

基于项目信息类专业教育实验班本科培养计划 (2+2)

Undergraduate Program for Advanced Project-based Information Science Education (2+2)

一 培养目标

I . Program Objectives

以真实科研项目为牵引，通过“干中学”的方式，将专业理论知识的学习与科研项目实训紧密结合，弱化教师课堂讲授，增强学生自主和快速学习能力、创新思维能力和实践动手能力，促进学生的综合素质发展，培养一批兼具技术力和领导力的精英之才。

This program is designed in a unique “learning-via-doing” approach in that the course study is closely integrated to the research and development practices from real engineering projects. Lecturing time is considerably reduced; however, more credits are contributed to hands-on practical training and interns in order to enhance the students with high self-motivation and quick learning capability, strong innovation initiatives and problem-solving capability. The students are comprehensively trained to produce top-tier elites with solid technical background and outstanding leadership.

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. 具有较扎实的数理基础，具有较强的英语语言能力；
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. 掌握信息科学、电子科学、计算机科学的基本理论和方法；
4. 具有设计和开发通信与信息系统、解决实际问题的工程实践能力；
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 English capability;
2. Skills in searching literature and writing technical report, and familiar with the development trends in the discipline and research frontiers;
3. Understanding basic theories and skills in information science, electronics science and computer science;
4. Hands-on engineering experiences in solving real problems in the design and development of communication and 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

本实验班采取 2+2 模式，大二结束时在信息大类专业进行实验班学生选拔。以电路、信号处理为基础，电子设备和系统设计及应用为方向，通过强化课堂实验环节以及专设的科研项目训练环节，不仅具有扎实的、宽广的理论基础，而且具有较强的工程实践和创新能力。特别是动手能力和快速学习能力强；所学知识能灵活运用，终生不忘；具有高尚的道德情操、优秀的工作作风

和出色的协调能力，综合素质突出。

This program uses 2+2 mode, recruits students in information related departments at the end of the sophomore year. This program focuses on the design and application of electronic devices and systems in circuit and signal processing. By enforcing the class experiment stage and taking into real engineering projects, Students are required to construct solid and broad theoretical background, and they are enhanced with the hands-on engineering experiences and innovation initiatives. In particular, the students are strong in solving real engineering problems and quick learning; they are able to apply knowledge flexibly in solving real problems in that the knowledge follows the students in a life-long fashion; they are fully-developed with moral integrity, excellent working style and outstanding coordination capability.

四、主干学科

IV. Main Discipline

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

Program Length: Four years

授予学位：工学学士

Degrees Conferred: Bachelor of Engineering

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：160.3 学分

Minimum Credits of Curriculum (including courses and intensive practical training/internship): 160.3 credits

完成学业最低课外学分要求：5 学分

Minimum Extracurricular Credits: 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 (%)
素质教育通识课程		必修	544/30	22.5
		选修	160/10	7.5
学科基础课程	学科大类基础课程	必修	896/54.3	40.7
	学科专业基础课程	必修	376/22.5	16.9
专业课程	专业方向课程	必修	264/16.5	12.4
合计			2240/133.3	100

Course Type		Required/Elective	Hrs/Crs	Percentage (%)
Essential-qualities-oriented Education General Courses		Required	544/30	22.5
		Elective	160/10	7.5
Discipline-related Courses	Discipline-related General Courses	Required	896/54.3	40.7
	Basic Sub-disciplinary Courses	Required	376/22.5	16.9
Courses in Major	Major-specific Courses	Required	264/16.5	12.4
Total			2240/133.3	100

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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	3.7
电工实习	必修	2/1	3.7
C 语言课程设计	必修	2/1	3.7
工程训练 (一)	必修	6/3	11.1
工程训练 (二)	必修	10/5	18.6
项目实践	必修	16/8	29.6
毕业设计	必修	16/8	29.6
合计		54/27	100

Course Title	Required/Elective	Weeks/Credits	Percentage (%)
Military Training(two weeks)	Required	2/1	3.7
Electrical Engineering Practice	Required	2/1	3.7
Course Project of C	Required	2/1	3.7
Engineering Training(I)	Required	6/3	11.1
Engineering Training(II)	Required	10/5	18.6
Research and Project Task	Required	16/8	29.6
Undergraduate Thesis	Required	16/8	29.6
Total		54/27	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
		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。

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No.	Activities	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	Qualifications	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	Holder of the Certificate of programmer	2
			Holder of the Certificate of Advanced Programmer	3
			Holder of the Certificate of 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、电磁场与电磁波 Electromagnetic Field and Wave、数据结构 Data Structure、微机原理 Principles of Microcomputer。

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、C语言课程设计 Course Project of C Language、工程训练 Engineering Training、项目实践 Research and Project Task

