计算机科学与技术专业本科培养方案

Undergraduate Education Program for Specialty in Computer Science and Technology

一、专业简介

Ⅰ Program Introduction

专业名称：计算机科学与技术

专业代码：080901

学科门类：工学

Specialty Name：Computer Science and Technology

Specialty Code：080901

Discipline Category：Engineering

计算机科学与技术专业 1985 年开始招收本科生，经多年发展，本专业形成了一定的产学研合作与人才队伍优势，2009 年计算机科学与技术专业入选国家级特色专业建设点、2013 年信息技术教学团队入选河南省教学团队、2013 年计算机实验教学中心入选河南省实验教学示范中心，已成为中原地区计算机领域高级专门技术人才的培养基地。本专业是一个强化基础、面向应用、加强实践，以应用为主的宽口径专业，培养能从事计算机软件和网络系统设计、开发和研究的高级工程技术人才。课程体系贯彻理论与实践并重、知识与能力并重的原则，强化计算机工程实践能力的多方面训练，注重创新性思维的开发，培养学生既具有扎实的理论和专业知识，又具有开拓性、创造性解决工程实际问题的能力。

The specialty in computer science and technology began to enroll undergraduates in 1985. After years of development, this specialty has formed a certain industry and research cooperation and talent team advantage. In 2009, the specialty in computer science and technology was selected as the national characteristic specialty construction spot. In 2013, the information technology teaching team was selected as the teaching team of Henan Province. In 2013, the computer experimental teaching center was selected as the experimental teaching demonstration center of Henan Province. This specialty has become a training base for senior technical personnel in the computer field in central China. The specialty is a wide borne specialty which is strengthening basis, facing application and intensifying practice. The training goal is to educate senior engineering technology persons who can develop and investigate computer software and network. The class system carries out the rules of laying equal stress on theory and practice, knowledge and capability. It strengthens training of computer engineering practice and emphasizes development of innovating thinking. It educates students who have steady theory, professional knowledge and trailblazing and can solve practical problems innovatively.

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，主要面向装备制造业、信息技术服务业等领域，培养德、智、体全面发展，具有数学和自然科学基础知识，掌握计算机技术知识、基本技能和工程应用能力，具备分析、研究、设计和解决问题的能力，具有一定的工程组织、交流沟通、团队合作能力和国际视角，能够恪守职业操守，承担社会责任，通过终身学习适应当今社会和计算机科学技术快速发展的需要，能够从事软件分析、设计、开发与应用，具

有扎实基础理论和专门知识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：适应创新型人才发展需要，德才兼备、身体强健、全面发展，具有人文素养、职业道德和社会责任感；

目标2：拥有数理基础和自然科学基础；

目标3：掌握计算机知识和技能，能够分析、研究和设计方案，解决计算机应用问题，具有工程实践能力和计算机科学与技术专业特有的思维方式；

目标4：具有一定的工程组织能力、沟通能力和国际化视野，富有团队精神；

目标5：具备终身学习能力，能够通过适当途径更新、拓展自己的知识和能力。

Based on the guiding ideology of "thick foundation, wide caliber, practice, innovation and strong quality", this major is mainly focused on equipment manufacturing, information technology services and other fields; the goal of this major is to cultivate talents with full development of moral, intellectual and physical; to achieve the above goal, the students should have the following characteristics. First, they should have basic knowledge of mathematics and natural science, and master computer technology knowledge, basic skills and engineering application ability. Second, they should have the ability of analyzing, researching, designing and solving problems, and have certain ability of engineering organization, communication, team cooperation and international perspective. Third, they should adhere to professional ethics and undertake social responsibility. Fourth, they should meet the needs of today's society and the rapid development of computer science and technology through lifelong learning, and engage in software analysis, design, development and Application. The ultimate goal is to make the trained students to be applied research and high-level professionals with solid theoretical foundation knowledge and specialized knowledge.

