

信息安全

Information Security

专业代码: 080904K

学制: 4 年

Program Code: 080904K

Duration: 4 years

培养目标:

培养热爱祖国, 坚持社会主义道路, 具有良好的道德与修养, 遵守法律法规, 社会和环境意识强, 掌握自然科学基础知识与信息安全专业基本理论、基本知识、基本技能和基本方法, 掌握信息安全软硬件设计和开发的方法和技术, 具备设计信息安全解决方案, 利用信息安全基本原理发现并解决实践中遇到的问题的能力, 能有效表达, 在团队中有效发挥作用, 综合素质良好, 能通过继续教育或其它的终身学习途径拓展自己的能力, 了解和紧跟信息安全学科专业发展, 在在计算机、通信、电子信息、电子商务、电子金融、电子政务等相关领域具有就业竞争力的高层次、高质量、高水平的专门技术人才。

Education Objectives:

To train the students with good morals and virtues, complying with the regulations and laws, highly aware of society and environment, mastering the basic knowledge in natural science and professional knowledge in information security (including the basic theory, knowledge, techniques and methods), mastering the methods and techniques of designing and developing the software and hardware in information security, with the ability to design the solutions in information security, to find and solve the problems in practice by using the basic principles in information security, to clearly formulate and play an effective role in the team work, with a good comprehensive capability, to extend own ability through continuing education or other lifelong study, to understand and follow the developments in information security discipline, to be the high-level and high-quality technicians and engineers and highly competitive in computer, communication, electronic information, electronic business, electronic finance, electronic government and the related areas.

毕业要求:

№1.工程知识: 掌握扎实的信息安全专业基本理论、基本知识、基本技能和基本方法, 能够将数学、自然科学、工程基础和专业用于解决复杂工程问题, 掌握信息安全软硬件设计和开发的方法和技术, 为解决信息安全实践中的复杂问题打下基础。

№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信息安全工程中的复杂问题, 以获得有效结论。

№3.设计/开发解决方案: 能够设计针对信息安全复杂工程问题的解决方案, 设计满足特定需求的信息安全解决方案, 并能够在设计环节中体现创新意识, 考虑社会、健康、安全、法律、文化以及环境等因素。

№4.研究：能够基于科学原理并采用科学方法对信息安全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：能够针对信息安全复杂工程问题，开发、选择与使用恰当的技术、资源、现代工具和信息技术工具，包括对信息安全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：能够基于信息安全工程相关背景知识进行合理分析，评价信息安全专业工程实践和复杂工程问题解决方案对社会、健康、安全、法律以及文化的影响，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信息安全复杂工程问题的专业工程实践对环境、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、社会责任感，能够在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：能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。

№10.沟通：能够就信息安全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、清晰表达或回应指令。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：理解并掌握信息安全工程管理原理与经济决策方法，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。

Graduate Requirements:

№1. Engineering Knowledge: to solidly master the basic theories, knowledge, techniques and methods in information security discipline, with the ability to apply the knowledge of mathematics, natural science, engineering fundamentals and professional knowledge to solve the complex engineering problems, to master the methods and techniques in designing and developing the software and hardware in information security, to lay a good foundation to solve the complex problems in information security practice.

№2. Problem Analysis: with the ability to identify, formulate and analyze the complex problems in information security engineering by using the basic principles in mathematics, natural science and engineering science to obtain the valid conclusions.

№3. Designing and Developing Solutions: with the ability to design the solutions to complex and specific engineering problems in information security, to have an innovative sense in the design phase by considering the factors of society, health, safety, law and culture.

№4. Research: with the ability to conduct investigations on the complex engineering problems based on scientific principles and adopting scientific methods, including the experiment designs, analyzing and interpretation of data, and to obtain valid conclusions by information synthesis.

№5. Applying the Modern Tools: with the ability to develop, select and use the appropriate techniques, resources, and modern tools and IT tools, including prediction and simulation, to solve the complex engineering activities in information security and understand the limitations.

№6. Engineering and Society: with the ability to reasonably analyze and evaluate the impacts of

professional engineering practice and solutions to the complex engineering problems to society, health, safety, law and culture issues by using the background knowledge of information security engineering, to understand the consequent responsibility.

№7. Environment and Sustainable Development: with the ability to understand and evaluate the impacts of professional solutions to the complex engineering problems in information security, to environment and societal sustainable development.

