

物流工程

Logistics Engineering

专业代码: 120602

学 制: 4 年

Program Code:120602

Duration: 4 years

培养目标:

本专业依托学校的工科特色, 融合管理、经济、金融、电子商务等学科优势, 注重实践性和应用性, 强化理论和技术基础, 培养能坚持社会主义道路, 德智体全面发展, 并能从事智能物流发展规划、智能物流系统设计、物流企业管理和运营的研究型人才以及高级技术与管理人才。

Educational Objectives:

The specialty relies on the engineering characteristics of South China University of Technology, integrates with management, economy, finance, e-commerce and other disciplines, pays attention to practical and applied, strengthens the theoretical and technical basis, and aims to develop the research talents and senior technical and management personnel who first adhere to Socialist road; and well-developed morally, intellectually and physically; also are skilled in intelligent logistics development planning, intelligent logistics system design, logistics enterprises management.

毕业要求:

№1.工程知识: 培养学生掌握扎实的专业基本原理、方法和手段等方面的基础知识, 并通过接触和掌握智能物流系统规划、设计、管理、性能分析与评价等方面的先进方法, 为将所学基础知识应用到物流工程与管理领域实践中去做好准备。

№2.问题分析: 能够应用数学、自然科学和物流工程与管理的基本原理, 识别、表达、并通过文献研究分析物流中的复杂问题, 以获得有效结论。

№3.设计/开发解决方案: 能够规划针对复杂物流工程与管理领域问题的解决方案, 设计满足特定需求的物流系统或物流管理流程, 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复杂物流工程与管理领域问题进行研究, 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: 能够针对复杂物流工程与管理领域的问题, 开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具, 包括对问题的预测与模拟, 并能够理解其局限性。

№6.工程与社会: 能够基于物流工程与管理领域相关背景知识进行合理分析, 评价物流系统规划、设计与运营对社会、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物流系统规划、设计与运营的实践对环境、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：能够就复杂物流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：理解并掌握物流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：物流工程专业毕业生能胜任物流管理、物流设施与设备、物流系统、物流信息系统、物流与供应链管理的分析与设计，也能在专业物流机构进行物流发展规划、物流系统设计和物流企业管理等方面的工作，并具备终身学习的能力。

Student Outcomes:

№1.Engineering Knowledge: Training the students to master the basic principles, methods and measures of this discipline, and also make good preparation for applying the basic knowledge to the practice of logistics engineering and management, through learning and mastering those advanced methods including plan, design, management, performance analysis and evaluation of logistics systems.

№2.Problem Analysis: An ability to identify, formulate and analyze complex logistics problems, reaching to substantiated conclusions using basic principles of mathematics, science, and logistics engineering.

№3.Design / Development Solutions: An ability to design solutions for complex logistics engineering and management problems and innovatively design logistics systems or logistics management process that meet specific needs with societal, public health, safety, legal, cultural and environmental considerations.

№4.Research: An ability to conduct investigations of complex logistics engineering and management problems based on scientific theories and adopting scientific methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

№5.Applying Modern Tools: An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex logistics engineering and management activities, with an understanding of the limitations.

№6.Engineering and Society: An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to logistics engineering practice.

№7.Environment and Sustainable Development: An ability to understand and evaluate the impact of logistics engineering solutions in environmental and societal contexts and demonstrate knowledge of and need for sustainable development.

№8.Professional Standards: An understanding of humanity science and social responsibility, being able to understand and abide by professional ethics and standards responsibly in engineering practice.

№9.Individual and Teams: An ability to function effectively as an individual, and as a member or leader in

diverse teams and in multi-disciplinary settings.

№10.Communication: An ability to communicate effectively on complex logistics engineering problems with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions, and communicate in cross-cultural contexts with international perspective.

№11.Project Management: Demonstrate knowledge and understanding of engineering management principles and methods of economic decision-making, to function in multidisciplinary environments.

№12.Lifelong Learning: Make the graduates get the ability of lifelong learning and be competent in the analysis and design of logistics management, logistics facility and equipments, logistics system, logistics information system, logistics and supply chain management, and also be competent in various jobs such as logistics development planning, logistics system design and logistics enterprises management in logistics related firms.