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

Goal 1：Meeting the needs of the development of innovative talents, both ability and political integrity, physical strength, comprehensive development, having humanistic accomplishment, professional ethics and social responsibility.

Goal 2：Having a foundation of mathematical and natural sciences.

Goal 3：Mastering the computer knowledge and skills, analyzing, researching and designing programs to solve the problem of computer applications, with engineering practice and computer science and technology professional unique way of thinking.

Goal 4：.Having a certain degree of engineering organization, communication skills and international vision, and team work.

Goal 5：Having the ability of lifelong learning, updating and expanding their knowledge and ability through appropriate approaches.

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，具有在计算机科学技术相关领域从事技术开发、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、工程基础和计算机科学与技术专业知识，用于解决计算机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计算机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：能够针对计算机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和网络系统、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：能够基于计算机科学原理并采用科学方法，对计算机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：能够针对计算机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，评价计算机科学与技术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计算机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，能够在计算机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，能够就计算机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，理解并掌握计算机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 computer science and technology fields. The following represents these concretely.

1. Engineering knowledge: Be able to apply mathematics, natural sciences, engineering and computer science and technology expertise to solve the computer 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 computer applications through the literature research in order to obtain effective conclusions.

3. Design / development solutions: Design solutions for complex engineering problems in computer applications, design and develop hardware/software and network systems, 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 computer science, be able to use scientific methods to study the complex engineering problems in computer 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 computer 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 computer science 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 computer 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 computer 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 multidisciplinary 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 computer 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 computer engineering management and economic decision-making methods, and can be applied in a multidisciplinary environment.

12. Lifelong learning: Process a certain degree of independent learning and lifelong learning awareness, have the ability to continue and independent learning 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：计算机科学与技术

核心课程：C 语言程序设计 A、离散数学、数据结构、微机原理与接口技术 B、计算机网络 A、数据库原理、计算机组成原理、操作系统、软件工程、编译原理

Main Discipline: Computer Science and Technology

Core Courses: C Language Programming A, Discrete Mathematics, Data Structure, Computer Principles and Interface Techniques B, Computer Network, Database Principles, Principles of Computer Composition, Operating System, Software Engineering, Principle of Compiling, Algorithm Design and Analysis

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

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(%) Percentage of Total Credit(%)
通识教育课程平台 General education courses	课堂教学 coursework	41	22.8
	实验和课程实践 Experiments & practicum	6	3.3
基础教育 课程平台 Basic education courses	学科基础课程 Basic disciplinary courses 课堂教学 coursework	27.5	15.3
	实验和课程实践 Experiments & practicum	2	1.1
	专业基础课程 Basic academic courses 课堂教学 coursework	34	18.9
	实验和课程实践 Experiments & practicum	4.5	2.5
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	9.5	5.3
	实验和课程实践 Experiments & practicum	2.5	1.4
	应用类/学术类选修模块 Application/academic elective module 课堂教学 coursework	9.5	5.3
	实验和课程实践 Experiments & practicum	2.5	1.4
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	27	15.0
	素质教育实践 Quality education practicum	9	5.0
合 计 Total		180	

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	.理论 Class hours	experiments	实验 实践 practicum 课程实践			
思想政治 Ideology and Politics	思想政治	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
			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
			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
			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	外语		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		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
信息技术 Information Technology	信息技术		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	国防教育		军事理论 Military Theory	2	32	32			考查	3	体育

