教育(含安全教育) New Students Enrolment Education (Include Safety Education)		1	1	1	学生处
		军事技能训练 Military Skills Training		2	2	1	学生处
		创新创业实践 Innovation and Entrepreneurship Practice		2			信工
		其他课外素质培养实践 Other Extra-curriculum Quality Training Practice		4			学生处、团委
		小 计 Subtotal		9			
合 计 Total				42			

八、指导性修读建议计划表

VIII Instructional Course Schedule

第一学期 First Term			第二学期 Second Term		
课程编码 Course Code	课程名称 Course Name	学分 Credit	课程编码 Course Code	课程名称 Course Name	学分 Credit
0711002	大学英语 B(1) College English B(1)	3	0711005	大学英语 B(2) College English B(1)	4
1111001	体育(1) Physical Education(1)	1	1111002	体育(2) Physical Education(2)	1
2611003	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	1111003	军事理论 Military Theory	2
2611001	马克思主义基本原理概论 Marxism Philosophy	3	2611004	形势与政策(1) Situation and Policy(1)	0.5
0411001	大学计算机基础 A Foundation of Computer A	1	1012012	高等数学 A (2) Higher Mathematics A(2)	5.5
2611004	形势与政策(1) Situation and Policy(1)	0.5	2812010	大学物理 A(1) College Physics A(1)	3.5
1012002	高等数学 A (1) Higher Mathematics A(1)	5	2812017	实验物理 A(1) Experimental Physics A(1)	0.5
0112003	工程图学 C Engineering Graphics C	3.5	3112004	电路 B Circuit B	4.5
0412001	C 语言程序设计 B C Language Programming B	2.5	0414002	认识实习 Cognition Practice	1
2114002	新生入学教育(含安全教育) New Students Enrolment Education (Include Safety Education)	1	0414001	C 语言课程设计 Course Design for C Language Programming	1
2114001	军事技能训练 Military Skills Training	2	2214001	工程实训 D Engineering Training D	2
合计 Total	必修 25 学分 Credits of required courses: 25		合计 Total	必修 25.5 学分 Credits of required courses: 25.5	
* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 25 学分 Total credits: 25			* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 25.5 学分 Total credits: 25.5		

第三学期 Third Terms			第四学期 Fourth Term		
课程编码 Course Code	课程名称 Course Name	学分 Credit	课程编码 Course Code	课程名称 Course Name	学分 Credit
0711006	大学英语 B(3) College English B(3)	3	0711007	大学英语 B(4) College English B(4)	2
1111004	体育(3) Physical Education(4)	1	1111005	体育(4) Physical Education(4)	1
2611006	形势与政策(2) Situation and Policy(2)	0.5	2611006	形势与政策(2) Situation and Policy(2)	0.5
2611005	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	1012027	概率与数理统计 B Probability and Mathematical Statistics B	3.5
2812022	大学物理 A(2) College Physics A(2)	3.5	0412036	信号与系统 A Signals and Systems A	4.5
2812040	实验物理 A(2) Experimental Physics A(2)	1	0412015	电磁场与电磁波 A Electromagnetic Fields and Electromagnetic Waves	3
1012017	线性代数 A Linear Algebra A	3	0412027	通信电路与系统 Communication Circuits and Systems	4.5
1012010	复变函数与积分变换 Functions of Complex Variables and Integral	2.5	0412037	微机原理与接口技术 C Principles and Interface of Microcomputer C	2

0412031	线性电子线路 Linear Electronic Circuits	4	0412014	单片机原理及应用 B Theories and Applications of Single Chip Microcomputer B	2
0412026	数字电路与逻辑设计 Digital Circuits and Logic Design	3.5	0414032	电子系统综合课程设计 Electronic System Comprehensive Course Design	2
3112019	电子技术实验 Electronics Technology Experiment	0.5			
2214005	电工电子实训 Electrical and Electronic Training	1			
合计 Total	必修 25 学分 Credits of required courses:25		合计 Total	必修 25 学分 Credits of required courses:25	
* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 25 学分 Total credits:25			* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 25 学分 Total credits: 25		