专业简介：

华南理工大学的“物流工程”专业，创建于2003年。建有包括自动化立体仓库、物流仿真等多个综合实验室，逐步形成了以智能物流为核心，融合物流管理、物流经济与供应链金融的专业培养体系。经过十几年建设，华南理工大学物流工程专业在专业条件、师资队伍建设、教学改革与建设、人才质量培养、示范辐射作用等方面取得了很大的成绩，形成了鲜明的专业特色和优势。本专业大多数教师具有丰富的工程实践经验。

Program Profile:

The “Department of Logistics Engineering” in South China University of Technology (referred to as SCUT) was founded in 2003. We have built an automated warehouse and several comprehensive logistics simulation laboratories, gradually formed a professional training system which is composed of intelligent logistics as the core element, supply chain management, logistics economics, and supply chain finance as the other three main elements. After ten years of development, we have made great achievements in terms of professional and technical conditions, faculty team construction, teaching reform and development, talent training and demonstration. We have formed a distinctive professional characteristic as our own core competency. Our faculty team has 13 doctoral faculties, including 4 full professors (3 doctoral supervisors), 4 associate professors and 5 assistant professors. Most of them have rich experience in engineering practice.

专业特色：

以自动化立体仓库实验室为基础，打造智能物流装备以及智能物流系统的教学、科研以及创新与创业平台。在智能物流基础上，设立物流管理、物流经济与供应链金融的专业方向，学生可根据社会需求和自我发展需要作出选择以提高自身的竞争能力。

Program Features:

Based on the automated warehouse, to build the intelligent logistics equipment platform and the intelligent logistics comprehensive system platform (including teaching, research and innovation entrepreneurship). Based on the intelligent logistics, the program will set specialty fields or courses modules including supply chain management, logistics economics, and supply chain finance, while the students can choose these courses and make adjustment according to needs of the society and self-development to improve their competitiveness.

授予学位: 工学学士学位

Degree Conferred: Bachelor of Engineering

主干课程:

物流学导论、供应链管理、运筹学、配送中心设计与管理、物流系统建模与仿真、数据结构与算法、物流信息技术、机电传动控制、微型计算机控制技术、智能物流系统设计。

Core Courses:

Introduction to Logistics, Supply Chain Management, Operational Research, Distribution Center Design and Management, Logistics System Modelling and Simulation , Data Structures And Algorithms, Logistics Information Technology, Mechanical & electrical Transmission Control, Microcomputer Controlling Technique, Design of intelligent logistics system

特色课程:

全英语教学课程: 采购与供应管理、金融学、地理信息系统、国际物流

双语教学课程: 物流学导论、管理学原理

研究型课程: 数据挖掘

新生研讨课: 专业研究方向探讨

专题研讨课: 物联网技术及应用

本研贯通课: 供应链管理

校企合作课: 智能物流系统设计、物联网技术及应用

创业教育课程: 创业教育

Featured Courses:

Courses Taught in English: Purchasing and supply management, Finance, Geographic Information System, International Logistics

Bilingual Courses: Introduction to Logistics, Principles of Management

Research Courses: Data Mining

Freshmen Seminars: Research Interest Seminar

Special Topics: Technology and application of internet of things

Baccalaureate-Master's Integrated Courses: Supply Chain Management

Cooperative Courses with Enterprises: Design of intelligent logistics system , Technology and application of internet of things

Entrepreneurship Courses: Developmental Entrepreneurship

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	大 作 业	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 实 习	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	M	Q	B	B	16	2									1			1		20				
二	3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E	E	B	B	16	2			2											20				
	4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	G	G	B	B	16	2				2										20				
三	5	A	A	A	A	A	A	A	A	A	A	A	A	E	E	E	E	K	B	B	13	2			4					1						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	A	A	A	A	A	A	A	A	A	A	A	A	E	E	E	L	L	B	B	13	2			3					2						20				
	8	O	O	O	O	O	O	O	O	O	O	O	O	O	P	P	P	Q	Q	Q												14	3	3		20				
合 计 (周)																		104	13	1	3	11		2					1	2	1		14	3	4		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	57.0	852	
	通识 General Education	10.0	160	
学科基础课 Disciplinary Basic Courses	必修 Compulsory	36.5	686	
	选修 Elective	10.0	160	
专业领域课 Specialty-related Courses	必修 Compulsory	3.0	56	
	选修 Elective	23.5	376	
合 计 Total		140.0	2290	
集中实践教学环节 (周) Practice Training (Weeks)	必修 Compulsory	37.0	36周+4次	
毕业学分要求 Credits Required for Graduation	140.0+37.0=177.0			

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
2290	1594	696	1930	360	177	133.5	43.5	37	129	11	12