课程模块 Classification	模块性质 Category	课程性质 	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			
素质教育 Quality education	选修 elective courses		人文社科类 Humanity and social science	4	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 Course	2							
小　计 Subtotal				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 Total hrs	理论 Class hours	实验 experiments	课程实践 practicum			
Basic disciplinary courses 学科基础课程	compulsory courses 必修	高等数学 A(1) Higher Mathematics A(1)	5	80	80			考试	1	数统
		高等数学 A(2) Higher Mathematics A(2)	5.5	88	88			考试	2	数统
		大学物理 B College Physics B	4.5	72	72			考试	2	物理
		电路与模拟电子技术 Circuit and Analog Electronic Technology	3.5	64	48	16		考查	2	信工
		数字逻辑电路 Digital Logic Circuit	3.5	64	48	16		考试	3	信工
		实验物理 B Experimental Physics B	1	32		32		考查	3	物理
		线性代数 A Linear Algebra A	3	48	48			考试	3	数统
		概率论与数理统计 B Probability and Statistics B	3.5	56	56			考试	4	数统
		小　计 Subtotal	29.5	504	440	64				
Basic academic courses 专业基础课程	compulsory courses 必修	C 语言程序设计 A C Language Programming A	3.5	64	48	16		考试	1	信工
		离散数学 Discrete Mathematics	4.5	72	72			考试	1	信工
		数据结构 Data Structure	4.5	80	64	16		考试	2	信工
		数据库原理 Database Principle	4	64	54	10		考试	3	信工
		计算机网络 A Computer Network A	4	64	54	10		考试	4	信工
		计算机组成原理 Principle of Computer Organization	4	64	56	8		考试	4	信工
		微机原理与接口技术 B Principles and Interface of Microcomputer B	4	64	56	8		考试	5	信工
		操作系统 Operating System	4	64	56	8		考试	5	信工
		软件工程 Software Engineering	3	64	40	24		考试	6	信工
		编译原理 Principle of Compiling	3	48	40	8		考试	6	信工
		小　计 Subtotal	38.5	648	540	108				

（三）专业教育课程平台
（三）Specialized courses

课程模块 Classification	模块性质 Category	课程性质	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			
工程应用能力培养模块 engineering application capacity training module	选修 elective course		面向对象程序设计 A Object-oriented Programming A	2.5	48	32	16		考查	3	信工
			数据库开发技术 Database Development Technology	2.5	40	32	8		考查	3	信工
			Java 程序设计 Java Programming	2.5	56	32	24		考查	4	信工
			算法设计与分析 Algorithm Design and Analysis	2.5	48	32	16		考试	4	信工
			软件项目管理 Software Project Management	2	32	24	8		考查	6	信工
			小　计 Subtotal	12	224	152	72				
应用类选修模块 application elective module	选修 elective course		Web 开发技术 Web Development Technology	2	40	24	16		考查	4	企业
			信息安全技术 Information Security Technology	2	40	24	16		考查	5	信工
			可视化程序设计 Visual Programming	2	40	24	16		考查	5	信工
			移动互联网开发技术 Mobile Internet Development Technology	2	40	24	16		考查	5	信工
			软件测试技术 Software Testing Technology	2	40	24	16		考查	6	信工
			Oracle 数据库管理 Database Management of Oracle	2	40	24	16		考查	6	信工
			嵌入式系统 Embedded System	2.5	48	32	16		考查	6	信工
			面向对象系统分析与建模 Object-oriented System Analysis and Modeling	2	40	24	16		考查	6	信工
			互联网创新 Internet Innovation	2	32	32			考查	6	信工
			科技应用英语 Scientific and Technological Application English	2	32	32			考查	5	外语
			小　计 Subtotal	20.5	392	264	128				

学术类选修模块 academic elective module	选修 elective course	数字图像处理 Digital Image Processing	2	32	24	8		考查	5	信工
		人工智能技术 Artificial Intelligence Technology	2	32	24	8		考查	6	信工
		云计算技术 Cloud Computing Technology	2	32	24	8		考查	6	信工
		大数据分析技术 Big Data Analysis Technology	2	32	24	8		考查	7	信工
		专业前沿技术 Specialty Frontier Technology	2	32	32			考查	7	信工
		高级专门英语 Advanced Special English	2	32	32			考查	5	外语
		小　计 Subtotal	12	192	160	32				