№8. Professional Regulations: to understand the humanity science and have the sense of social responsibility, be able to responsibly understand and abide the professional ethics and regulations in engineering practice.

№9. Individual and Team: to act as the team member or leader in the multi-discipline background teams.

№10. Communication: with the ability to communicate effectively on the complex engineering problems with the engineering community and the public at large, such as composing the reports and documentation, preparing the presentations, clearly expressing and responding to instructions, to communicate in the cross-cultural contexts with the international perspective.

№11. Project Management: to understand and master the principles in information security engineering management economic decision-making, and to apply them in the multi-disciplinary environments.

№12. Lifelong Learning: with the sense of self learning and lifelong learning, and with the ability to continuously and adaptively learning.

专业简介：

从上世纪 80 年代末开始从事混沌理论与保密通信的研究，相关成果在国内外具有一定的影响力。为更好地适应国家和广东经济社会发展对信息安全高层次人才的需要，从 2004 年开始设置信息安全本科专业，于 2016 年获批网络空间安全一级学科博士点，依托该学科在数据安全、网络安全、应用安全与内容安全等方向的研究，为保障云计算、物联网、大数据等新一代信息技术应用的安全培养专门技术人才。本专业具有良好的人才培养条件，包括一支规模适中、结构合理的高水平师资队伍，具有“广东省信息访问与传输安全工程技术研究中心”研究平台和企业联合共建的网络与信息安全实验室。

Discipline Profile:

Since the end of 1980's, the research on chaos theory and secure communication has been started and the relative achievements and results have attracted the community home and abroad. To better meet the need of the high-level personnel for the economic and societal development in the state and Guangdong province, the undergraduate major of information security has been set up since 2004, and the first level discipline to offer the Ph.D. program of cyberspace security has been approved in 2016. Based on the research in data security, web security, application security and content security in the discipline, the students will be trained to safeguard the new information techniques and applications such as cloud computing, internet of

things, big data. There are good conditions and equipment for student training, including a moderate-size team of high-level professors, a research platform of “Guangdong engineering techniques research center of information access and transmission security”, and a joint laboratory of web and information security founded by the university and enterprises.

专业特色:

面向广东信息安全产业技术需求, 整合高校和企业的优势创新资源, 依托网络空间安全一级学科和产学研合作教学, 培养具有扎实数理基础和广泛学科基础知识, 掌握信息安全基本理论和方法, 了解信息安全理论前沿和发展动态, 具备突出工程实践能力的创新型高素质专门人才。

Discipline Features:

Aiming at the needs for information security industry in Guangdong, and integrating the advantages and innovation resources of universities and enterprises, and relying on cyberspace security discipline and cooperative teaching in terms of production, education and research, to train high quality innovative professionals with a solid mathematical foundation and extensive subject basic knowledge, mastering the basic theory and methods of information security, understanding information security theory frontier and development trends, having outstanding engineering practice ability.

授予学位: 工学学士学位

Degree Conferred: Bachelor of Engineering

主干课程:

高级语言程序设计、数据结构、计算机网络、操作系统、数据库、软件工程、信息安全数学基础、密码学与安全协议、计算机网络安全、软件安全。

Core Courses:

Advanced Language Programming, Data Structure, Computer Networks, Operating Systems, Database, Software Engineering, Mathematical Fundamentals for Information Security, Cryptography and Security Protocol, Computer and Network Security, Software Security

特色课程:

双语教学课程: 数据结构、计算机网络、密码学与安全协议、计算机图形学与虚拟现实、数据仓库与数据挖掘

研究型课程: 密码学与安全协议、计算机网络安全、信息内容安全、软件安全

讨论型课程: IT 前沿技术、信息安全导论

创新实践课程: 信息安全课程设计

创业教育课程: IT 商业模式与创业

竞教结合课程：高级语言程序设计、算法设计与分析、数据结构

MOOC：数据结构、移动终端开发进阶、密码学与安全协议、Python 语言程序设计

本研共享课：高级计算机网络、最优化高级计算方法、高级数据库系统、高级操作系统与分布式系统、数据库管理及应用、操作系统与系统编程

工作坊：三年级进团队

校企合作课：移动应用开发（Android）（Google）、WEB 程序设计（Google）、高性能计算与云计算（Google, IBM）、移动终端开发进阶版-Android 应用设计与开发（腾讯）