第五学期 Fifth Term			第六学期 Sixth Term		
课程编码 Course Code	课程名称 Course Name	学分 Credit	课程编码 Course Code	课程名称 Course Name	学分 Credit
2611007	形势与政策(3) Situation and Policy(3)	0.5	2611007	形势与政策(3) Situation and Policy(3)	0.5
2611002	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	6	0413029	计算机通信网 Computer Network	2
0412028	通信原理 Communication Principles	4.5	0413053	随机信号分析 Random Signal Analysis	2
0413050	数字信号处理 A Digital Signal Processing A	3	0413057	微波技术基础 Essentials of Microwave Technology	2
0413058	微控制器接口技术 A Microcontroller Interface Technology A	3	0413054	通信信号处理技术 Communication Signal Processing Technology	2
0413067	信息论基础 Information Theory Basis	2	0413049	数字图像处理 Digital Image Processing	2
0413069	虚拟仪器技术 Virtual Instrument Technology	2	0413081	自动控制理论基础 Theory of Automatic Control	2
0413040	嵌入式系统开发与设计 Development and Design of Embedded System	2	0413030	可编程逻辑器件应用技术 Programmable Logic Device Application Technology	2
0413008	传感器与检测技术 Microcontroller Interface Technology	2	0413002	DSP 原理与通信应用 Principles and Applications of DSP	2
0713002	科技应用英语 Scientific and Technological Application English	2	0413076	专业前沿技术 Specialty Frontier Technologies	2
0713001	高级专门英语 Advanced Special English	2	0413065	信号检测与控制技术 Signal Detection and Control Technology	2
0414031	信息处理综合课程设计 Information Processing Comprehensive Course Design	2	0413012	电源技术 Power Technology	2
0414021	通信系统综合课程设计 Communication system Comprehensive Course Design	2	0413046	射频电路理论与设计 Theory and Design of RF Circuits	2
			0413060	无线传感器网络基础 Wireless sensor network foundation	2
			0414022	专业综合课程设计 Specialty Comprehensive	3

				Course Design	
合计 Total	必修 22.5 学分 Credits of required courses: 22.5		合计 Total	必修 7.5 学分 Credits of required courses: 7.5	
* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 32.5 学分 Total credits: 32.5			* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 29.5 学分 Total credits: 29.5		

七学期 Seventh Term			第八学期 Eighth Term		
课程编码 Course Code	课程名称 Course Name	学分 Credit	课程编码 Course Code	课程名称 Course Name	学分 Credit
2611008	形势与政策(4) Situation and Policy(4)	0.5	2611008	形势与政策(4) Situation and Policy(4)	0.5
0413051	数字语音信号处理 Digital Voice Signal Processing	2	0414014	毕业设计 (论文) Graduation Design	15
0414007	生产实习 Production Practice	4			
合计 Total	必修 4 学分 Credits of required courses: 4		合计 Total	必修 15.5 学分 Credits of required courses:15.5	
* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 6 学分 Total credits:6			* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 15.5 学分 Total credits:15.5		

九、辅修专业课程设置及教学进程

IX Minor Programs

电子信息工程辅修专业课程

Minor Programs of Electronic Information Engineering

课程模块 Classification	模块性质 Category	课程名称 Course Name	学分 credit	学时分配 Time distribution				考试/考查 Exam type	建议修读学期 Suggested term	开课单位 course-offering faculty
				总学时 Totals	理论 Class hours	实验 experiments	课程实践 Practicum			
基础 教育 课程 Basic courses	必修 compulsory	信号与系统 A Signals and Systems	4.5	80	64	16		考试	4	信工
		微机原理与接口技术 C Principles and Interface of Microcomputer C	2	40	24	16		考试	4	信工
		单片机原理及应用 B Theories and Applications of Single Chip Microcomputer B	2	40	24	16		考查	4	信工
		通信原理 Communication Principles	4.5	80	64	16		考试	5	信工
		小计 Subtotal	13	224	176	64				
专业 教育 课程 Professional Courses	必修 compulsory	数字信号处理 A Digital Signal Processing A	3	56	40	16		考试	5	信工
		微控制器接口技术 A Microcontroller Interface Technology A	3	56	40	16		考查	5	信工
		信息论基础 Information Theory Basis	2	32	32	0		考试	5	信工
		小计 Subtotal	8	144	112	32				
实践 教育 环节 Practicum	必修 compulsory	信息处理综合课程设计 Information Processing Comprehensive Course Design	2	2周					5	信工
		专业综合课程设计 Specialty Comprehensive Course Design	3	3周					6	企业
		小计 Subtotal	5							
合计 Total			26							