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 and technological application English and advanced special English 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 courses	认识实习 Cognition Practice	实习	1	1	2	信工
		数据结构课程设计 Course Design of Data Structure	课程设计	2	2	2	信工
		数据库课程设计 Course Design of Database	课程设计	2	2	3	信工
专 业 综 合 实 践 Professional Practicum	必 修 compulsory courses	专业综合课程设计一 （算法类） Specialty Comprehensive Course Design One (Algorithm)	课程设计	2	2	4	信工
		专业综合课程设计二 （网络类） Specialty Comprehensive Course Design Two (Network)	课程设计	3	3	5	信工
		专业综合课程设计三 （综合类） Specialty Comprehensive Course Design Three (Comprehensive)	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 Graduation Design	毕业设计	15	15	8	企业
素 质 教 育 实 践 Quality Education Practicum	必 修 compulsory courses	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
		其它课外素质培养实践 Other Extra-curriculum Quality Training Practice		4			学生处、团委
小 计 Subtotal				41			

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
2611004	形势与政策（1） Situation and Policy(1)	0.5	2611004	形势与政策（1） Situation and Policy(1)	0.5
2611003	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	0711005	大学英语 B（2） College English B(2)	4
2611001	马克思主义基本原理 Marxism Philosophy	3	1111002	体育（2） Physical Education(2)	1
0711002	大学英语 B（1） College English B(1)	3	1012012	高等数学 A（2） Higher Mathematics A(2)	5.5
1111001	体育（1） Physical Education(1)	1	2812011	大学物理 B College Physics B	4.5
0411001	大学计算机基础 A Foundation of Computer A	1	0412009	电路与模拟电子技术 Circuit and Analog Electronic Technology	3.5
1012002	高等数学 A（1） Higher Mathematics A(1)	5	0412010	数据结构 Data Structure	4.5
0412002	C 语言程序设计 A C Language Programming A	3.5	0414004	认识实习 Cognition Practice	1
0412003	离散数学 Discrete Mathematics	4.5	0414003	数据结构课程设计 Course Design of Data Structure	2
2114002	新生入学教育（含安全教育） New Students Enrolment Education（Include Safety Education）	1			
2114001	军事技能训练 Military Skills Training	2			
合 计 Total	必修 27 学分 Credits of required courses: 27		合 计 Total	必修 26.5 学分 Credits of required courses: 26.5	
* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 27 学分 Total credits: 27			* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 26.5 学分 Total credits: 26.5		

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
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
1111003	军事理论 Military Theory	2	0711007	大学英语 B（4） College English B(4)	2
2611005	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	1111005	体育（4） Physical Education(4)	1
0711006	大学英语 B（3） College English B(3)	3	1012027	概率论与数理统计 B Probability and Statistics B	3.5

1111004	体育（3） Physical Education(3)	1	0412021	计算机组成原理 Principle of Computer Organization	4
1012017	线性代数 A Linear Algebra A	3	0412019	计算机网络 A Computer Network A	4
0412038	数字逻辑电路 Digital Logic Circuit	3.5	0413052	算法设计与分析 Algorithm Design and Analysis	2.5
0413035	面向对象程序设计 A Object-oriented Programming A	2.5	0413004	Java 程序设计 Java Programming	2.5
0412025	数据库原理 Database Principle	4	0413082	Web 开发技术 Web Development Technology	2
0413047	数据库开发技术 Database Development Technology	2.5	0414029	专业综合课程设计一 （算法类） Specialty Comprehensive Course Design One (Algorithm)	2
2812041	实验物理 B Experimental Physics B	1			
0414019	数据库课程设计 Course Design of Database	2			
合 计 Total	必修 21.5 学分 Credits of required courses: 21.5		合 计 Total	必修 17 学分 Credits of required courses: 17	
* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 26.5 学分 Total credits: 26.5			* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 24 学分 Total credits: 24		