Featured Courses:

Bilingual Courses: Data Structure, Computer Networks, Cryptography and Security Protocol, Computer Graphics and Virtual Reality, Data Warehouse and Data Mining

Research Courses: Cryptography and Security Protocol, Computer and Network Security, Information Content Security, Software Security

Freshmen Seminars: IT Frontier Technology, Introduction to Information Security

Innovation Practice Courses: Information Security Course Design, Innovation Research Training, Innovation Research Practice I, Innovation Research Practice II

Entrepreneurship Courses: IT Business Models and Entrepreneurship

Combination of Teaching and Learning Courses: Advanced Language Programming, Algorithm Design and Analysis, Data Structure

MOOC: Data Structure, Advanced Mobile Application Development, Cryptography and Security Protocol, Python Language Programming

Sharing Courses for Undergraduates and Graduates: Advanced Computer Network, Optimized Advanced Computing Methods, Advanced Database Systems, Advanced Operating Systems and Distributed Systems, Database Management and Applications, Operating Systems and System Programming

Workshops: Junior Students Joining the Research Group

School Enterprise Cooperation Courses: Mobile Application Development (Android) (Google), Web Programming (Google), High Performance Computing and Cloud Computing (Google, IBM), Advanced Mobile Application Development-Android (Tencent)

一、教学计划总体安排表 (General Teaching Schedule)

学 年	学 期	教 学 进 度 安 排 (周)																		理 论 教 学	考 试	入 学 教 育	军 训	课 程 设 计	工 程 训 练	电 子 实 习	综 合 实 验	社 会 实 践	生 产 实 习	毕 业 实 习	其 它 合 作 项 目	中 外 合 作 项 目	毕 业 设 计	就 业 安 排	机 动	假 期	小 计												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18																			19	20										
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R																														
一	1		C	A	A	A	A	A	A	A	A	A	A	A	A	A	B	D	D	D	14	1	1	3																	19								
	2	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	F	F	B	B	16	2				2															20								
二	3	A	A	A	A	A	A	A	A	G	G	A	A	A	A	A	A	A	B	B	16	2				2															20								
	4	A	A	A	A	A	A	A	A	A	A	H	H	A	A	A	A	A	F	B	B	15	2			1		2													20								
三	5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E	E	B	B	16	2			2																20								
	6	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E	E	B	B	16	2			2																20								
四	7	L	L	L	L	L	L	L	A	A	A	A	A	A	A	A	A	A	B	B	10	2																8								20			
	8	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	P	P	P	Q	Q																				15	3	2						
		合 计 (周)																		103	13	1	3	4	3	2	2	0	0	0	8	0	0	15	3	2									159				

二、各类课程学分登记表 (Registration Form of Curriculum Credits)

1. 学分统计表 (Credits Registration Form)

课程类别 Course Category	课程要求 Requirement	学分 Credits	学时 Academic Hours	备注 Remarks
公共基础课 General Basic Courses	必修 Compulsory	61.5	956	
	通识 General Education	10.0	160	
学科基础课 Disciplinary Basic Courses	必修 Compulsory	44.5	800	
	选修 Elective	0	0	
专业领域课 Specialty-related Courses	必修 Compulsory	0	0	
	选修 Elective	22.0	384	
合 计 Total		138.0	2300	
集中实践教学环节 (周) Practice Training (Weeks)		37.0+4.0	41 周	
毕业学分要求 Credits Required for Graduation	138.0+41.0=179.0			

备注：学生在取得专业教学计划规定学分的同时，还必须取得第二课堂 2 个人文素质教育学分和 4 个创新能力培养学分。

2.类别统计表 (Category Registration Form)

学时 Academic Hours					学分 Credits						
总学时数 Total	其中 Include		其中 Include		总学分数 Total	其中 Include		其中 Include			其中 Include
	必修学时 Compulsory	选修学时 Elective	理论教学学时 Theory Course	实验教学学时 Lab		必修学分 Compulsory	选修学分 Elective	集中实践教学环节学分 Practice-concentrated Training	理论教学学分 Theory Course Credits	实验教学学分 Lab	创新创业教育学分 Innovation and Entrepreneurship Education
2300	1756	544	1902	398	179	143	36	41	125	13	17.5

三、专业教学计划表 (Teaching Schedule)