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 An Outline 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 Socialist Theory with Chinese Characteristics	64	4			4
	必修 required	0100741	形势与政策 Contemporary Affairs and Policies	32	2			5-7
	必修 required	0510071	中国语文 Chinese	32	2			1
	必修 required	0508453	综合英语(一) College English (I)	56	3.5			1
	必修 required	0508463	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	1.0			1
	必修 required	0400121	大学体育(二) Physical Education(II)	32	1.0			2
	必修 required	0400131	大学体育(三) Physical Education(III)	32	1.0			3
	必修 required	0400141	大学体育(四) Physical Education(IV)	32	1.0			4
	必修 required	1200011	军事理论 Military Theory	16	1.0			7
	必修 required	0844071	计算机与程序设计基础(C) Fundamental of Computer Programming(C Language)	32	2			1
			人文社科类选修课程 Elective courses in Humanities and Social Science	160	10			1-8
	必修 required	0700011	微积分(一)上 Calculus (I)	88	5.5			1
	必修 required	0700012	微积分(一)下 Calculus (II)	88	5.5			2
	必修 required	0700031	大学物理(一) Physics (I)	64	4.0			2
	必修 required	0700032	大学物理(二) Physics (II)	64	4.0			3

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	0700041	物理实验（一） Physical Experiments（I）	32	1.0	32		2
	必修 required	0700042	物理实验（二） Physical Experiments（II）	24	0.8	24		3
	必修 required	0700051	线性代数（一） Linear Algebra（I）	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	0700063	概率论与数理统计（三） Probability and Mathematics Statistics（III）	40	2.5			3
	必修 required	0700081	数理方程与特殊函数（一） Mathematics Physics Equations and Functions	40	2.5			4
	必修 required	0801663	工程制图（一） Engineering Graphics（I）	40	2.5			1
	必修 required	0800441	信息技术导论 Introduction to Information Technologies	24	1.5			1/3/5
	必修 required	080011a	电路理论（三） Circuit Theory（III）	64	4			2
	必修 required	0803051	电路测试实验 Circuit Measurement Experiments	32	1.0	32		3
	必修 required	0844081	模拟电路与数字系统（一） Analog Circuit and Digital System(I)	56	3.5			3
	必修 required	0800155	信号与线性系统 Signal and Linear System	64	4.0	8		4
	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	0800714	电子线路设计·测试·实验（一） Electronic Circuitry Design, Test and Experiments（I）	32	1.0	32		3
	必修 required	0800715	电子线路设计·测试·实验（二） Electronic Circuitry Design, Test and Experiments（II）	32	1.0	32		4
	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	0811161	计算机网络技术及应用 Computer Networks and Applications	48	3			5
	必修 required	0800413	数据结构 Data Structure	48	3		12	2
必修 required	0803071	通信电子线路 Electronic Circuits of Communications	48	3	8		5	
必修 required	0700302	随机过程 Stochastic Process	32	2	8		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	
Basic Sub-disciplinary Courses	必修 required	0844111	模拟电路与数字系统（三）实验 Experiments of Analog Circuit and Digital System(III)	32	1	32		4
	必修 required	0800254	电磁场与电磁波 Electromagnetic Field and Wave	48	3			5
	必修 required	0800161	数字信号处理 Digital Signal Processing	48	3	8		5
	必修 required	0832902	基础信息论 Fundamentals of Information Theory	24	1.5			4
	必修 required	0800435	通信原理 Principles of Communications	96	6	8		6
Major-specific Electives	必修 required	0800804	操作系统 Operating System	16	1			5
	必修 required	0834121	Linux 初步 Linux Introduction	32	2			5
	必修 required	0800303	微机原理 Principles of Microcomputer	48	3			5
	必修 required	0821341	嵌入式系统原理与设计 Principles and Design of Embedded Systems	48	3			5
	选修 elective	0827302	软件工程与项目管理 Software Engineering	32	2			5
	必修 required	0800243	数字图像处理 Digital Image Processing	32	2			6
	必修 required	1327801	数字图像处理课设 Digital Image Processing Practice	24	1.5			6
	选修 elective	0834131	信号完整性与高速数字电路设计 Signal Integrity & High-speed Digital Circuit Design	48	3			6
	选修 elective	0102111	批判性思维 Critical Thinking	32	2			6
	必修 required	0827312	科技创新方法论 The Methodology of Scientific and Technical Innovation	32	2			6
	必修 required	0841741	技术创业 Technological entrepreneurship	32	2			6
	选修 elective	1204641	商业企业管理基础 Foundation of Business and Commercial Management	32	2			6
	必修 required	1300012	军事训练 Military Training	2w	1.0			1
	必修 required	130028a	C 语言课程设计 Course Project of C Language	2w	1.0			1
	必修 required	1300032	电工实习 Electrical Engineering Practice	2w	1.0			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	
Practical training items 实践环节	必修 required	0834111	工程训练（一） Engineering Training(I)	6w	3			5
	必修 required	0834112	工程训练（二） Engineering Training(II)	10w	5			6
	必修 required	1327387	项目实践 Research and Project Task	16w	8			7
	必修 required	1300046	毕业设计（论文） Undergraduate Thesis	16w	8			8