	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	0412023	软件工程 Software Engineering	3
0412040	微机原理与接口技术 B Principles and Interface of Microcomputer B	4	0412011	编译原理 Principle of Compiling	3
0412012	操作系统 Operating System	4	0413045	软件项目管理 Software Project Management	2
0413066	信息安全技术 Information Security Technology	2	0413042	软件测试技术 Software Testing Technology	2
0413031	可视化程序设计 Visual Programming	2	0413005	Oracle 数据库管理 Database Management of Oracle	2
0413071	移动互联网开发技术 Mobile Internet Development Technology	2	0413039	嵌入式系统 Embedded System	2.5
0413049	数字图像处理 Digital Image Processing	2	0413037	面向对象系统分析与建模 Object-oriented System Analysis and Modeling	2

0713002	科技应用英语 Scientific and Technological Application English	2	0413041	人工智能技术 Artificial Intelligence Technology	2
0713001	高级专门英语 Advanced Special English	2	0413073	云计算技术 Cloud Computing Technology	2
0414027	专业综合课程设计二 （网络类） Specialty Comprehensive Course Design Two (Network)	3	0413025	互联网创新 Internet Innovation	2
			0414028	专业综合课程设计三 （综合类） Specialty Comprehensive Course Design Three (Comprehensive)	3
合 计 Total	必修 17 学分 Credits of required courses:17		合 计 Total	必修 9.5 学分 Credits of required courses:9.5	
* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 29 学分 Total credits:29			* 本学期选课具体要求 Specific requirements of choosing courses for the term * 本学期总学分 26 学分 Total credits:26		

第七学期 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
0413009	大数据分析技术 Big Data Analysis Technology	2	0414016	毕业设计 Graduation Design	15
0413078	专业前沿技术 Specialty Frontier Technology	2			
0414009	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 8 学分 Total credits:8			* 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、辅修专业或双学位课程设置及教学进程
Ⅸ Minor and Double-degree Programs
（一）计算机科学与技术辅修专业课程
（一）Computer Science and Technology Minor Programs

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			
基础教育课程 Basic courses	必修 compulsory	数据结构 Data Structure	4.5	80	64	16		考试	2	信工
		计算机网络 A Computer Network A	4	64	54	10		考试	4	信工
		计算机组成原理 Principle of Computer Organization	4	64	56	8		考试	4	信工
		操作系统 Operating System	4	64	56	8		考试	5	信工
专业教育课程 Professional Courses	必修 compulsory	面向对象程序设计 A Object-oriented Programming A	2.5	48	32	16		考查	3	信工
实践教育环节 Practicum	必修 compulsory	数据结构课程设计 Course Design of Data Structure	2						2	信工
合 计 Total			21	320	262	58				

（二）计算机科学与技术双学位专业
（二）Computer Science and Technology Double Degree Programs

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			
基础教育课程 Basic courses	必修 compulsory	离散数学 Discrete Mathematics	4.5	72	72			考试	1	信工
		数据结构 Data Structure	4.5	80	64	16		考试	2	信工
		数据库原理 Database Principle	4	64	54	10		考试	3	信工
		计算机网络 A Computer Network A	4	64	54	10		考试	4	信工
		计算机组成原理 Principle of Computer Organization	4	64	56	8		考试	4	信工
		操作系统 Operating System	4	64	56	8		考试	5	信工
		软件工程 Software Engineering	3	64	40	24		考试	6	信工
专业教育课程 Professional Courses	必修 compulsory	面向对象程序设计 A Object-oriented Programming A	2.5	48	32	16		考查	3	信工
		数据库开发技术 Database Development Technology	2.5	40	32	8		考查	3	信工
		算法设计与分析 Algorithm Design and Analysis	2.5	48	32	16		考试	4	信工
		Java 程序设计 Java Programming	2.5	56	32	24		考查	4	信工
实践教育环节 Practicum	必修 compulsory	数据结构课程设计 Course Design of Data Structure	2						2	信工
		数据库课程设计 Course Design of Database	2						3	信工
		专业综合能力考核 Assessment of Professional Comprehensive Ability	5						8	信工
合　计 Total			47	664	524	140				