类别 Course Category	课程 代码 Course No.	课程名称 Course Title	是否 必修 C/E	学时数 Total Curriculum Hours				学分 数 Credits	开课 学期 Semester	毕业 要求 Student Outcomes
				总学 时 Class Hours	上机 Computer-aided Class Hours	实验 Lab Hours	实践 Practice Hours			
公共基础课 General Basic Courses	143093	思想道德修养与法律基础 Cultivation of Thought and Morals & Fundamental of Law	必修 课 C	(40) (36)				2.5	2	№8
	143091	中国近现代史纲要 Skeleton of Chinese Modern History		(32) 24				2.0	1	№8
	143106	毛泽东思想和中国特色社会主义理论体系概论 Thought of Mao ZeDong and Theory of Socialism with Chinese Characteristics		(80) 48				5.0	4	№8
	143090	马克思主义基本原理 Fundamentals of Marxism Principle		(40) 36				2.5	3	№8
	143094	形势与政策 Analysis of the Situation & Policy		(128)				2.0	1-8	№8
	144001	大学英语 (一) College English (1)		64				4.0	1	№10
	144002	大学英语 (二) College English (2)		64				4.0	2	№10
	152001	体育 (一) Physical Education (1)		32			32	1.0	1	№12
	152002	体育 (二) Physical Education (2)		32			32	1.0	2	№12
	152003	体育 (三) Physical Education (3)		32			32	1.0	3	№12
	152004	体育 (四) Physical Education (4)		32			32	1.0	4	№12
	106001	军事理论 Military Principle		(16)				1.0	2	№9
	141005	大学物理 II (一) General Physics (1)		64				4.0	2	№1,2
	141006	大学物理 II (二) General Physics (2)		64				4.0	3	№1,2
	141007	大学物理实验 (一) Physics Experiment (1)		32		32		1.0	2	№1,2
	141008	大学物理实验 (二) Physics Experiment (2)		32		32		1.0	3	№1,2
	145218	高级语言程序设计 (C++) (一) Advanced Language Programming (C++) (1)		64	16			3.5	1	№3,5
	145219	高级语言程序设计 (C++) (二) Advanced Language Programming (C++) (2)		32	6			2.0	2	№3,5
	130009	工程制图 Engineering Drawing		48				3.0	2	№1,2,5
	140191	微积分 II (一) Calculus (1)		80				5.0	1	№1,2
	140192	微积分 II (二) Calculus (2)		80				5.0	2	№1,2
	140197	线性代数与解析几何 Linear Algebra & Analytic Geometry		48				3.0	1	№1,2
	140019	概率论与数理统计 Probability & Mathematical Statistics		48				3.0	2	№1,2
		人文科学领域 Humanities		96				6.0		№8
		社会科学领域 Social Science		64				4.0		№8

合 计 Total				1116	22	64	128	71.5		
---------------------	--	--	--	------	----	----	-----	------	--	--

三、专业教学计划表（续）（Teaching Schedule）

类别 Course Category	课程 代码 Course No.	课程名称 Course Title	是否 必修 C/E	学时数 Total Curriculum Hours				学分 Credits	开课 学期 Semester	毕业 要求 Student Outcomes
				总学 时 Class Hours	上机 Computer-aided Class Hours	实验 Lab Hours	实践 Practice			
学科基础课 Disciplinary Basic Courses	145299	信息安全导论 Introduction to Information Security	必	16				1.0	1	№1
	145051	离散数学 Discrete Mathematics	必	64				4.0	1	№1,2
	145285	IT 前沿技术 IT Frontier Technology	必	16				1.0	1	№1
	145287	IT 商业模式与创业 IT Business Models and Entrepreneurship	必	16				1.0	5	№6,9,10
	145216	数字逻辑 Digital Logic	必	32		8		2.0	3	№1,2,3
	145193	信息安全数学基础 Mathematical Fundamentals for Information Security	必	48				3.0	3	№1,2
	145055	数据结构 Data Structure	必	64	16			3.5	3	№3,4
	135002	电路与电子技术 Electric Circuit and Electronics	必	64				4.0	3	№1,2,4
	135037	电路与电子技术实验 Experiment of Electric Circuits and Electronics	必	32		32		1.0	4	№1,2,4
	145196	计算机组成与体系结构 Computer Organization and Architecture	必	64		16		3.5	4	№2,3,4
	145158	操作系统 Operating Systems	必	64	16			3.5	4	№3,4,5
	145036	计算机网络 Computer Networks	必	64		16		3.5	4	№3,4,5
	145148	数据库 Database	必	64	16			3.5	4	№3,4,5
	145214	软件工程 Software Engineering	必	48	16			2.5	5	№3,9,10,11
	145277	密码学与安全协议 Cryptography and Security Protocol	必	48	16			2.5	5	№3,4,5,6
	145034	计算机网络安全 Computer and Network Security	必	48		16		2.5	5	№3,5,6,8