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-ai ded Class Hours	实验 Lab Hours	实践 Practice Hours					
公共基础课 General Basic Courses	143091	中国近现代史纲要 Skeleton of Chinese Modern History	必修课 C	(32) 24				2.0	1	No8		
	143093	思想道德修养与法律基础 Cultivation of Thought and Morals & Fundamental of Law		(40) (36)				2.5	2	No8		
	143090	马克思主义基本原理 Fundamentals of Marxism Principle		(40) 36				2.5	3	No8		
	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	No8		
	143094	形势与政策 Analysis of the Situation & Policy		(128)				2.0	1-8	No8		
	144001	大学英语 (一) College English(1)		64				4.0	1	No10		
	144002	大学英语 (二) College English(2)		64				4.0	2	No10		
	145223	大学计算机基础 Foundations of Computer		32				2.0	1	No5		
	152001	体育 (一) Physical Education (1)		32			32	1.0	1	No12		
	152002	体育 (二) Physical Education (2)		32			32	1.0	2	No12		
	152003	体育 (三) Physical Education (3)		32			32	1.0	3	No12		
	152004	体育 (四) Physical Education (4)		32			32	1.0	4	No12		
	106001	军事理论 Military Principle		(16)				1.0	2	No9		
	140191	微积分 II (一) Calculus(1)		80				5.0	1	No1		
	140192	微积分 II (二) Calculus(2)		80				5.0	2	No1		
	140197	线性代数与解析几何 Linear Algebra & Analytic Geometry		48				3.0	1	No1		
	140019	概率论与数理统计 Probability & Mathematical Statistics		48				3.0	2	No1		
	130009	工程制图 Engineering Drawing		48				3.0	2	No10		
	145268	C++程序设计基础 C++ Programming Foundations		56	16			3.0	2	No1,2,3,4,12		
	168418	数据结构与算法 Data Structures And Algorithms		64				4.0	3	No1,2,3,5		
	168007	数据库原理与应用 Database: Principles and Applications		32				2.0	4	No1,2,5		
		人文科学领域 Humanities		96	通识课 E			6.0(2)		No8		
		社会科学领域 Social Science		64				4.0(2)		No8		
	合计 Total				1012	16		128	67.0			

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 数 Credits	开课 学期 Semester	毕业 要求 Student Outcomes
				总学时 Class Hours	上机 Computer-ai ded Class Hours	实验 Lab Hours	实践 Practice			
学科基础课 Disciplinary Basic Courses	168294	物流学导论 Introduction to Logistics	必 C	38		12		2.0	1	№1,2,3,4 ,5,10
	168019	运筹学 Operational Research	必 C	52	8			3.0	3	№2,4,5,1 0
	168268	供应链管理 Supply Chain Management	必 C	48				3.0	3	№1,2,3,4 ,5,10
	168266	物流信息技术 Logistics Information Technology	必 C	38		12		2.0	3	№1,2,3,4 ,5
	135092	电工与电子技术II Electrical Engineering and Electrontechnics	必 C	64				4.0	3	№1
	135081	电工与电子技术实验 Experiment of Electrical Engineering and Electrontechnics	必 C	24		24		1.0	4	№2
	133091	工程力学I Engineering Mechanics	必 C	48				3.0	4	№1
	174005	统计学 Statistics	必 C	60	16			3.0	4	№1,2,3,4 ,5
	168419	机电传动控制 Mechanical & electrical Transmission Control	必 C	32				2.0	4	№2,3,4,5
	130083	机械设计基础 Basis of Mechanical Design	必 C	48				3.0	5	№5
	130310	机械基础综合实验I Poly-experiment of Mechanical Fundamentals	必 C	10				0.5	5	№3
	168420	物流系统建模与仿真 Logistics System Modelling and Simulation	必 C	80	48	16		3.0	5	№2
	168421	微型计算机控制技术 Microcomputer Controlling Technique	必 C	36		8		2.0	5	№1,2,3,4 ,12
	168422	智能物流系统设计I Design of Intelligent Logistics System I	必 C	28		24		1.0	5	№1,3,5,9
	168424	物流管理实验 Logistics comprehensive experiment	必 C	32		32		1.0	6	№1,2,4,9 ,10
	168423	智能物流系统设计II Design of intelligent logistics system II	必 C	32				2.0	6	№2,3,4,5 ,6,10
	168425	毕业设计(论文)专题讲座 series of lectures on graduation thesis (design)	必 C	16				1.0	6	№1,2
	168293	专业研究方向探讨 Research Interest Seminar	选 E	16				1.0	1	№6,7,9,1 0 №12
	168120	国际物流 International Logistics	选 E	48				3.0	2	№1,2,3,4 ,6,7,11
	168165	运作管理 Operations Management	选 E	32				2.0	3	№2,3,4,5
	168353	物流配送理论与应用 Theory and Application of Logistics Delivery	选 E	32				2.0	4	№1,2,3, 4
	168003	经济学原理 Principles of Economics	选 E	64				4.0	5	№1,2,12
	168477	批判性思维 Critical Thinking	选 E	32				2.0	6	№6,7
			合计 Total	必 C	686	72	128		36.5	
			选 E	选修课修读最低要求 10.0 学分 minimum elective course credits required:10						