类别 Course Category	课程 代码 Course No.	课程名称 Course Title	是否 必修 C/E	学时数 Total Curriculum Hours				学分 数 Credits	开课 学期 Semester	毕业 要求 Student Outcomes
				总学 时 Class Hours	上机 Computer-aided Class Hours	实验 Lab Hours	实践 Practice			
	145307	软件安全 Software Security	必	48	16			2.5	5	№3,5,6,8
	合计 Total		必 C	800	96	88		44.5		
专业领域课 Specialty- related Courses7	专业必选									
	145308	信息安全管理 Information Security Management	选	40				2.5	5	№3,5,6,8
	145157	PKI 原理与技术 PKI Principles and Techniques	选	48	16			2.5	6	№3,5,6,8
	145298	信息内容安全 Information Content Security	选	48	16			2.5	6	№3,5,6,8
	专业任选									
	145210	Java 程序设计 Java Programming	选	40	8			2.5	2	№3,5
	145153	数学建模与实验 Mathematical Modeling and Experiment	选	40	16			2.0	3	№1,2,3,4
	145279	移动应用开发 (Android) (Google) Mobile Application Development (Android) (Google)	选	48	16			2.5	3	№3,5
	145305	Python 语言程序设计 Python Language Programming	选	32	8			2.0	3	№3,5
	145120	算法设计与分析 Algorithm Design and Analysis	选	64	16			3.5	4	№3,4,5
	145286	Web 程序设计 (Google) Web Programming (Google)	选	48	16			2.5	4	№3,5
	145172	人工智能 Artificial Intelligence	选	40				2.5	5	№4,5,6,7
	145273	高性能计算与云计算 (Google, IBM) High Performance Computation and Cloud Computation (Google, IBM)	选	48	16			2.5	5	№3,4,5
	145176	数字图像处理 Digital Image Processing	选	32	8			2.0	5	№4,5
	145301	网络应用开发 Network Application Development	选	48	16			2.5	5	№3,5
	145100	编译原理 Principles of Compiler	选	56	16			3.0	5	№3,4,5
145154	数据仓库与数据挖掘 Data Warehouse and Data Mining	选	48	16			2.5	6	№4,5,6	

类别 Course Category	课程 代码 Course No.	课程名称 Course Title	是否 必修 C/E	学时数 Total Curriculum Hours				学分 数 Credits	开课 学期 Semester	毕业 要求 Student Outcomes
				总学 时 Class Hours	上机 Computer-aided Class Hours	实验 Lab Hours	实践 Practice			
	145302	大数据技术 Big Data Technology	选	40	8			2.5	6	№3,4,5
	145170	嵌入式系统 Embedded Systems	选	64		16		3.5	6	№3,6,7
	145292	移动终端开发进阶版-Android 应用设计与开发(腾讯) Advanced Mobile Application Development-Android (Tencent)	选	32	8			2.0	6	№3,5
	145280	软件测试与质量保证 Software Testing and Quality Assurance	选	32	8			2.0	6	№5,9,10
	145161	多媒体技术 Multimedia Technology	选	40	8			2.5	6	№4,5
	145022	计算方法 Computation Methods	选	48	8			3.0	6	№1,2,4,5
	145180	网络信息检索 Web Information Retrieval	选	48	16			2.5	6	№3,4,5
	145276	物联网技术 Internet of Things Technology	选	32				2.0	7	№3,6,7
	145164	计算机图形学与虚拟现实 Computer Graphics and Virtual Reality	选	48	16			2.5	7	№4,5,6,7
	145030	智能机器人技术 Intelligent Robot Technology	选	48	12			2.5	7	№3,4,5,6,7
创新创业实践										
	120003	创新研究训练 Innovation Research Training	选 E	32				2.0		№4,12
	120004	创新研究实践 I Innovation Research Practice 1	选 E	32				2.0		№4,12
	120005	创新研究实践 II Innovation Research Practice 2	选 E	32				2.0		№4,12
	120006	创业实践 Entrepreneurial Practice	选 E	32				2.0		№4,12
合计 Total			必 C 选 E							
				选修课修读最低要求 22.0 学分 minimum elective course credits required:22.0						

备注：学生根据自己开展科研训练项目、学科竞赛、发表论文、获得专利和自主创业等情况申请折算为一定的专业选修课学分（创新研究训练、创新研究实践 I、创新研究实践 II、创业实践等创新创业课程）。每个学生累计申请为专业选修课总学分不超过 4 个学分。经学校批准认定为选修课学分的项目、竞赛等不再获得对应第二课堂的创新学分。

四、集中实践教学环节(Practice-concentrated Training)

课程代码 Course No	课程名称 Course Title	是否必修 C/E	学时数 Total Curriculum Hours		学分 Credits	开课学期 Semester	毕业要求 Student Outcomes
			实践 Practice weeks	授课 Lecture Hours			
106002	军训 Military Training	必 C	3周		3.0	1	№9
143197	马克思主义理论与实践 Marxism Theory and Practice	必 C	2周		2.0	假期	№8
145241	高级语言程序设计大作业 Advanced Language Programming Course Design	必	2周		2.0	2	№3,5,9,10,11
130356	工程训练 I Engineering Training	必	2周		2.0	3	№1,2,5,9,10
145078	数据结构大作业 Data Structure Course Design	必	1周		1.0	4	№3,5,9,10,11
141073	电子工艺实习 II Practice of Electronic	必	2周		2.0	4	№1,2,5,9,10
145192	信息安全课程设计 Information Security Course Design	必	2周		2.0	6	№3,5,9,10,11
145083	毕业实习 Graduation Internship	必	8周		8.0	7	№6,8,9,10,11,12
145084	毕业设计 Graduation Project	必	15周		15.0	8	№2,3,6,8,9,10,11,12
145165	计算机网络课程设计 Computer Networks Course Design	选	2周		2.0	5	№3,5,9,10,11
145080	操作系统课程设计 Operating Systems Course Design	选	2周		2.0	5	№3,5,9,10,11
145081	数据库课程设计 Database Course Design	选	2周		2.0	5	№3,5,9,10,11
145242	软件工程课程设计 Software Engineering Course Design	选	2周		2.0	6	№3,5,9,10,11
145171	嵌入式系统课程设计 Embedded Systems Course Design	选	2周		2.0	6	№3,5,9,10,11
合计 Total		必 C	37周		37.0		
		选 E	选修课修读最低要求 4.0 学分 minimum elective course credits required:4.0				

五、第二课堂

第二课堂由人文素质教育和创新能力培养两部分组成。

1.人文素质教育基本要求

学生在取得专业教学计划规定学分的同时，还应结合自己的兴趣适当参加课外人文素质教育活动，参加活动的学分累计不少于 2 个学分。

2.创新能力培养基本要求

学生在取得本专业教学计划规定学分的同时，还必须参加国家创新创业训练计划或广东省创新创业训练计划或 SRP（学生研究计划）或百步梯攀登计划或一定时间的各类课外创新能力培养活动（如学科竞赛、学术讲座等），参加活动的学分累计不少于 4 个学分。

“Second Classroom” Activities

“Second Classroom” Activities consist of two parts, Humanities Quality Education and Innovative Ability Cultivation.

1) Basic Requirements of Humanities Quality Education

Besides gaining course credits listed in the subject teaching curriculum, a student is required to participate in extracurricular activities of Humanities Quality Education according to the interest, while no less than two credits should be achieved.

2) Basic Requirements of Innovative Ability Cultivation

Besides gaining course credits listed in the subject teaching curriculum, a student is required to participate in the following activities: National Undergraduate Training Programs for Innovation and Entrepreneurship, Guangdong Undergraduate Training Programs for Innovation and Entrepreneurship, Student Research Program (SRP), One-hundred-steps Innovative Program, or any other extracurricular activities of Innovative Ability Cultivation that last a certain period of time (e.g. subject contests, academic lectures), while no less than four credits should be achieved.