专业领域课 Specialty-related Courses

168327	配送中心设计与管理 Distribution Center Design and Management	必 C	56		16		3.0	5	№1,2,4,5,10
168110	物流成本管理 Logistics Cost Management	选 E	32				2.0	3	№1,2,3,4
168241	采购谈判与招标采购实务 Procurement Negotiations and Bidding Practices	选 E	32				2.0	3	№1,2,3,5,8,9,10,11
168417	Python 程序设计基础 Python Programming	选 E	40	16			2.0	4	№1,2,4,5,12
168295	数据挖掘 Data Mining	选 E	56	16			3.0	4	№1,2,3,4,5
168351	物流博弈基础 Fundamental of Logistics Game Theory	选 E	32				2.0	4	№1,2,4,10,11
168122	采购与供应管理 Purchasing and supply management	选 E	48				3.0	5	№10,11
168426	交通运输规划与布置 Traffic Tansport Planning and Layout	选 E	32				2.0	6	№1,2,4,5,10
168012	电子商务概论 Introduction to E-commerce	选 E	32				2.0	5	№1,2,3,7
168384	地理信息系统 Geographic Information System	选 E	48	16			2.5	5	№1,2,3,4,5,10
168427	系统分析与设计方法 System Analysis and Design Methods	选 E	32				2.0	6	№1,2,3,5,6,10
168242	人因工程学 Human Factors	选 E	48				3.0	6	№1,3,6
168428	创业教育 Developmental Entrepreneurship	选 E	32				2.0	6	№1,2,3
168429	物联网技术及应用 Technology and Application of Internet of Things	选 E	32				2.0	6	№2,3,4,5
168041	ERP 原理与应用 Theory & Application of ERP	选 E	56		16		3.0	6	№2,3,4,5,9
168175	网络营销 Network Marketing	选 E	48				3.0	6	№1,2,3,4
168159	金融学原理 Principle of Finance	选 E	48				3.0	6	№1,2,3,6,9,11
175113	管理学原理 The Principle of Management	选 E	48				3.0	7	№1,2,4
168320	技术经济学 Technological Economics	选 E	48				3.0	7	№1,2,3,6,9,11
175010	会计学原理 Principles of Accounting	选 E	48				3.0	7	№1,2,9,12
174080	商务英语 Business English	选 E	32				2.0	7	№8,9,10,12
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 I	选 E	32				2.0		№4,12
120005	创新研究实践 II Innovation Research Practice II	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	56		16		3.0		
		选 E	选修课修读最低要求 23.5 学分 minimum elective course credits required:23.5						

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		学分数 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
175057	认知实习 Cognitive practice	必 C	1 周		1.0	2	№6,7,9,10,11
168430	数据结构与算法课程设计 Course Project of Data Structures and Algorithms	必 C	2 周		2.0	3	№1,2,3,5,9,10
130356	工程训练 I Engineering Training I	必 C	2 周		2.0	4	№3
168084	生产实习 Production Practice	必 C	1 周		1.0	5	№6,7,9,10,11
130195	机械设计基础课程设计 Course Project of the Basis of Mechanical Design	必 C	2 周		2.0	5	№2
168238	物流系统建模与仿真课程设计 Course Project of Logistics system Modelling and Simulation	必 C	2 周		2.0	5	№1,2,3,4,5,6
168328	配送中心设计与管理课程设计 Course Project of Distribution Center Design and Management	必 C	2 周		2.0	6	№1,2,3,4,5,10
168431	智能物流系统设计课程设计 Course Project of Design of Intelligent Logistics System	必 C	3 周		3.0	7	№2,3,4,5,6,9,10
168068	毕业实习 Graduation Field Work	必 C	2 周		2.0	7	№6,7,9,10,11
168069	毕业设计（论文） Final Year Project	必 C	14 周		14.0	8	№1,2,3,4,5,6,7,10
168131	名师讲座 Academic Lecture	必 C	4 次		1.0		№6,7,10,11,12
合计 Total		必 C	36 周 +4 次		37.0		

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。

5. “Second Classroom” Activities

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

1) Basic Requirements of Humanities Quality Education

Besides gaining course credits listed in one’s subject teaching curriculum, a student is required to participate in extracurricular activities of Humanities Quality Education based on one’s interest, acquiring no less than two credits.

2) Basic Requirements of Innovative Ability Cultivation

Besides gaining course credits listed in one’s subject teaching curriculum, a student is required to participate in any one of 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), acquiring no less than four credits.